



United Nations  
Bureau International des Expositions  
Ministry of Housing and Urban-Rural Development of the People's Republic of China  
Shanghai Municipal People's Government

# SHANGHAI MANUAL

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**A GUIDE FOR  
SUSTAINABLE URBAN DEVELOPMENT  
IN THE 21ST CENTURY · 2016**

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城市，让生活更美好  
**Better City, Better Life**



# Preface 1

Five years have come to pass since the Shanghai Manual was first published for the Expo 2010. Its aim at the outset was to support mayors and urban managers as they try to foster sustainable urban development in their communities, and it has proven to be an essential reference, much due to the position of cities in their role at the forefront of finding and testing new development solutions.

We believe that in the context of the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) the updating of the Manual is an imperative task, which aligns with our initial vision of the Shanghai Manual as a living document, to be continuously revised and improved while incorporating new and emerging models and approaches, based on lessons learned and urban solutions applied in different parts of the world.

A New Urban Agenda will be adopted in Quito, Ecuador, in October during Habitat III. The New Urban Agenda will be a commitment to a paradigm shift towards making better cities for all. The United Nations, national and local governments, city managers, practitioners and everyday citizens will all greatly benefit in our common effort to implement this New Urban Agenda that will harness the potential of cities as an engine of sustainable development and inclusive economic growth.

Critical analysis and summaries on model cases complement the updated version of the Shanghai Manual, which focuses on inclusive cities, innovations and low carbon solutions, creative and livable cities, as well as improving all aspects of urban governance. This edition of the Manual is an even greater opportunity to measure complex issues than the previous one, as it not only inherits the previous document's virtues but also includes many new projects and cases. Some cases have an intrinsic connection to Habitat III since they share many principles and values of the New Urban Agenda.

Using this opportunity, I would like to praise the editorial team for their selections, thorough description and analysis, as well as express my gratitude for

the hard and accurate work of the revision committee.

The Shanghai Manual 2016 is the product of a fruitful collaboration between the Ministry of Housing and Urban-Rural Development of the People's Republic of China, the Municipal Government of Shanghai, the Bureau International des Exhibitions, and the United Nations.

It will be launched commemorating the World Cities Day celebration, which was created based on the legacy of the Shanghai Expo of 2010, and set as a global recurring event by the United Nations on 31 October each year. World Cities Day is a mission with two objectives: to build on the inheritance of the EXPO legacy, and to increase and strengthen world-wide collaboration for the development of our present and future cities.

I wish to extend my most sincere congratulations for the launch of Shanghai Manual 2016 to all the partners. I realize that there is no one-size-fits-all solution to urban problems, but the Manual certainly helps us in discussing the realities of our shared challenges and to work towards practical solutions, which benefits all sides and act as catalyzers for up-scaling, sharing and adaptations. I hope to further develop our partnership and work together in the coming years to bring this plan to the United Nations and to the world.



Dr. Joan Clos

Executive Director of United Nations Human Settlements Programme  
(UN-Habitat) and Secretary-General of the United Nations Conference on Housing  
and Sustainable Urban Development (Habitat III)

October, 2016

## Preface 2

Six years after the closing of Expo 2010 Shanghai, its legacy lives on. While the Expo transformed the overall appearance and infrastructure of the city, its spiritual legacy represented by the ideas and practices of the *Shanghai Declaration* for future development carries forward.

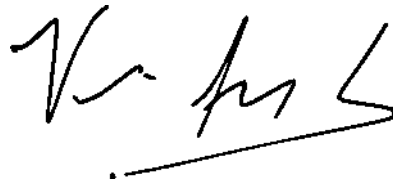
Shanghai 2010 inspired a mindset of cooperation, solidarity and openness. It created a real educational experience by engaging citizens, involving cities as active players and major international organisations. Through the exhibitions and thematic forums, the Expo provided the stage for exchange, discussion and experimentation in a non-confrontational, constructive, practical and universal way.

The *Shanghai Manual* embodies the principles and spirit of the *Shanghai Declaration* and the lessons and outcomes from both within and beyond Expo 2010. Together with the World Cities Day, sanctioned by the United Nations and celebrated on the 31<sup>st</sup> October, it represents a concrete outcome of the rich legacy of Shanghai 2010 to promote sustainable urban development for a better quality of life.

This second edition of the manual continues to fulfil the joint aspirations of the United Nations, the Ministry of Housing and Urban-Rural Development of China, Shanghai Municipal Government and the BIE, to share knowledge and capacity building for cities around the world, to foster cooperation and exchange in urbanisation and promote training in urban sustainable development, thus generating a positive multiplier effect.

The *Shanghai Manual* has served and will continue to serve as a collection of experiences and expertise drawn from around the world on how we can create together a sustainable urban future. It is my belief that the manual will become a

guidebook for world city managers and researchers in their quest for innovative models of urban development, economic efficiency, eco-friendliness and social justice and harmony.

A handwritten signature in black ink, appearing to read 'Vincente Gonzalez Loscertales', with a long horizontal stroke extending to the right.

Vincente Gonzalez Loscertales  
Secretary General of Bureau International des Expositions  
October, 2016

## Preface 3

It's been five years since the first edition of *Shanghai Manual* was published in 2011. During the five years, urban development has entered a new historical era worldwide.

Take China for example, thanks to the reform and opening up, its urbanization rate rose from 17.9% in 1978 to 56.1% in 2015, and 770 million Chinese people are living in cities. The urban infrastructure keeps improving, the urban management and public service level keeps rising, residents' living conditions are obviously better, cities' historical and cultural traditions are carried forward, and the living environment is notably better. China's achievements in urban development have attracted worldwide attention.

However, China is faced with similar situations as other developing countries. While we are happy to see the affluent material life, amenities, and cultural life and entertainments that cities bring to us, we've also found that we are still faced with many challenges in population, resources, environment, and so on in urbanization drive. How to seize the opportunities for urban development? How to deal with the risks that come along with rapid urbanization? Those will be the questions that government administrators, experts and scholars, corporate managers, and citizens have to think about urbanization in the future.

Under such a historical background, bearing a historical mission, we publish *Shanghai Manual • 2016: A Guide for Sustainable Urban Development in the 21st Century* through the platform of World Cities Day to build *Shanghai Manual* into a brand. In the future, we will strengthen our cooperation with the United Nations, Bureau International des Expositions, and other international organizations and increase our exchanges with all the other countries and cities in the world to learn from one another, jointly compose a new chapter in the history of human urban

development, build a harmonious, livable and happy home, and create a bright future for cities!

陈 政 高

Minister of Housing and Urban-Rural Development of  
the People's Republic of China

October, 2016



## Preface 4

In 2010, the first ever registered World Expo themed on cities was successfully held in Shanghai. In order to carry on and promote the general theme of “Better City, Better Life” of World Expo 2010 Shanghai, the United Nations, Bureau International des Expositions, and Shanghai Expo Executive Committee jointly compiled the first edition of *Shanghai Manual*, a collection of outstanding cases of sustainable urban development that offers new experiences to world cities. The latest edition of *Shanghai Manual* focuses on new practices in urban sustainable development around the globe in recent years and incorporates a group of representative and prospective cases to further help cities to learn from achievements of sustainable development and innovate in urban development models.

This year, we will usher in another global event on urban development—the United Nations Conference on Housing and Sustainable Urban Development. With great delight, we hear that *Shanghai Manual · 2016* will be officially released at the conference thanks to the joint efforts of the United Nations, Bureau International des Expositions, Ministry of Housing and Urban-Rural Development of the People’s Republic of China and Shanghai Municipal People’s Government. This represents not only an important response to the New Urban Agenda promoted by the conference, but also the good wishes of Shanghai people to the success of the conference.

The goal of Shanghai’s economic and social development by 2020 is to form a basic framework of a Sci-Tech Innovation Center with global influence, and substantially become an international economic, financial, trade and shipping center and a modern international metropolis. To this end, Shanghai will embrace and practice the philosophy of innovative, coordinated, green, open and shared development, adhere to the road of sustainable development, and join hands with cities around the world for a better common future!



Mayor of Shanghai

October, 2016



## Acknowledgements

The compilation of this Manual is attributable to the contribution of numerous people.

Dr. Joan Clos, Executive Director of UN-Habitat, Ms. Ana B. Moreno, Habitat III Secretariat Coordinator, and Mr. Shen Jianguo, Inter-regional Adviser of the UN-Habitat have given guidance and advice on the direction and content framework of the Manual, and contributed to the release of the Manual on the platform of United Nations Conference on Housing and Sustainable Urban Development.

Secretary General Vincente Gonzalez Loscertales and Deputy Secretary General Dimitri Kerkentzes from Bureau International des Expositions (BIE) have provided us with their support and assistance in the compilation of the Manual. ‘Better City, Better Life’ —the theme of Expo 2010 Shanghai can be inherited and developed with *Shanghai Manual* as a carrier. We believe this is also the common wish of all colleagues in BIE.

Minister Chen Zhenggao, Deputy Minister Yi Jun, Director-General Zhang Xingye, Deputy Director-General Li Liping and Ms. Zhao Wenhua from Ministry of Housing and Urban-Rural Development of the People’s Republic of China and other colleagues from Ministry of Foreign Affairs have given us support and guidance, as well as precious opinions and suggestions for modification in the compilation and review process of the Manual.

We appreciate the great support and care of Mayor Yang Xiong, Deputy Mayor Jiang Zhuoqing and Deputy Secretary-General Huang Rong of Shanghai Municipal Government to the compilation of this Manual. Our deep appreciation also goes to Director-General Gu Jinshan and Chief Engineer Liu Qianwei from Shanghai Municipal Commission of Housing, Urban-Rural Development and Management, Mr. Bi Guiping and Mr. Cheng Jian from Comprehensive Planning Division, Mr. Yang Zhiming and Ms. Yang Zhuomin from Shanghai Coordination Center of World Cities Day and other participants for their efforts made in the compilation of the Manual and the coordinating work.

Shanghai Coordination Center of World Cities Day organized several expert

teams to participate in the compilation and revision of each chapter of the Manual with chief experts for each team including Chief Engineer Xia Liping from Shanghai Urban Planning and Design Research Institution, Professor Yu Hai from Fudan University, Professor Zhang Xueliang from Shanghai University of Finance and Economics, Professor Zhu Dajian from Tongji University, Mr. Wu Jianzhong, Director of Shanghai Library, and Research Fellow Yu Hongyuan from Shanghai Institutes for International Studies, et al (in the order of the chapters). We also would like to take this opportunity to express our sincere thanks and respect to team members who participated in the writing of the chapters in compilation of this Manual for their outstanding contribution.

Furthermore, special thanks also go to Managing Vice President of Tongji University Professor Wu Jiang, Research Fellow Ji Lude from Shanghai Institutes for International Studies, Research Fellow Tu Qiyu from Shanghai Academy of Social Sciences, Research Fellow Hu Suyun, Associate Research Fellow Deng Zhituan, Associate Research Fellow Tang Wei, Associate Research Fellow Lin Lan, Associate Research Fellow Xiao Lichun, Assistant Research Fellow Yang Chuankai, Associate Research Fellow Su Ning, Associate Research Fellow Li Jian, et al. They have also made great contribution in the final compilation and editing of the Manual.

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## Background of *Shanghai Manual*

### 1. *Shanghai Manual*(Version 2011)

In the *Shanghai Declaration* (the Declaration) issued at the World Expo 2010 Shanghai China Summit Forum, the United Nations, Bureau International des Expositions and the Shanghai 2010 World Exposition National Organizing Committee jointly proposed the ‘October 31<sup>st</sup>, the closing day of the World Expo 2010 Shanghai China, be nominated as “World Cities Day”’. The Declaration also proposed ‘including the key intellectual achievements of exhibitions, forums and the Urban Best Practices Area at World Expo 2010 Shanghai China in a *Shanghai Manual* and promote it worldwide’.

Combining the world’s leading concepts and individual city cases, *Shanghai Manual*(the Manual) is expected to be a reference for urban management and construction in the developing countries. The aforesaid three parties also reached an agreement to employ the Manual as a reference book in the regular training of urban managers in China and in other relevant countries. Given that *Shanghai Manual* is a quasi-legal and quasi-informal joint publication, the three parties also made consensus to maintain the Manual’s openness and continuity so that it will be kept as a living document. On November 7<sup>th</sup>, 2011, both the English and Chinese versions of *Shanghai Manual—A Guide for Sustainable Urban Development in the 21<sup>st</sup> Century* jointly compiled by the three parties were officially published, winning widespread accolades across the world.

The *Shanghai Manual*(Version 2011) adopts the logical structure of *Shanghai Declaration* as the primary framework, and takes into full consideration of the major issues occurring in the global urbanization and corresponding

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\* Foreword is compiled by Shanghai Urban Planning and Design Research Institute, written by Xia Liping, Lu Ke, Du Fengjiao and ZongMinli.

solutions. The Manual is composed of 10 key chapters regarding the sustainable urban development, namely Urban Management, Economic Transformation, Informatization, Scientific and Technological Innovation, Cultural Inheritance, Green Building, Waste Management, Traffic Management, and Large-scale Activities. Each chapter emphasizes on strengthening integration inside administration authority, giving full play to the residents' initiatives in the community, setting development goals per the city's current conditions, and appropriately assessing and adjusting the goals.

## 2. 2030 Agenda for Sustainable Development

In August 2015, the adoption of the Post-2015 Development Agenda by representatives of 193 United Nations member countries marked the first ever agreement reached by consensus on the concept of development in the human society thus had epoch-making significance. On September 25<sup>th</sup>, the official ratification of the 2030 Agenda for Sustainable Development at the United Nations Summit officially brought about a historical opportunity to all member states. They jointly passed a series of worldwide goals aiming at eradicating poverty, protecting the earth, and ensuring the prosperity shared by all.

The 2030 Agenda for Sustainable Development is primarily concerned with economic development, social progress and environmental protection, which form an organic whole and none of these three can be excluded. Thus this Agenda applies to all countries in the world, be it poor or rich; since all these member states have participated in the discussions. 'The 2030 Agenda for Sustainable Development has a strong and solid foundation'.

The 17 sustainable development goals and 169 targets in the agenda can be divided into five categories, namely people, planet, prosperity, peace and partnership. It is a road map designed to eradicate global poverty so that everyone can live a life with dignity and no one will be left behind. These goals are:

Goal 1. End poverty in all its forms everywhere

Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Goal 3. Ensure healthy lives and promote well-being for all at all ages

Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Goal 5. Achieve gender equality and empower all women and girls

Goal 6. Ensure availability and sustainable management of water and sanitation



for all

Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Goal 10. Reduce inequality within and among countries

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

Goal 12. Ensure sustainable consumption and production patterns

Goal 13. Take urgent action to combat climate change and its impacts

Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

### 3. Habitat III and New Urban Agenda

While the international community is working on formulating the 2030 Agenda for Sustainable Development, the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) will be held in Ecuador's capital city, Quito, from October 17–20, 2016. The theme of the conference is to explore and discuss the sustainable urbanization and the future of our existing cities. During this period of rapid urbanization, this bi-decennial UN global summit is the sole international conference focused on the topics of cities and human settlements. Habitat I and Habitat II were held in Vancouver, Canada and Istanbul, Turkey respectively in 1976 and in 1996, mainly discussing the urban and housing challenges across the globe, as well as the future policies for sustainable urban development. In October 2016, leaders of various countries and global stakeholders will gather at Habitat III to reinvigorate global commitment to sustainable

urbanization, and set a goal and direction for world cities development for the next 20 years, by adopting a New Urban Agenda.

The process towards Habitat III includes the elaboration of 22 Issue Papers and the creation of 10 Policy Units. The Habitat III Issue Papers are summary documents that address one or more research areas, highlight general findings, and identify research needs on topics related to housing and sustainable urban development. The Habitat III Policy Units bring together high-level expertise to explore state-of-the-art research and analysis; identify good practice and lessons learned; and develop independent policy recommendations on particular issues regarding sustainable urban development. They are intended to identify challenges and critical issues as well as the development of action-oriented recommendations for implementation of the New Urban Agenda. The policy units are composed by 20 experts, bringing together individual experts from a variety of fields, including academia, government, civil society, and other regional and international bodies<sup>1</sup>. Pursuant to the Habitat III Zero Draft of the New Urban Agenda released in May 2016, the *New Urban Agenda* will be continuously focused on sustainable urban development, including poverty eradication, providing basic services, cultural heritage conservation, diversified participation, inclusive growth, ecological environment, climate change, disaster control, etc. The draft will put forward implementation suggestions based on multiple aspects such as urban planning management, land, transport, housing, infrastructure, culture, economy, and science and technology at different levels including national, sub-national and local governments<sup>2</sup>.

## Shanghai Manual Update

### 1. Update Background

In 2015, the *Shanghai Manual* was slated to be a continuation of ‘World Cities Day’ providing first-hand reference material for scholars engaged in relevant studies, and sparing real cases on solving existing urban problems for mayors and urban managers in China together with cities in the world.

The Manual’s chapters and cases have been updated through extensive adoption

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<sup>1</sup> UN. The Habitat III Issue Papers. New York, 31<sup>st</sup> May 2015.

<sup>2</sup> UN. Habitat III Zero Draft of The New Urban Agenda 6<sup>th</sup> May 2016.

of latest achievements in China and overseas in the field of sustainable urban development, and broad communication with Chinese and foreign urban managers, experts, scholars and international organizations including the United Nations as well as the business world.

## 2. The Structure of the Manual

Based on a comprehensive analysis of status quo, problems and future trends of global urbanization and sustainable urban development, the new round of compilation combines the relevant agenda-settings in the United Nations' 2030 Agenda for Sustainable Development and Habitat III, and has reached consensus with the United Nations, Bureau International des Expositions and other partners. The compilation focuses on five fields, namely Social Integration and Inclusive Cities, Economic Development and Innovative Cities, Green, Low-Carbon and Resilient Cities, Cultural Heritage and Creative Cities, and Public Services and Liveable Cities. By extracting and summarizing from model cases of sustainable urban development in the process of global urbanization, the Manual proposes specific opinions and suggestions on how to develop cities of various types, and facilitates understandings on advanced achievements accomplished through sustainable development, and innovation of development models in cities in the world. Apart from the Foreword and Postscript, the Manual is divided into the following six chapters:

### Chapter 1 Urbanization and Sustainable Urban Development

This chapter reviews global urbanization post World Expo 2010 Shanghai, China, carries out brief analysis of major challenges faced by cities in the world, and puts forward future development trends and vision.

### Chapter 2 Social Integration and Inclusive Cities

This chapter follows the theme of integration and inclusiveness, and reveals that the biggest social problem faced by cities' development is brought about by inequality and exclusion. Inequality and exclusion, which are associated with certain groups of people and are represented by spatial layout, have influenced every aspect of human development. Vision and measures for inclusive urban development are expressed from four perspectives: participation, sharing, inclusion and equality. The cases in this chapter, especially the one from Shanghai, which provides grass-roots experiences in the inclusive city concept, has universal significance for sustainable urban development in the context of Cities for All.

### Chapter 3 Economic Development and Innovative Cities

Rapid urban economic growth is the result of a combination of factors, including industrial structure, technological innovation, capital allocation, labor input, human capital investment and natural resource utilization. By combining the in-depth analyses of these factors mechanisms and approaches with the lessons drawn from success of cities in other countries and regions as well as the city's characteristics, we can improve the efficiency and quality of economic development. The chapter provides referential experience for designing urban management systems and policies by selecting typical urban economic development and innovation cases, and by conducting specific analyses of these cities' success in economic development, innovation, and countermeasures they have taken against different problems.

### Chapter 4 Green, Low-Carbon and Resilient Cities

This chapter comprises of one main topic and four subtopics. The main topic refers to green development while the four subtopics are low carbon, recycling, flexibility and Not In My Back Yard(NIMBY). Upon a general analysis of the key problems and challenges faced by cities in post-2015 sustainable development, this chapter discusses prominent problems in the fields of urban green innovation, low-carbon city, resilient city, NIMBY movement and environment treatment. Based on the analysis of model selection, improvement approach and corresponding means for sustainable urban development, the chapter probes into key measures for urban green transformation in four dimensions, namely the city type, system innovation, intensive space and service economy in a broad sense. The chapter selects 6 city cases that correspond to the main fields, and then puts forward five suggestions for policy making.

### Chapter 5 Cultural Heritage and Creative Cities

As an important pillar of sustainable development culture has been included in the three topics in this chapter, i.e., economic development, social inclusion and environmental protection. This chapter elaborates on the new challenges faced by cities brought by rapid urbanization and countermeasures undertaken by selecting city cases based on three aspects-cultural heritage protection, cultural and creative industry development, and multi-cultural inclusiveness. In combination of case studies and experience, this chapter puts forward suggestions for policy making in three aspects, i.e., protecting heritage by utilizing sustainable development philosophies; developing cultural creative industry and building an atmosphere for cultural creation in a comprehensive way, and enhancing creative cities with greater

soft power; and implementing a development model with cultural sensitivity, and promoting diversity and variety in a city's culture.

#### Chapter 6 Public Services and Liveable Cities

By focusing on establishing software, hardware and heartware systems for liveable cities, this chapter discusses how to eventually build a harmonious liveable city where people live safely and happily. It is viewed from the perspective of how to provide facilities that meet basic human needs in life, which include infrastructure, transportation, basic housing, and good public services that can ensure adequacy, comfort, safety and convenience of living and residing. This chapter also focuses on employing a people-oriented approach, and showing respect and humanistic care towards urban residents in the process of urban development. The five cases in this chapter highlight characteristics of the above-mentioned three aspects respectively.

*Shanghai Manual* (Version 2016) follows the same format and style as Version 2011. Each chapter is composed of problems and challenges, vision and measures, reference cases, and suggestions for policy-making that are highly practical and viable.



# Chapter 1

## Urbanization and Sustainable Urban Development



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We aspire to build cities that establish harmony between diverse people, between development and environment, between cultural legacies and future innovations. A City of Harmony reveals itself when people are in harmony with nature, society, and themselves, and when there is also harmony between generations.

—Excerpted from *Shanghai Declaration*



# Status Quo\*

## 1. Urbanization

### 1.1 Urban Population

A century ago, only 20% of the world's population lived in cities. In the least developed countries, this percentage was as low as 5%. That is to say, most people at that time lived in rural areas. After then, the world has been going through a process of rapid urbanization. By 1950, the proportion of urban population had reached 30%. The year 2009 marked a historic turning point as the world's urban population exceeded the rural population for the first time ever. This milestone event marked the approach of a new 'urban millennium'.<sup>1</sup> In May 2016, the *World Cities Report 2016*, issued by the United Nations Human Settlements Programme (UN-Habitat), indicated that 54% of the world population (4 billion) lives in the city, of which one-fifth of the world population now lives in the top 600 major cities and contributes up to 60% of the global GDP.

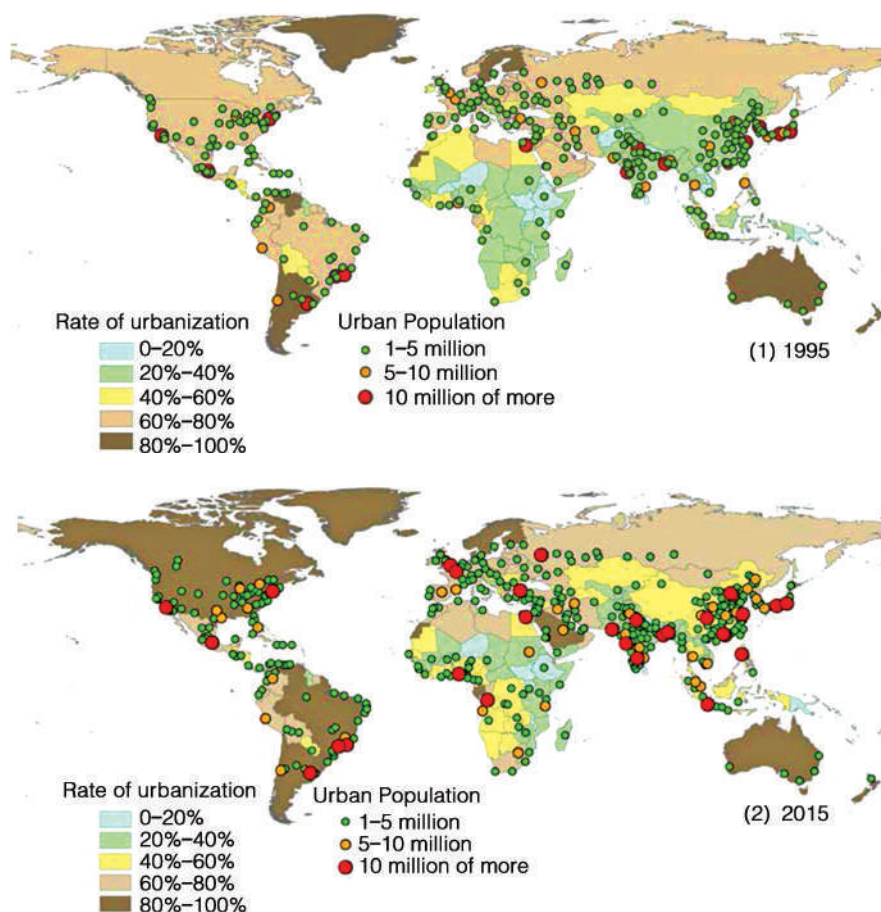
It was reported that, by the end of 2015, the number of 'megacities' (those with a population exceeding 10 million) worldwide had increased to 28, of which 22 are located in Latin America, Asia and Africa. The fastest growing cities, however, are the medium and small cities with less than one million inhabitants, which currently account for 59% of the world's urban population. Furthermore, the migrant populations forced by international conflicts continuously cross international borders, for example Europe absorbed an influx of over 1.5 million people in 2015 alone. Such trends have brought many new challenges to cities worldwide, such as the epidemic of crime and violence, terrorism and diseases, racial discrimination and hatred.<sup>2</sup>

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\* Chapter 1 is compiled by Shanghai Urban Planning and Design Research Institute, written by Xia Liping, Lu Ke, Du Fengjiao, Zong Minli.

<sup>1</sup> Compiled by UN-Habitat, translated and edited under the organization of Department of Planning, Finance and Foreign Affairs of Ministry of Housing and Urban-Rural Development of the People's Republic of China. *State of the World's Cities 2012/2013*. Beijing: China Architecture & Building Press, 2014.

<sup>2</sup> *World Cities Report 2016* issued by UN-Habitat, <http://www.un.org/chinese/News/story.asp?NewsID=26177>.



Source: *World Cities Report 2016*.

Figure 1.1 Global Patterns of Urbanization in 1995 and 2015

## 1.2 Land Urbanization

In developed cities, land shortage is an inevitable challenge of urbanization. Since the land supply is so fixed in cities such as Tokyo, New York, and London, and due to a number of industries's fast expansion and a rising number of people flocked into these city centers, there has been serious short supply of land, which has imposed inherent restraint on further, sustainable development. However, cities in developing countries are expanding rapidly in discontinuous, dispersed and low-density forms, largely driven by the use of vehicles and land speculation. Suburban sprawl is common in these cities that now extend far beyond the city's formal administrative boundaries, often resulting in inefficient use and waste of land resources.

UN-Habitat's study of 120 cities in the world shows that on average, urban land growth is twice that of urban population growth. For example, in Mexico all the cities have annually expanded by 7.4% on average in space in the last 30 years, which is nearly four times greater than their population growth. In India, from 2000 to 2011, built-up areas in almost all the major cities, including Mumbai, Bangalore,

Pune, Jaipur, and Calcutta, grew faster than the population did. As cities' expansion seem endlessly, urban texture becomes highly fragmented. Around cities, residential areas are characterized by a low density and built-up areas are scattered on the periphery of cities.<sup>1</sup> Urban population in developing countries is predicted to double by 2030 while the land area covered by cities is expected to triple.

As cities undergo dramatic changes in appearance, rapid urbanization means a series of challenges which, in the absence of proper planning and management, will result in unsustainable growth. Therefore, there is an urgent need for a cohesive and practical New Urban Agenda, which can unleash the driving forces for changes in cities and towns as well as can make effective future planning to promote sustainable urban development.<sup>2</sup>

## 2. Cyberization

The number of global netizens has currently exceeded 3 billion, nearly half of the world's population, and this figure increases by 6.2% on average each year.<sup>3</sup> Cyberization and informatization are gradually changing all the aspects of people's work and life styles. The Internet has altered both the geographical and psychological distances between two people, or two things or between one person and one thing. It has also changed interpersonal relationships, socioeconomic relations, and sociocultural relations by facilitating easier interpersonal communication and strengthening the division of labor and cooperation between people.

### 2.1 Networked Economy

Networked economy refers not only to changing the circulating means of information on economic activities and increasing the frequency and efficiency of economic exchanges by the Internet, but also to closer cooperation between countries of different division of labor. Global economic activities have now extended far beyond national boundaries and economic activities. Capital flow, technology export, foreign trade, services or production have been organically linked on a truly global scale.

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<sup>1</sup> Compiled by UN-Habitat, translated and edited under the organization of Department of Planning, Finance and Foreign Affairs of Ministry of Housing and Urban-Rural Development of the People's Republic of China. *State of the World's Cities 2012/2013*. Beijing: China Architecture & Building Press, 2014.

<sup>2</sup> The *World Cities Report 2016* issued by UN-Habitat, <http://www.un.org/chinese/News/story.asp?NewsID=26177>.

<sup>3</sup> Niu Wenyuan (chief editor). *Annual Report for World Sustainable Development 2015*. Beijing: Science Press, 2015.

In the field of international production, division of labor has become increasingly specialized and an international production network system has been formed. Economic and trade cooperation between countries becomes closer. A series of bilateral, multilateral or regional negotiations have become important strategic initiatives to expand the cooperation between countries and enhance the vitality of economic growth. Frequent international capital flow has promoted the internationalization of financial investment. Every country not only eases the control of international investment, but also takes measures to encourage investment in foreign countries. Moreover, research and development (R&D) becomes increasingly international as advanced technologies and R&D capabilities are shared more easily across borders in a large scale.

## 2.2 Networked Social Interaction

The Internet has broken the traditional constraints of time and space. The globalized social networks represented by Facebook, Twitter, LinkedIn, QQ, and WeChat have established new cross-border, cross-ethnic and cross-culture online communities with over one billion members.<sup>1</sup> Social networks make people's social behaviors more transparent. Such online openness and sharing subsequently drives cities to evolve towards greater offline openness. Simultaneously, social networks have promoted cross-culture identity and brought profound changes in the large-scale global culture. In addition, social networks have also promoted innovations in social governance modes and the data accumulated through social networks have been used for urban governance, for example, urban environmental monitoring, public health, criminal networks, and predictions about the spread of diseases.

At the same time, networking also contributes to more complex problems. The virtual communities have subverted, redefined and reformed the rules and standards of people's behavior that traditionally governed the society.<sup>2</sup> 'The World Is Flat' notion has expanded to all the aspects of urban life and production, bringing new challenges to the world.

## Problems and Challenges

A city is an open, complex system incorporating nature, society and economy. In the process of cities' global urbanization, modes of production and life style have been continuously changed by networking, and more traditional urban problems

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<sup>1</sup> Wu Shizhong. 'Reflections on the Development and Management of Social Network'. *China Information Security*, 2014 (7) : 64–66.

<sup>2</sup> Niu Wenyuan (chief editor). *Annual Report for World Sustainable Development 2015*. Beijing: Science Press, 2015.

have given way to even more complicated ones.

At its core, sustainable development should achieve equilibrium between man and nature, and harmony among people. A sustainable city must balance efficiency with fairness, and emphasize the quality of urban development. Therefore, it is necessary, starting from the perspective of system, to thoroughly analyze the relationship between humans and nature by laying emphasis on systematicness and comprehensiveness, and to examine existing problems and challenges from the perspectives of ‘urban equity’, ‘urban efficiency’ and ‘urban quality’.

## 1. Urban Equity

Inequality is manifested on a global scale. In terms of urban equity, income inequality and opportunity inequality are the two main aspects of urban inequalities. They are rooted in uneven distribution at the national level and dysfunction at the local city level. Specifically, they are entrenched in economic growth and development’s systematic distribution and redistribution, in order to ensure fair, competitive environments, provide basic services, protect the rights of the poor, minorities and disadvantaged groups, and to promote social inclusion. The notion of ‘Cities for All’ and ‘inclusive city’, recently proposed by UN-Habitat, envisages the most optimistic and equitable version of a city that benefits everyone living in it. Urban equity is discussed in Chapters 2, 3 and 6 in this manual.

### 1.1 Poverty and Widening Income Gap

Significant economic growth over the past several decades has been accompanied by pauperization and a widening income gap in many cities around the world, which has raised the levels of urban inequality. *The Millennium Development Goals Report 2015* issued by the United Nations shows that the number of people living in extreme poverty decreased from 1.9 billion in 1990 to 836 million in 2015, but the poverty rates of Latin America, Africa and parts of Asia remained high.<sup>1</sup> Poverty has become one of the major social problems of Latin American cities. In 2002, the poor urban population in Latin America was 225 million, accounting for 43.9% of the total urban population. In 2012, this figure fell to 164 million, and poverty occurrence rate dropped to 28.2%, but included 66 million people in extreme poverty, accounting for 11.3%.<sup>2</sup> While goals for reducing poverty were met in developing areas, the number of poor people in developed areas hit a record

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<sup>1</sup> United Nations. *The Millennium Development Goals Report 2015*, 2015.

<sup>2</sup> ECLAC. *Social Panorama of Latin America 2013*. Santiago: ECLAC, 2013.

high, especially in Europe. As estimated by International Labor Organization(ILO), the number of poor people in developed countries exceeded 300 million in 2012, which has much bearing on the large number of refugees migrating into Europe in the last few years.

The gap between the rich and the poor in cities is still broad and shows a trend of widening. The World Bank's data show that the world's Gini coefficient reached 0.47 in 2010. The income gap in Asian cities is growing. The Gini coefficient of Hong Kong, Ho Chi Minh City, Chiang Mai reached 0.5, and they are the cities with the largest gap between the rich and the poor in Asia. Meanwhile, there was a sharp rise in inequality in Hong Kong, Colombo, New Delhi, and Jakarta between 2000 and 2014. In Africa, the Gini coefficient of the South African cities of Johannesburg, Buffalo, Durban, Port Elizabeth and Pretoria has even exceeded 0.7. <sup>1</sup> The widening income gap further contributes to inequality of opportunities for housing, employment and basic services, trapping poor people into a cycle of poverty.

## 1.2 Unemployment and Informal Employment

According to the *World Employment and Social Outlook 2016* issued by the International Labor Organization (ILO), the world's unemployed population was estimated at 197 million in 2015, 2.7 million more than before the global economic crisis in 2007. It is expected that the world's unemployed population will increase by another 2.3 million in 2016. <sup>2</sup>

Latin America is one of the regions with the most serious urban unemployment. According to the regional labor status report issued by the Economic Commission for Latin America and Caribbean (ECLAC) in 2015, urban unemployment rate will reach 7% in 2016, higher than the 6.5% of last year, and the urban unemployed population will exceed 15 million. To make a living, many unemployed people have transferred to informal sectors of the economy for work, leading to the rapid development of the informal economy. In 2005, the informal economic sectors of Latin American cities exceeded the formal sectors in terms of the proportion of employment. For example, in Jamaican and Paraguayan cities, the proportion of people working in the informal economy was above 70%. International Labor Organization predicts that the global population with 'Vulnerable Employment' will reach 1.5 billion, accounting for 46% of the total employed population.

Cities in developed countries are also confronted with an employment crisis, especially for young people. The *Employment Trends Report 2015* issued by the Korea National Statistical Office indicated that the youth unemployment

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<sup>1</sup> UN-Habitat. *World Cities Report 2016*, 2016.

<sup>2</sup> ILO. *World Employment and Social Outlook 2016: Transforming Jobs to End Poverty*, 2016.

rate reached 9.2% in South Korea in 2015, the highest level since 1999. In addition, according to ILO estimates, due to the economic downturn, the youth unemployment rates of Portugal and other EU countries were generally above 30%. The rate of Spain was as high as 58.2% in 2014. Since the financial crisis, large-scale demonstrations have broken out in over 80 cities in Europe, including Madrid, Lisbon, and Paris to protest against persistently high unemployment.

### 1.3 Slums and Housing Problems

In most cities, housing accounts for over 70% of land use, and rapid urbanization exacerbates the challenges caused by housing. In 2010, 980 million urban households lacked proper housing, and the figure will likely increase by 600 million between 2010 and 2030. By 2025, global cities will have an additional demand for one billion housing units.<sup>1</sup> In Asia, there is an influx of 120,000 people into cities every day, requiring at least 20,000 new housing units. It is estimated that the total demand for housing in Africa is about 4 million units per year, of which the demand by urban residents accounts for over 60%.

Unfortunately, the supply of urban housing is usually restricted by inappropriate governance systems, inadequate human resources or land supply. In developed cities or rapidly developing cities, housing prices and rents become increasingly higher. According to the *Annual Report on China's Urban Competitiveness 2016*, the average housing price in Shenzhen increased to RMB 56,000 yuan/m<sup>2</sup> in 2016 from RMB 30,000 yuan/m<sup>2</sup> at the end of 2014 with an increase up to 90%, which was significantly higher than the income level of ordinary residents. High housing prices also lead to increase in rents, which has obvious negative impact on attracting talent and improving urban competitiveness.<sup>2</sup>

Consequently, more and more people are forced to accept a reduced quality of housing and move to burgeoning slums. In 2014, 881 million urban dwellers lived in slums across the world, a figure that had increased by 28% over the previous 14 years. In fact, the population of developing countries living in slums accounted for 30% of the total urban population, with a slight decline compared with 39% in 2000<sup>3</sup>, but no country has reduced its population living in urban slums by half.

In Brazil, slums spread across metropolises and have expanded to medium-sized cities. The host city for the 2016 Summer Olympic Games, Rio de Janeiro, has more than 1,000 slums with 2 million people living in them; the city is aptly

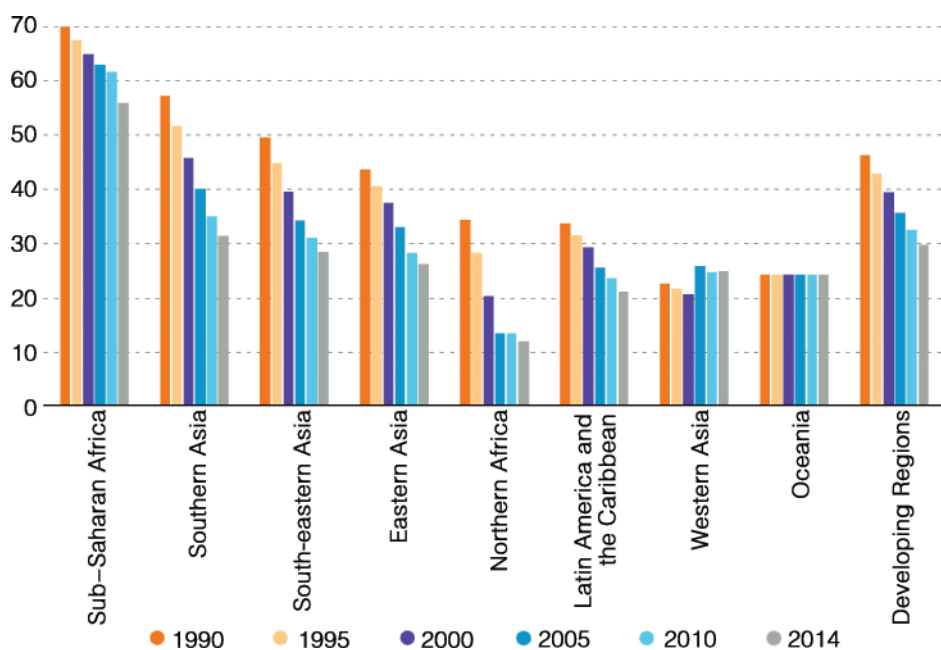
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<sup>1</sup> <sup>3</sup> UN-Habitat. *World Cities Report 2016*, 2016.

<sup>2</sup> Chinese Academy of Social Sciences (CASS). *Annual Report on China's Urban Competitiveness 2016*, 2016.

named ‘capital of the Brazilian slums’.<sup>1</sup> In Nairobi, over 200 informal settlements accommodating half of the population are concentrated in a crowded space accounting for only 5% of the city’s residential area. In Dhaka, 34% of the available land is planned as settlement for the 4.4 million middle and high-income people outside the city center and only 4% is allocated to 4.5 million low-income residents.<sup>2</sup>

Slums usually lack necessary infrastructure and public services, forming ‘two worlds in one city’ with the silk-stocking districts. In Mumbai, Asia’s largest slum is built along one side of the road, opposite prosperous skyscrapers on the other. Furthermore, some city governments in developing countries try to move or even clear slums by forced demolition, eviction of residents and other means, but tough policies not only fail to achieve the desired result, but also make problems more complicated.



Source: UN-Habitat, Global Urban Monitoring Data 2015.

Figure 1.2 The Proportions of the Urban Population Living in Slums in Developing Regions (1990–2014)

#### 1.4 Inequality of Infrastructure and Public Services

Infrastructure, including water supply and sanitation facilities, stable and

<sup>1</sup> The Cities Alliance. *Social Housing in São Paulo: Challenges and New Management Tools*. Washington, DC, 2009.

<sup>2</sup> Compiled by UN-Habitat, translated and edited under the organization of Department of Planning, Finance and Foreign Affairs of Ministry of Housing and Urban-Rural Development of the People’s Republic of China. *State of the World’s Cities 2010/2011*. Beijing: China Architecture & Building Press, 2014.



adequate electric power supply, efficient transportation networks, and modern information and communication technologies (ICTS), is the foundation of a city's development and operation. Public services aim to guarantee the quality of life of urban residents, including the provision of education, health care and other services. There are huge differences in the coverage and quality of infrastructure and public services between cities. In developing countries, urban demand for infrastructure and public services often does not match the financial resources that the government can provide, making unbearable living environments worse. Water supply, transportation and education are taken for examples in this section.

Adequate water supply is crucial to guaranteeing the quality of life. There are nearly 800 million people in the world who have no access to water, including hundreds of millions living in sub-Saharan Africa and South Asia.<sup>1</sup> UN-Habitat's survey shows that 80% of African cities suffer a continuous shortage of water resources, of which the situation in Ibadan, Accra, and Addis Ababa is especially serious.

Road congestion is the most common traffic problem in cities, particularly in Latin America where the number of vehicles on the roads is astonishingly huge. In Sao Paulo, one of the world's most congested cities, lines of traffic can stretch for over 260 km. Serious road congestion not only affects local people's lives, but also causes an economic loss of the region up to 2.2 billion dollars per year. The road infrastructure in Asian cities is likewise very poor with about 11% of the land used for roads, which is far less than the 20%–30% in the US cities.<sup>2</sup>

Education plays a very important role in various aspects, such as reducing poverty and improving health. According to UN statistics, the number of primary school-age children dropping out of school in developing regions is 57 million, with over half of those living in sub-Saharan Africa.<sup>3</sup> Access to education usually depends on affordability: in Dhaka, parents need to spend about 10% of the household income on each child's education and the proportion is twice as high in the poorest households in Lagos, Casablanca and São Paulo. In Latin America, the impact of financial crisis on education in big cities is more obvious than in

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<sup>1</sup> Sustainable Development Goals, <http://www.un.org/sustainabledevelopment/zh/infrastructure-industrialization/>.

<sup>2</sup> Compiled by UN-Habitat, translated and edited under the organization of Department of Planning, Finance and Foreign Affairs of Ministry of Housing and Urban-Rural Development of the People's Republic of China. *State of the World's Cities 2012/2013*. Beijing: China Architecture & Building Press, 2014.

<sup>3</sup> Sustainable Development Goals, <http://www.un.org/sustainabledevelopment/zh/education/>.

small cities. In Bolivia, especially, 93% of children in small towns receive primary education, while this proportion is only 68% in the capital and other big cities, and 72% in rural areas. Such differences can be attributed to the highly unequal metropolitan areas.<sup>1</sup> It is in sharp contrast to many areas in Asia, where due to the urban-rural dualistic structure, rural areas' educational and medical resources are generally inferior to cities, and medium and small cities are inferior to large cities.

### 1.5 Social Exclusion of Vulnerable Groups

If a city can provide adequate housing and sound infrastructure and public services for all of its residents, regardless of race, ethnicity, sex or social and economic status, and can help them gain equal access to social facilities and opportunities, then comprehensive social inclusion will be promoted and an inclusive city for all will be built. At present, however, discrimination based on gender, youth, age, physical ability, migration and other disadvantaged groups is still widespread in cities.

Gender discrimination: The World Economic Forum's *Global Gender Gap Report for 2015* shows that women's salary level in 2015 is only comparable to men's income levels ten years ago. Over the past decade, the overall global gap between women and men in health, education, economic opportunity and political participation reduced by 4%. However, the gap in the aspects of 'equal pay for equal work' and 'labor force participation' has not been improved since 2009.<sup>2</sup>

Age discrimination: Statistics from the United Nations show that the world's population aged over 60 reached 901 million in 2015, accounting for 12% of the total population; it is estimated that the population aged over 60 will reach 2.03 billion by 2050, accounting for 25%. Countries and cities at different levels of development are all faced with the problems brought by ageing populations. Mexico's National Geographic Institute of Statistics and Geography revealed recently that there are at least seven million aged people living in poverty throughout the country and they are often discriminated against and abandoned. According to the report of the *Times of India*, over 57% of the young respondents in the southern Indian city of Madurai admitted that the aged in their homes had been abused to some extent.

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<sup>1</sup> Compiled by the UN-Habitat, translated and edited under the organization of Department of Planning, Finance and Foreign Affairs of Ministry of Housing and Urban-Rural Development of the People's Republic of China. *State of the World's Cities 2010/2011*. Beijing: China Architecture and Building Press, 2014.

<sup>2</sup> World Economic Forum's. *Global Gender Gap Report for 2015, 2015*.

Racial discrimination: The African American and Indians in America, indigenous groups in Oceania, ethnic minorities in Europe, and the ‘tribal people’, caste groups, etc. in Asia are victims of racial discrimination. Racial issues are ‘cancers’ that are difficult to cure in American society, and African Americans are still faced with great social injustice. In terms of the judicial system, the number of white Americans involved in illegal drug abuse is five times the number of African Americans, but the number of African Americans in prison on drug offense convictions is ten times the number of white Americans. Economically, the average annual income of African Americans is 33,000 dollars, but the average annual income of white Americans is 57,000 dollars.

## 2. Urban Efficiency

Improving urban production and management efficiency can improve urban competitiveness and thus promote sustainable urban development. To put it simply, improving efficiency can enable a city to generate additional income and provide more and better services, such as more suitable housing, sound public services, complete infrastructure network and extensive environmental protection. In turn, these further support the improvement of urban equity and quality. The improvement of urban efficiency is not a goal in itself, but an important starting point to provide residents with more decent incomes, meet their basic demands more fairly and guarantee a higher-quality life for them. From a comprehensive perspective, the degree of efficiency is the result of a combination of factors, including technological innovation, industrial structure, resource utilization, capital allocation, labor, investment in human capital, and management models. The topic of urban efficiency is mainly discussed in Chapters 3 and 6 in this manual.

### 2.1 Market Turbulence and Slowdown in Economic Growth

Globalization makes capital flow more freely around the world, but the unbalanced financial system generates financial crisis and a resultant decline in world trade, thus affecting the sustainable development of the urban economy.

Since 2008, the US subprime lending crisis has engulfed the world’s major financial markets. Sovereign debt crisis also broke out in some European countries, and the global economy experienced large fluctuation in 2009. According to the *World Economic Situation and Prospects 2016* issued by the UN, economic activities in the world economy fails to respond to the global trend, and world gross product will grow by just 2.4 percent in 2016. Global growth is projected to rise

marginally to just 2.8 percent in 2017, remaining well below the pre-crisis levels.<sup>1</sup>

Continued decline in the aggregate demand of developed economies will continue affecting global economic growth. Athens in Greece is one of the cities most severely affected by the crisis. Under the heavy pressure of a sluggish economy, tight policies and the problem of refugees, there is a sharply growing number of the homeless and extremely serious economic and social situation in the previously bustling city.

The sluggish economic situation has spread to developing countries and economies in transition, and challenges brought by inclement weather and the political situation, as well as massive outflow of funds, have further exacerbated negative impact. In the least developed cities, economic growth is expected to reach only 4.8% and 5.5% respectively in 2016 and 2017. This will undoubtedly affect public expenditure, vital education support, health and adaptation to climate change initiatives, as well as the progress of poverty reduction.

## 2.2 Predicament of Innovation Input and Industrial Upgrading

In response to the international financial crisis, the third industrial revolution creeps in. Cities in developed countries took the lead in starting the third industrial revolution and drove profound, asymmetric changes in the development patterns of world cities. The division of the global industrial chain has been adjusted and whether cities can make full use of significant development opportunities brought by advanced technology based on their own transition needs has become another challenge to their future development. For this, investment in innovation is an important factor. The average proportion of R&D expenditure to GDP in both Africa and Latin America, however, is as low as about 0.6%, and in the cities in such countries as Mali, Mozambique, Nigeria, Senegal, Uganda, and Zambia, the proportion of such expenditure is even lower than 0.4%.

Affected by rising costs, developed countries start to shift industries with high energy consumption, heavy pollution and great demand for labor to lower-cost regions, such as Vietnam, Bangladesh, and Indonesia. Cities in these countries usually cannot achieve industrial upgrade due to their high cost of business activities, ineffective R&D institutions, lack of knowledge and skills, lack of funds, inadequate infrastructure and poor access to information, consequently they will remain at the bottom of the industrial chain for some time. Low-end manufacturing

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<sup>1</sup> UN Report. Weak Global Growth Continues with Little Prospect for Turnaround This Year, <https://www.un.org/development/desa/zh/news/policy/wesp2016-midyear.html>.

has brought a series of environmental and health problems together with other issues to the cities of these countries.

### 2.3 Challenges to Energy Revolution

Energy is an issue of common concern in the whole world today. Cities account for just 3% of the world's land surface but their energy consumption accounts for 60% to 80%. According to the *BP Statistical Review of World Energy 2015* issued by British Petroleum, primary energy consumption in the world grew by 0.9% in 2014, significantly lower than the average growth rate 2.1% in the past decade. However, except nuclear energy, the consumption volume of various fuels hit a historical high. Oil remained the most important fuel, accounting for 32.6% of global energy consumption.<sup>1</sup> To achieve the restriction goals on international carbon emissions, taking further policy actions is absolutely necessary to accelerate energy efficiency and reduce energy intensity.

With the improvement of management and technology, the energy consumption per unit of GDP of various countries around the world has decreased in varying degrees, but the difference in consumption between developed countries and developing countries is still great. Global cities in developed countries have relatively high energy efficiency and a diversified energy structure. London, New York and Tokyo have upgraded the efficiency of their power grid facilities and promoted efficient energy technologies; they actively develop renewable energy and deepen the development of solar energy, wind power, hydropower and biogas, including refining energy from wastes and developing advanced conversion technologies. However, quite a number of cities in Asia, Africa and South America are in a rapid development stage and their energy consumption per unit of GDP is usually twice that or more of developed cities due to different industrial structures and technological gaps. Coal still accounts for a large proportion of the energy consumption in these cities and the proportion of renewable energy is relatively low. Irrational energy structure leads to serious air pollution in many cities in developing countries and restrictions on the coordinated development of urban economy and resource environment.

### 2.4 Labor Shortages and Waste of Demographic Dividend

Efficient urban economic growth depends on training, attracting and retaining high-caliber personnel and skilled laborers. The Economist Intelligence Unit (EIU) predicts that the growth of global labor force will stop by 2050 although the world

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<sup>1</sup> BP. *BP Statistical Review of World Energy*, 2015.

population continues to grow. In the next 35 years, the average growth rate of the labor force will be only 0.3%, while in the previous 35 years, the data was 1.7%.<sup>1</sup>

Cities in developed countries have a relatively small number of laborers, but they have the material and institutional support required to exploit population potential. The Boston Consulting Group's report *Industry 4.0: The Future of Productivity and Growth in Manufacturing Industry* indicates that increasingly strengthened connectivity and interaction among parts, machines, and humans will make production systems as much as 30% faster and 25% more efficient. In 2014, global sales of industrial robots rose by 27% year on year.<sup>2</sup> At the same time, the proportion of total labor income to GDP suffered an overall decline at an unprecedented rate. From 1975 to 2015, the proportion of labor income to GDP of the US, Australia, Canada and Japan respectively dropped from 61% to 57%, from 66% to 54%, from 61% to 55% and from 77% to 69%.<sup>3</sup> This signifies the profound economic revolution in global cities.

On the other hand, rapidly developing cities fail to take full advantage of the dividend of population growth. India is being faced with a huge challenge since the working-age population will predictably increase by 228 million in the next 20 years, with one third of the growth in northern poverty-stricken areas, such as Uttar Pradesh and Bihar. Statistics show that more than half of the labor force in New Delhi, Mumbai, Kolkata and other megacities with a population of over 20 million are migrants. However, according to ILO statistics, half of India's population aged over 25 is uneducated. Low-level education, poor practical skills and a low efficiency characterize India's young labor force. While the overall productivity of Indian cities is low, they involve a very large labor force, suggesting that efficiency can be greatly improved.

## 2.5 Urgent Need for Information-based Urban Management

Developed cities have gradually become 'smart' cities where information is widely shared and carefully managed. However, compared with other regions of the world, African cities are still lagging behind in terms of Internet penetration. The *ICT Facts and Figures 2014* released by the International Telecommunication Union (ITU) states that by the end of 2014, approximately 68% of global fixed broadband subscribers were from Asia-Pacific and Europe; Africa accounted for

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<sup>1</sup> <http://wallstreetcn.com/node/219889>.

<sup>2</sup> Boston Consulting Group. *Industry 4.0: The Future of Productivity and Growth in Manufacturing Industry*, 2016.

<sup>3</sup> <http://finance.sina.com.cn/zl/international/20160202/101824252859.shtml>.

less than 0.5%; and Africa's mobile-broadband penetration was only 19%, far below 64% in Europe.<sup>1</sup> Moreover, the communication services of many Western companies were only available in Africa's densely populated cities. In the most cities in Tanzania, radio remains the dominant media for sharing and accessing information, and more than half of the population has no access to electricity, let alone the Internet.

In terms of public administration, take public transportation for example, heavy traffic and poor road planning that leads to disorganized road networks, are serious challenges to city governments. Since 2014, taxi-hailing apps have become a very popular way for urban residents to access taxi services. The US taxi-hailing app Uber has expanded to more than 400 cities worldwide, which reflects the great potential role of the Internet in promoting bottom-up building of smart cities and improving the operational efficiency of cities. However, online taxi-hailing services have come under scrutiny for security and legality and have been met with varying degrees of resistance in San Francisco, Paris, Ottawa, and New Delhi. Therefore, balancing efficiency with fairness is yet another issue facing by smart cities.

Without long-term thinking and delicacy management in terms of urban security, a city will pay a heavy price. For example, the storm in July 2012 and subsequent flooding in Beijing resulted in great damage to city facilities and vehicles and entailed direct economic losses of over RMB 10 billion. And more than seventy people lost their lives. Reports suggest that 1.4 million warning messages were sent on the day of the storm by Beijing Meteorological Service, covering only 7% of the citizens, clearly too few to mitigate against disaster. The response level and criterion of massive data is a stringent test of the city in delicacy management. In addition, the Shanghai stampede on December 31, 2014, the Hajj Stampede on September 25, 2015, and other major security incidents have emphasized how essential efficient information sharing is in terms of better managing urban public safety.

### 3. Urban Quality

For a sustainable city to be livable and thriving, a beautiful environment, safe community, civilized population, comfortable life and balanced economy are necessary. Improving urban quality can increase urban residents' satisfaction and happiness, which is embodied by well-coordinated urban community, economy and

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<sup>1</sup> ITU Statistics. *ICT Facts and Figures 2014*, 2014.

the environment also incorporates ‘harmony between human and nature’, ‘cultural protection and inheritance’, and ‘assurance of life safety’. Urban quality problems arise mainly from failing to take into account the relationship between ‘efficiency’ and ‘quality’, incapable of proposing suitable economic and social development goals, and unable to base city planning around the city itself and the needs of its citizens. Urban safety, environmental health, cultural protection, and public safety are subsequently threatened. Urban quality is rich in connotation, which is represented in Chapters 2, 4, 5 and 6 in this manual.

### 3.1 Ecological Influence and Environmental Change

**(1) Far-reaching Impact of Climate Change.** In 2015, Washington, New York, Boston and Moscow, along with other cities, experienced a warm winter. Moscow’s highest temperature reached 4.7 °C on December 23, breaking the previous record of 4.5 °C on the same day in 1982. The World Meteorological Organization (WMO) stated that the global average surface temperature would likely hit a historical high in 2015. Europe, North Africa and the Middle East are also affected by increased temperatures. High temperature records in many of these regions are now regularly broken due to the influence of global warming caused by the El Nino and human activities.

Greenhouse gas emissions thanks to urban industrial activities, heating, and transportation now account for a significant proportion of worldwide global greenhouse gas emissions. According to World Bank estimates, urban greenhouse gas



Figure 1.3 Frequent Occurrence of Extreme Weather



emissions account for 80% of the total emissions. Therefore, we need to take action to plan and manage the future long-term and sustainable development of cities.

Global warming has contributed to frequent extreme weather events in cities, rising sea levels, floods, droughts, and storm tides that pose tremendous threats to urban residents, infrastructure, industry and freshwater supply. Many animals and plants may also be in danger of extinction due to environmental pressures. According to the assessment of the Intergovernmental Panel on Climate Change (IPCC), floods, droughts, storm tides, and heat waves will become more frequent and increasingly severe in the future.

In addition, due to imperfect urban disaster warning systems, disaster prevention and mitigation remain an extremely urgent task for cities around the world.

**(2) Aggravated Environmental Health Risks.** With economic development and improvement of people's living standards, the process of urbanization is also accelerating, but the environmental problems have also become more serious. The United Nations Environment Programme (UNEP) issued a series of reports related to air quality on the second United Nations Environment Assembly (UNEA) held in Nairobi on May 24, 2016. The reports indicate that with the decline in air quality, the current figure of 7 million deaths due to air pollution is expected to rise.<sup>1</sup> Cities in the UK, France, Poland, Russia and other countries in Europe suffered serious hazes in 2015. According to the World Health Organization (WHO)'s urban air quality database, the concentrations of PM2.5 and PM10 in the air of over 80% of the over 3,000 cities with air quality monitoring across 103 countries and regions in the world have exceeded the proposed standards of the WHO.<sup>2</sup> It is indicated that low and middle-income countries have more serious urban air pollution than high-income countries.

Waste disposal is yet another major problem for cities, especially in developing countries. According to the reports of the *Guardian* and other media, a river in Manila, the capital of the Philippines, has been covered with so much garbage that it looks like a landfill. According to the data of the Philippine Environmental Management Bureau in 2015, there is an average production of 0.69 kilograms of garbage per person per day throughout Manila. At this rate, Manila will produce more than 4.44 million tons of garbage annually by 2020.<sup>3</sup> The main sources of urban garbage are domestic, commercial, industrial, and construction waste. Given the different levels of urban development of countries, waste disposal technologies

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<sup>1</sup> <http://www.unmultimedia.org/radio/chinese/archives/259577/#.V0wCH-x9dII>.

<sup>2</sup> [http://news.xinhuanet.com/world/2016-05/13/c\\_128980409.htm](http://news.xinhuanet.com/world/2016-05/13/c_128980409.htm).

<sup>3</sup> [http://news.xinhuanet.com/world/2016-05/29/c\\_129023664\\_3.htm](http://news.xinhuanet.com/world/2016-05/29/c_129023664_3.htm).

are quite different. In some cities, residents are lax with sorting garbage and waste recycling rates are low. Secondary pollution is a side effect in the process of waste disposal due to the disposal technologies which haven't realized complete harmlessness.

In addition, water pollution, noise pollution, soil pollution and other forms of pollution are the problems and challenges confronted by cities in development, which threaten cities and the health of urban residents. From a comprehensive perspective, factors affecting environmental health include damage to ecosystems, climate change, disorderly urbanization, unhealthy and wasteful lifestyle and unsustainable consumption and production patterns.

**(3) Challenges to Ecological Security.** As economies develop and populations grow, built-up urban areas and idle land spread to natural ecosystems such as farmland, forests, grasslands and wetlands. Urban housing, roads, and playgrounds encroach on the city's remaining natural and wildlife so that they become squeezed and fragmented. Noise pollution, light pollution, and water pollution have further exacerbated the disappearance of wildlife from cityscapes.

Urban ecosystem is greatly affected and is characterized by vulnerability, complexity and composite. In addition, economy-oriented urban construction often ignores the protection for urban ecological environment and damages biological diversity. Therefore, the service functions of cities such as soil fertility, water quality and weather adjustment are affected, which brings about great risks to urban ecological security.

### 3.2 Cultural Heritage Preservation and Cultural Construction

There is a great amount of tangible and intangible cultural heritage in cities, from cultural landscape to historical sites, from cultural relics to local residences, and from traditional skills to social customs. Not only does the heritage carry the cultural value of a city, but also is essential for the sound development of a city.

**(1) Vulnerability of Cultural Heritage.** Cultural heritage is very vulnerable and, even in the absence of man-made conflict, it is difficult to preserve since natural disasters, environmental pollution, and industrialization all pose threats. The 8.1-magnitude Nepal earthquake in April 2015 damaged or completely destroyed a large number of world cultural heritage pieces and the aftershock in May completely destroyed over 80% of the ancient buildings in Kathmandu Valley (including three cities connected to each other, namely Kathmandu, Patan and Bhadgaon).<sup>1</sup>

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<sup>1</sup> <http://www.wenwuchina.com/a/167/242498.html>.

Preservation is even more difficult in the case of armed conflicts or destruction by extremist groups. After the 2012 coup in Mali, the ancient city of Timbuktu was severely damaged by northern militants: 14 of the 16 mausoleums included on the list of World Cultural Heritage were destroyed. In 2015, Iraq's Mosul Museum and the ancient city of Hatra were destroyed by extremist groups. Such destruction of the heritage making human civilization poses an extremely great threat to urban culture protection.

**(2) Neglect of Cultural Preservation in Urban Construction.** Jane Jacobs pointed out in *The Death and Life of Great American Cities* that large-scale reconstruction destroyed the buildings with characteristics and vitality, as well as the culture, resources and assets of a city. In the process of 'urban renovation', some cities adopt the development approach of 'large-scale demolition and large-scale construction', resulting in the destruction of historical blocks and traditional houses as well as frequent destruction of cultural relics. Some cities imitate and copy other cities in planning and construction, resulting in the loss of urban 'personality', local cultural features and charm. There is a misconception that some cities resort to buildings to shape their urban characteristics, but ignore local natural features and cultural characteristics.

**(3) Inheritance Problems Confronted by Intangible Cultural Heritage.** Intangible cultural heritage involves all the aspects of life, including folk customs, traditional opera, craftsmanship, and so on. Mankind worldwide has a rich intangible cultural heritage. China currently has the largest amount of intangible cultural heritage in the world.

Succession inheritance is the most difficult problem facing intangible cultural heritage. Accommodating both traditional skills and modern technology in future urban planning is essential for preserving intangible cultural heritage. This requires greater creative thinking.

### 3.3 Public Safety and Public Governance

**(1) Frequent Incidents of Public Safety.** Concentrated populations, economies and facilities in cities often mean that once there is an unexpected event occurring, for example, earthquake, explosion, epidemic, fire, terrorist attack, war and any other natural or man-made disaster, heavy casualties and property losses are very likely. In addition, as many disasters are complicated and cause resultant disasters in turn, the knock-on effect and magnification effect will result in unpredictable consequences to a city.

In recent years, the African Ebola virus, the MERS virus in South Korea, the

avian influenza in China, and other epidemic diseases have posed serious threats to the lives of urban residents and engender greater social panic and unrest. Stampedes occurring during pilgrimages, gatherings and large-scale events are other man-made threats to safety. Natural events such as the recent forest fire in Canada where 100,000 residents in Fort McMurray were forced to evacuate pose further risks. Genetically modified foods have meant an increased concern over long-term food safety for some urban residents. In addition, robberies, theft and other criminal activities happen in cities almost every day. . .

Cities worldwide face their own specific threats to traditional and non-traditional urban public safety. Each one needs to develop its ability to respond to security challenges and strengthen warning and prevention systems to minimize losses.

**(2) Hidden Perils of Traffic Safety.** According to the *Global Status Report on Road Safety 2015* issued by the WHO, although road safety has been improved, the total number of road traffic deaths has plateaued at 1.25 million per year (2013).<sup>1</sup>

Road traffic accidents are one of the main causes of deaths worldwide. In fact, road traffic injuries are a leading cause of deaths among people aged between 15 and 29, exceeding AIDS deaths in this age group. Nearly half of road traffic deaths are pedestrians, cyclists, public transport passengers and motorcycle drivers. In cities in developing countries, this proportion is even greater. Due to the lack of road safety infrastructure to protect pedestrians and cyclists, walking or cycling may be a serious risk in itself. Generally, many road safety measures do not focus on these vulnerable groups but instead on car drivers. Therefore, transport system designers, managers and other concerned parties should take more measures to ensure road safety for all users.

In addition, plane, train and other accidents also pose threats to urban traffic safety.

## Trends and Vision

The 2008 financial crisis had a huge impact on the entire world. As cities struggle to recover and adjust, they are facing challenges not only at the economic level, but also at the levels of society, culture, and environment. From the 2030 Agenda for Sustainable Development to the New Urban Agenda, global cities initiate a new round of governance for sustainable development. Based on the development trend,

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<sup>1</sup> [http://www.who.int/violence\\_injury\\_prevention/road\\_safety\\_status/2015/zh/](http://www.who.int/violence_injury_prevention/road_safety_status/2015/zh/).

the future sustainable urban development will take innovation-driven and smart city construction as its impetus, and the governing subject of world city network will also be reconstructed and model will evolve into cooperative governance to ultimately achieve the goal and vision of a multi-element inclusion.

## 1. Motivation Upgrading: Innovation Drive and Smart City Construction

### 1.1 Innovation Becomes the Main Driving Force

With the advent of globalization and the knowledge economy era, a new round of technological revolution and industrial transformation is rapidly developing. Science and technology is progressing with each passing day and we are facing a new era of smart technologies, the internet and big data. Innovation-driven development shows two major trends. First, open innovation have become increasingly important, which meaning enterprises, new companies, universities, and cutting-edge technology users participate in the development of new products and new services together. Secondly, obstacles to business startups tend to be fewer. Incubators and venture accelerators have facilitated starting a business. Innovation has thus become the main driving force of urban development and it plays an increasingly important role in urban competitiveness. Technological innovation has entered a globalized era by crossing national borders.

Developed countries always place great significance on technological innovation and leads the world's technological development. Silicon Valley of the US, for example, initiated in the 1970s, now contributes 10% of US economic outputs while overall venture capital accounts for one-third. In recent decades, the US has become the pioneer in global technological innovation and development. According to reports, US research expenditure accounts for 27% of the total in the world. To adapt to the new changes in the current climate of global innovation, the US government released an updated *Strategy for American Innovation* in 2015. The report further emphasized the important role of technological innovation in promoting economic and social development, expressed great support for new technologies and new industries, and attached great importance to nanotechnology, materials genome, robotics technology, big data research and development, intelligent systems and other major programs. Ultimately, the report encourages further technological innovation to realize the goal of sustained economic growth and prosperity.

Cities in developing countries are also enhancing their global influence through

technological innovation. According to *City Momentum Index 2016* issued by Jones Lang LaSalle (JLL), a real estate consulting company, Nairobi, the capital of Kenya, has become Africa's most innovative city. Based on a comprehensive consideration of 10 indicators, including economic output, demographics, technological research and development, activity of enterprises, and education levels, Nairobi is the only African city included in the World's Top 20, ranking 11th. As Africa's science and technology center, Nairobi is becoming a hub for technology incubator parks and venture capital funds.

Innovation is increasingly recognized as the most viable option for solving the urbanization crisis instead of being a choice while cities are dealing with crises.<sup>1</sup> Global cities, such as New York, one of the most important urban innovation centers in the US, understand that innovation is the key to competitiveness and now model themselves as centers for innovation and creativity. London's latest mayor development program likewise supports the concept of 'Urban Strategic Opportunity Space' in recognition of the need to integrate cultural creativity and technological innovation within the city. Many emerging urban areas are gradually becoming major economic and cultural engines, especially Bangkok, Lagos, Mexico City, Mumbai, Seoul and other Asia-Pacific cities.<sup>2</sup>

The world's fifth scientific and technological revolution, and the third industrial revolution are proceeding. It is foreseeable that technological competition between countries will be more intense. Talents, technical standards and industry chain dominance will become the focus of this competition. The new round of technological innovation will lead to changes in the mode of production which will then change the international division of labor. Concurrently, IT development will further shorten geographical distances, making cities more closely linked.

## 1.2 Upgraded Smart City Construction

The rapid development of global information technology has facilitated the construction of smart cities. Different countries in the world made a blueprint for future urban development depending on the internet and IT technologies in last century. In the 1990s, the US first proposed the National Information Infrastructure (NII) and the Global Information Infrastructure (GII) programs. The European Union has also made efforts to promote the 'information society' program and

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<sup>1</sup> Tu Qiyu (chief editor). *Blue Book of World Cities: Annual Report on World Cities (2015) —Rising of International Innovation Center Cities*. Beijing: Social Sciences Academic Press, 2015.

<sup>2</sup> <http://world.people.com.cn/n/2015/0129/c1002-26473566.html>.

Japan launched the ‘i-Japan Strategy 2015’ in 2009.<sup>1</sup>

The Singapore government launched the ‘Smart Nation 2025’ program in 2014, which was an updated version of the previous ‘Smart City 2015’ program. It emphasized more extensive and further use of IT with a specific focus on information integration and implementation. In short, this should lead to government policies that are more forward-looking and better serve the people. As stated by Infocomm Development Authority of Singapore, the core of ‘Smart Nation’ could be summarized by three words, namely connect, collect and comprehend. Drawing on these ideas, smart cities can be characterized by being wholly interconnected through ubiquitous broadband, intelligence-integrated applications and people-oriented sustainable innovation. Smart cities should provide people with comprehensive and meticulous services in health care, food, housing, transportation, travel, and education, which will be manifested by an intellectual economy, intelligent transportation, intelligent environment, intelligent life, intelligent management, and intelligent residents.

Developed countries have built more advanced smart cities to date, but developing countries have also paid special attention to the construction of smart cities. After the debris flows in 2010, the Mayor of Rio de Janeiro decided to set



Figure 1.4 The Ranking of the 2015 Intellectual Capital of the World was Issued in Shanghai, Among this, Shanghai Ranked 15th

<sup>1</sup> Qin Honghua, Li Hanqing, and Zhao Xia. ‘Development Status of “Smart City” at Home and Abroad’. *Information Construction*, 2010 (9) : 50–52.

up the Operations Center of Rio de Janeiro (COR) to collect real-time information on traffic, weather, lighting and power using sensors, satellites, video systems and GPS systems. The information was then used for purposes such as better managing traffic flow and issuing early warnings about extreme weather, making Rio a smarter city. China and India are at the forefront of developing countries in transforming urban spaces into smart cities, and meanwhile African cities are also transforming themselves into smart places.

The smart city is an outcome of our times and must be at the forefront of future trends in global development. Although the smart city concept has different meanings in different industries and fields and it is at different stages of development in different countries, its ultimate purpose remains the same, namely to make urban operations more efficient, to improve urban quality, and to better serve urban residents.

## 2. Subject Change: Network Reconstruction of World Cities

### 2.1 Highlighted Role of Urban Cluster or Agglomeration

Worldwide, cities are fusing into ‘urban clusters’. This concept stems from the French geographer Jean Gottmann’s Megalopolis theory that there were six metropolitan regions in the world. In recent years, a new trend has emerged in the development of the world’s urban clusters. As talents, capital, goods and information flow more easily across regions and the globe, urban clusters have become an important way for countries to participate in global competition. Researches show that the world’s 40 largest urban clusters only occupy a small proportion of the world’s habitable area with a population of less than 18% of the total of the world, but they have contributed 66% of global economic activities and about 85% of technological innovations.<sup>1</sup>

Overall speaking, although urbanization is drawing to an end in developed countries, people and industries are still gathering in urban clusters. The ‘Boswah’ (Boston-New York-Washington) urban cluster, with New York at its center, covers an area of 138,000 square kilometers and has a population of about 45 million, accounting for one seventh of the US population. As the largest production base in the US, it accounts for 30% of the domestic manufacturing output. It is the hub of the world economy as well as being a knowledge, technology and information-

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<sup>1</sup> Compiled by UN-Habitat, translated and edited under the organization of Department of Planning, Finance and Foreign Affairs of Ministry of Housing and Urban-Rural Development of the People’s Republic of China. *State of the World’s Cities 2010/2011*. Beijing: China Architecture & Building Press, 2014.



intensive region. It has many well-known US universities and its number of college students accounts for one fifth of the country. The Japan Tokaido urban cluster with Tokyo as the center covers an area of about 100,000 square kilometers, accounting for 20% of the total area of the country. It has a population of nearly 70 million, accounting for 61% of the total. Two-thirds of industrial enterprises and industrial employees, three-fourths of industrial output and two-thirds of national income are concentrated here. Over 80% of the financial, education, publishing, information and research and development institutions of Japan are located here. Compared with general domestic regions, urban clusters undoubtedly have a more powerful driving force for development.<sup>1</sup>

Urban clusters in developing countries show three major development trends: some large cities, for example, Bangalore, Mexico City, and Cairo, are evolving into the centers of new city clusters and including other small surrounding cities in their economic track. The second trend involves transportation corridors that are formed for the purpose of industrial development, commercial services or trade with two or more large cities at the core, for example, Mumbai and Delhi in India, Sao Paulo and Rio de Janeiro in Brazil, and Ibadan-Lagos-Accra in Africa. The third trend is government-led ‘super urban clusters’ as part of regional or national development strategies, as is the situation in China.<sup>2</sup> According to the *East Asia’s Changing Urban Landscape* released by the World Bank Group in 2015, East Asia’s urban clusters included eight ‘megacities’ with a populations over 10 million, three of which are in the China’s mainland, namely the Pearl River Delta, and the clusters with Shanghai and Beijing as the core respectively. The Pearl River Delta has overtaken Tokyo as the world’s largest urban area in both size and population.<sup>3</sup>

## 2.2 Progress of Cities in Developing Countries

In the next few decades, urban population growth will concentrate in developing countries, especially Asia, Africa and Latin America. Consequently, the development of the city in the world will be largely determined by the economical and social situation in the cities in developing countries. These cities have made

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<sup>1</sup> Ning Yuemin. ‘Development Trends of the World’s Urban Areas’. *Education of Geography*, April 2013.

<sup>2</sup> Compiled by UN-Habitat, *State of the World’s Cities 2012/2013*, translated and edited under the organization of Department of Planning, Finance and Foreign Affairs of Ministry of Housing and Urban-Rural Development of the People’s Republic of China. Beijing: China Architecture & Building Press, 2014.

<sup>3</sup> World Bank Group. *East Asia’s Changing Urban Landscape*, 2015.

great progress in eradicating poverty and promoting development, and many of them have become world cities with global influence.

In terms of the comprehensive development of mankind, hundreds of millions of people in developing countries have shaken off poverty, which has changed the human development situation in the whole world. According to *Human Development Report 2015* issued by the UNDP, the regions with the lowest HDI (Human Development Index) experienced the greatest progress from 1990 to 2014, annually increasing by 1.32% on average; while the annual improvement in the region with the highest HDI was only 0.47% on average. Specifically speaking, the Latin American and Caribbean Region, Europe and Middle Asia had the highest HDI, while South Asia, East Asia and the Sub-Saharan Region experienced the greatest progress.<sup>1</sup>

Asia possesses a relatively high speed in economic development, where many cities have begun to focus on research and development, innovation and entrepreneurship, and thus increased their economic comprehensiveness. In these cities, industries switched from labor-intensive sectors to high-tech and service industries. For example, Cebu in the Philippines has become prosperous for providing outsourcing services. In the Lahore city in Pakistan, 42% of the laborers are in the fields of financing, banks, real estate and social services. Based on the continuous and rapid development in the past years, Asian cities have basically got rid of original poverty and backwardness, but there is still a gap between them and European and American cities in such aspects as social, political, safety, technology, culture and education.

Although still at the early stage, African cities continuously keep growing relying on focusing on economy, regional advantages and diversified economic base. To take full advantage of the opportunities brought by the East African Community (EAC) Common Market which is still in its preliminary development stage, Nairobi, the capital of Kenya, is endeavoring to improve its infrastructure for transportation and communication, which has brought remarkable effect on the efficiency and productivity in different economic fields. Africa has been the last front to end wars, terminate totalitarian rule and eradicate poverty from the human society for a long time. Thanks to the development in the past more than ten years, Africa has accomplished quite a lot of achievements in reducing inequality: life expectancy has been increased to 52 years old, education

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<sup>1</sup> UNDP. *Human Development Report 2015*, 2015.

has become more popularized, and the literacy rate has been continuously improved.

Seen from the middle and long term overall development situation in the world, developing regions still hold tremendous potential, which will be brought into full play with the driving forces from emerging countries and cities.

### 3. Evolution of Model: Cooperative Governance of World Cities

Problems of unbalanced development still exist in today's world, for example, a widening North-South gap, frequent geopolitical turmoil, and volatility in the financial markets. Solving these complicated problems demands stronger international cooperation and a new system of global governance to promote a more balanced development of developing and developed economies.<sup>1</sup>

Currently, there have been collaborative relationships between approximately 70% of the world's cities in the world.<sup>2</sup> Chinese cities have established more than 2,000 friendship-city relationships with cities in over 130 countries. Influenced by globalization and the philosophies of governance, international city cooperation is impacted by economics, sociology, and political science.<sup>3</sup> Generally speaking, the models of cooperation in urban governance include metropolitan governance, governance through City-to-City (C2C) cooperation and global urban governance.

After reaching a certain stage of development, international metropolises tend to break out of their immediate administrative regions and expand to peripheral areas to form a 'metropolitan area'. More and more public issues beyond the straightforward jurisdictional boundaries of local governments and the functions of government departments have emerged in governing metropolitan areas. To solve these issues, there are increasingly more cases of greater cooperation between government departments across boundaries, levels and fields.<sup>4</sup> For example, in order to overcome the drawbacks of the 'unipolar concentration' model, the US started to develop and implement plans for the Atlantic coast city belt in the northeast and proposed to 'save the New York metropolitan area in danger'.<sup>5</sup>

<sup>1</sup> [http://news.xinhuanet.com/yzyd/local/20141023/c\\_1112950403.htm](http://news.xinhuanet.com/yzyd/local/20141023/c_1112950403.htm).

<sup>2</sup> Marike C Bontenbal. 'Strengthening Urban Governance in the South through City-to-City Cooperation: Towards an Analytical Framework'. *Habitat International*, 2009 (33) : 181-189.

<sup>3</sup> Jiang Xianrong, Hong Yaunbo. 'Theory, Case and Inspiration of International City Cooperation Governance'. *Urban Development Studies*, 2015, 22 (8) : 21-26.

<sup>4</sup> [http://www.cssn.cn/djch/djch\\_djchhg/dhddvsgoiguifavj/201507/t20150710\\_2073476.shtml](http://www.cssn.cn/djch/djch_djchhg/dhddvsgoiguifavj/201507/t20150710_2073476.shtml).

<sup>5</sup> Zhou Ye, Guo Chunli. 'Problems in Global Urban Development, Governance Experience and Inspiration for Beijing'. *2011 Forum on Urban Internationalization-Metropolitan Governance in the Process of Globalization*, 2011.

China's metropolitan areas have carried out governance through cross-government cooperation to address distribution of water resources, air pollution, and transborder river pollution and they are gradually implementing regional cooperative governance in economy, environment, traffic, population and other public affairs.

Governance through international C2C cooperation has been practiced worldwide and has achieved good results. For example, El Salvador City of Peru and Amsterdam of the Netherlands carry out financial governance and environmental governance through C2C. <sup>1</sup> From 2004 to 2006, Amsterdam helped El Salvador install computers and software, and train staff, improving both the service delivery and revenue of El Salvador as well as public satisfaction index. From 2004 to 2010, El Salvador municipal departments, following Amsterdam's example, designed an environmental management plan, launched a waste recycling movement to separate and concentrate garbage, and distributed green cards to the public (they can be traded and used for garbage tax relief). The latter not only improved public awareness of the environment, but also reduced the cost of waste management.

Addressing climate change through international cooperation is an example of good global urban governance. In 2015, The *Paris Agreement* was reached at the UN Climate Change Conference in Paris, marking that global climate governance will enter an unprecedented new stage after 2020. The *Paris Agreement* indicates that the parties will strengthen the global response to the threat of climate change by reducing the increase in the global average temperature to pre-industrial levels of 2 °C, and they will make efforts to control it within 1.5 °C. Prior to the signing of the *Paris Agreement*, the C40 Cities Climate Leadership Group, established in 2005, is intended to promote the cooperation between the large cities in the world to jointly reduce global greenhouse gas emissions and improve energy benefits; and the Group has had 85 city members.<sup>2</sup> In the future, developed countries still need to continue taking the lead in emission reduction and strengthening financial, technological and capacity building support for developing countries to help them mitigate and adapt to climate change. In addition, global urban governance in natural disasters, conflicts, and environmental pollution has also become an important topic among multinational and multi-city assistance, development and cooperation.

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<sup>1</sup> Jiang Xianrong, Hong Yaunbo. 'Theory, Case and Inspiration of International City Cooperation Governance'. *Urban Development Studies*, 2015, 22 (8) : 21–26.

<sup>2</sup> C40 Cities Climate Leadership Group, <http://www.c40.org/>.

Global governance has become an international consensus. Working in coordination with many major economies, social and cultural affairs now operate both at the urban level and the national and regional levels. This is an era of global governance of cities.<sup>1</sup> Cooperation between regional cities and global cities in terms of reciprocal sharing of information about urbanization and sustainable development experiences, including ideas around urban construction and urban governance, has become a major trend. Promoting the reform of the global governance system, improving global governance mechanisms, and establishing a new global governance system of rules that better meet citizen needs is therefore an important issue for future urban development.

#### 4. Multi-element Inclusion: Cultural Prosperity and Cultivation of Soft Power

After ending the ‘Economy First’ stage, world cities gradually begin emphasizing soft power and cultural value. As cities become more people-orientated, urban developers worldwide begin working towards making metropolises green, safe, fair, charming, and harmonious places.

##### 4.1 Rapid Development of Cultural Industries

In the process of globalization, culture has become an important source of sustainable urban development. A focus on preserving and promoting culture not only makes a city more attractive and maintains its vitality, but also helps foster a sense of local belonging and identity.

Global cities, such as London and Tokyo, consider cultural and creative industries as the focus of the next industrial development and use policy to enhance cultural soft power. Since 2000, the two Mayors of London have released three cultural strategies in succession and proposed making London into ‘an outstanding cultural center of the world’. Tokyo is committed to promoting the city’s internationalization and cultural diversity, and it spares no effort to expand its influence and participation in cultural and creative industries. All sectors of society from home and abroad, including the celebrities from the art world and ordinary people even innocent children, are committed to building a cross-regional, cross-sectoral and cross-generational creative city.

The cultural industry offers opportunities for traditional large cities as well as paths for second-tier, small and medium cities to catch up with advanced ones. The

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<sup>1</sup> *Jiefang Daily*, October 31, 2014.

comparison of the practices of the ‘2013 European Capital of Culture’ Marseille with the practices of Kosice (the Slovakia Republic) in the *Annual Report on World Cities (2014)* further confirms that ‘both small and large (cities) are given an opportunity’ for cultural development.<sup>1</sup> Some cities have improved their social and economic development by showing their tangible and intangible heritage and developing cultural characteristics to enhance their comparative advantages. For example, Doha is regarding education and art as a part of a new plate of culture to promote their development. Gaziantep in eastern Turkey has begun to regard its cultural heritage as tourism resource to promote its prosperity.

#### 4.2 A Consensus on Inclusive Development

In recent years, with the frequent occurrence of social mass events in cities on a large scale, inclusiveness has become a key element for successful social operation of cities. International cities regard the construction of a diversified, balanced, fair and just inclusive society participated in by every resident as a strategic objective.

First of all, this means enriching the diversity of the population. According to the *World Migration Report 2015*, jointly released by the International Organization for Migration (IOM) and the Center for China and Globalization (CCG), nearly one-fifth of the world’s foreign-born population live in the world’s major developed cities. In Brussels, Dubai and other cities, immigrants account for over half of the total local population. As minorities and new immigrants gather, integrate and collide in urban centers, they change the very fabric of the city, making it more multicultural and vibrant.

Secondly, it means promoting social fairness and justice. Almost all cities try to achieve an equitable distribution in incomes and provide low-income groups with affordable housing, public services and social security through a variety of means. They try to guarantee that different groups have equal social rights in employment and labor markets and try to eliminate discrimination. For example, Rio de Janeiro is trying to become the Brazilian city with the fastest growing human development index, the biggest reduction in inequality, the lowest unemployment rate, and the highest average income of workers.

Thirdly, it means enabling all the residents to participating in urban development. Each resident of a city has the right to participate in decision-making to decide how to remodel their living environment. The governments of cities are increasingly emphasizing concentrating the forces of enterprises, social organizations and

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<sup>1</sup> Tu Qiyu (chief editor). *Blue Book of World Cities: Annual Report on World Cities (2014)* —*Rising of International Innovation Center Cities*, Beijing: Social Sciences Academic Press, 2014.

ordinary citizens to enable them to jointly participate in social improvement and community revival. For example, Caracas, the capital of Venezuela, is transforming its public space by introducing participatory design process to low-income communities to eradicate urban poverty.

### 4.3 A Future Led by Livable Life

In the history of urban development, people have never been faced with so many crises as they do currently. Our notion of the ideal, livable city has changed fundamentally. Livability has become a common trend of future development by cities in the world in recent years. Developed and developing cities now consider attractive environments, quality service facilities, diversified housing, abundant public space, convenient transportation, and infrastructure networks as integral to achieving sustainable urban development.

Ile-de-France has planned to build more than 1.5 million housing units in next 25 years to meet its massive demands; create an open space system; preserve, create and manage landscape and cultural heritage; and improve the quality of life. With neighborhoods and community at its core, Baltimore is developing historic preservation plans, streetscape construction plans and neighborhood beautification programs to promote good-neighborly relations and develop attractive public spaces. Petaling Jaya in Malaysia adopts a low-carbon strategy in urban development, planning to reduce the emission of carbon dioxide by 40% per unit of GDP by 2020 to build itself into a green city. Mexico City Overall Development Planning aims to redesign and transform traffic corridors to allow different traffic means run at the same time, improve the traffic conditions along the corridors, better safeguard the safety of pedestrians and cyclists, redesign comfortableness and improve its lighting system.

### 4.4 The Ultimate Goal of Happy City

With the convening of the ‘UN Conference on Happiness and Well-being’ held in 2012, ‘Happiness’ was officially integrated into new human development goals. The World Economic Forum issued the *Well-being and Global Success: Global Agenda* at the Davos Summit in 2012, proposing that ‘people’s well-being’ should become a key indicator of developmental success. The Earth Institute of Columbia University released the first *World Happiness Report* in 2012, proposing that Gross National Product (GNP) be replaced with ‘Gross National Happiness’ (GNH) as a more comprehensive measure of global development.<sup>1</sup>

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<sup>1</sup> Tu Qiyu. ‘Global Trends on Urban Development and China’s New Urbanization’. *Time + Architecture*, 2013 (6) : 26–29.

Building a happy city becomes the ultimate goal of global cities. Copenhagen, a well-known Northern European city like a wonderland, is considered as one of the world's most livable cities with the highest happiness index. After the energy crisis in the 1970s, Copenhagen took the initiative in adjusting its energy structure and effectively inhibited the development of motor vehicles while actively encouraging cycling. By the end of 2015, its proportion of cyclists had reached 50%. With the further development of the urban cycling strategy, Copenhagen boasts wide urban spaces, low levels of noise and pollution, long life expectancy, and high-quality life, making it an enviable example of a livable, happy, and sustainable global city.

The Expo 2010 Shanghai China was themed by 'Better City, Better Life', reflecting the beautiful vision of building happy cities around the world and the persistent pursuit of mankind for a harmonious life. In this best era of unprecedented change, each city can embrace new development and build itself into a place of great opportunity where demands are met and dreams are fulfilled.

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# Chapter 2

## Social Integration and Inclusive Cities



## To Pursue Inclusive and Balanced Growth

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Cities should balance economic growth and social development; seek to achieve an optimal relationship between social equity and economic efficiency; strive to create an institutional environment of shared rights and interests, equal opportunity, and fair competition; and work to reduce inequities in income. They should enable all residents to share the fruits of urban development and fully realize their personal growth.

—Excerpted from *Shanghai Declaration*

## Introduction\*

Today, cities are regarded as growth machines, engines for development, foundation of prosperity and hubs for innovation. Urbanization brings about growth and development and increases national economic growth rate, which thus alleviated poverty to a great extent; the connecting ability between people's residential quarters is greatly improved, which promoted the increase in productivity and creation of opportunities; cities are integrated into the new regional layout as a part, which drives a faster growth in economy and population; urban-rural interdependence is increased, which helps lessen the vulnerability of rural communities and drives a brighter prospect of development; and urbanization also improves the health and living situation at various stages of life, including infant and children, juvenile and youth, the working age, the child-bearing age and the old age.

However, with the deepening of urbanization, globalization and digitalization, led by the Global Standard of the 20<sup>th</sup> Century (GS20C), i. e. the model driven by land speculation and the interests brought about by real estate emerged, which caters for the new values of individualism and the lifestyle of consumerism; undue mobility and over-privatization of public space, cities are becoming increasingly unequal in economy, society, politics and culture, which is represented in their space. The resources of cities have never been so unequally allocated, and the 'city polarization' between the rich and the poor has never been so great. On the one hand, the alliance of capital, government and professional authority under the mainstream urbanization model led to the weak voice of the public; on the other hand, globalization includes the things (capital) in any place of the world which can create value or have value, but also tends to exclude the things (low-skilled immigrants) that have little tangible value. As a matter of fact, the special function of the cities which were earliest globalized such as New York and London is the 'control node' of the activities of the global financial market and multinational corporations, and there are a group of high-income internationalized talents engaged in complicated economic activities, while a great number of supportive laborers providing medium-and low-end services in these cities,

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\* Chapter 2 is compiled by the team from School of Social Development and Public Policy of Fudan University, written by Yu Hai, Zhong Xiaohua, Deng Shibi, Li Jiaying, Yang Chen, Shi Cheng and Mariana Ueta.

which caused severe social polarization and spatial polarization in these global cities.

The subject of this chapter is ‘social integration and inclusive city’, and exactly speaking, it mainly analyses urban interpersonal and inter-group relationships. American sociologist Louis Wirth(1938) came up with a kind of urban lifestyle characterized by the density, scale and heterogeneity of population using the title of ‘urbanism as a way of life’. Looking back to the classic is to help us gain from the master some insight to understand the existing problems in cities. Cities are characterized by the largest populations, the most kinds of occupations and the most diverse ideas and fantasies, which determines, on the one hand, a city is a place for creating ideas, debating philosophies, and incubating new knowledge, as well as a place for venturing driven by ambition and aspiration; on the other hand, as people from different cultures and ethnic groups who have different interests all live in a finite space, cities are also confronted with choices such as whether to cooperate or contend with one another, to adapt to or become alienated from others, to share or monopolize resources, to tolerate or reject others, etc.

This chapter discusses the problems and challenges caused by the increasing urban social division from economy, society, politics and culture as well as the spatial perspective, and comes up with inclusive urban development vision and goal with ‘sharing, participation and inclusion’ as its core based on ‘Right to the City’. The cases and experience selected by us in the context of adopting ‘Cities for All’ as the philosophy, are of universal significance. And the part of ‘Countermeasures’ at the end corresponds to ‘sharing, participation and inclusion’, and comes up with some practical suggestions, which can enable flexible communications with policy makers and promote effective cooperation of the stakeholders of a city.

## Problems and Challenges

The subject of this chapter is ‘Social Integration and Inclusive City’ and is mainly intended to address the universal problem of isolation and exclusion. Cities have always been the engine of world development, and *State of the World's Cities 2012/2013* issued by the United Nations Human Settlements Program (UN-Habitat) even chose ‘Prosperity of Cities’ as its annual theme, but prosperity and development doesn’t mean disregarding such questions as: the accomplishments

of urban development are concentrated in the hands of very few people instead of being shared by everyone; and development has failed to bring about amicable co-existing communities and harmonious cities. As indicated in the *World Cities Report 2016* by UN-Habitat, the world today is more unequal than 20 years ago, the income inequality in 75% of the cities in the world is greater than 20 years ago; the absolute population living in the slums (informal residential quarters) in the world is still increasing, from 650 million in 1990 to 863 million in 2012<sup>1</sup>, and the ratio of informal laborers in the cities all over the world is up to 47%; and many urban vulnerable groups fall into a trap featuring inadequacy of job opportunities, worsening living conditions, social segregation and marginalization, lack of social interaction and high crime rate.

## 1. Marginalization of Vulnerable Groups

Urban inequality and exclusion are associated with certain groups. The old, women, low-income earners, immigrants, etc. are the most vulnerable groups to negligence and discrimination and, as a result, suffer from exclusion and inequality. Age discrimination and sexism have never just stayed in people's minds, they are also social assessments (cultural) and institutions with concrete social effects. The cases inside the text boxes attached to this chapter show that even in societies with advanced civil rights, such as Austria, it is still necessary to strive to create an equal living environment for women.

Low-income earners are undoubtedly a vulnerable group in cities. Furthermore, poverty, in most cases, is by no means the sole disadvantage. Financially disadvantaged people are most likely also disadvantaged socially and culturally. Low-income earners are not only denied access to adequate housing, foods, health care and other services, but also denied the right to participate in urban development. In this chapter, the word 'low-income earners' belong to the domain of sociology, which means more than low-income groups.

As for immigrants, most of them belong to vulnerable groups. International immigration, mostly from underdeveloped countries to developed countries, is very common in the era of globalization. According to authoritative statistics, from 1950 to 2015, immigrants migrated to the one-way destinations including most areas in Europe, North America and Oceania from the one-way origins including Africa, Asia, Latin America and the Caribbean Area. The immigrants

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<sup>1</sup> Data Resource: the Global Urban Observatory of UN-Habitat (2014).

caused by such a trend are in an inferior position compared with local residents in terms of language, skill, identity and recognition. The case from Paris in this chapter shows that the proportion of immigrants in marginalized community are almost ten percent (9%) higher than that of the whole Paris. And the proportion of immigrants is also one for determining whether a neighborhood is a troubled one.

Undocumented immigrants are in an even more vulnerable position. They account for 15% to 20% of all international immigrants. It is estimated that 50% of the immigrants in Asia and Latin America are undocumented. There are also many more undocumented immigrants that are not recorded. They live a secret life to avoid deportation. Undocumented migrant workers are often excluded from the mainstream housing distribution system. They 'are often homeless or live in crowded, insecure and unsanitary conditions'. And as they are not officially recognized by the destination countries, they can't defend themselves and often suffer from slavery for being trafficked. Immigrant women, who account for almost half of all immigrants, are subject to various forms of discrimination both as immigrants and as women. They constitute the main part of informally employed people, have to take unstable jobs and often find themselves unemployed.

Internal migrants of China within a country are mostly the result of urbanization. More than 200 million farmers or rural residents in China moved to cities and became residents living and working in cities, which is undoubtedly the most magnificent urbanization process in the world. However, they are called 'rural migrant workers' as they cannot be registered as permanent urban citizens for their place of birth, and China's registered residence system distinguishes urban and rural identities and exclusive welfare. Hundreds of millions of rural migrant workers made tremendous contribution to China's urban prosperity and economic development, but most of them are only entitled to some basic public services in the large cities where they work for they don't have urban citizenship, and they are only given limited benefits inferior to those given to permanently registered urban citizens. Currently, the governments are taking positive measures to abolish the dual household registration system.

## 2. Inequality of Urban Space

The inequality and exclusion in cities is its spatial feature, or specifically,



spatial exclusion and confrontation. In many cities, especially those in developing countries, ‘wealthy communities with fine facilities and conditions are often next to the slums located in the inner city or suburbs without basic services and housing’. Slums can be considered the most startling and typical phenomenon showcasing the spatial exclusion in today’s cities and even a symbol of spatial confrontation in cities. *World Cities Report 2016* compiled by UN-Habitat, entitled ‘The Widening Urban Divide’, focuses on the subject of spatial exclusion and lists many of its embodiments, such as the exclusion in social and economic space, the exclusion in collective social and cultural space, and that in political space. The concentration of low-income, unskilled workers in living space means a poverty trap, which is difficult to escape. Another typical example of spatial exclusion are gentrification of downtown area, gated communities, the global flow and reshaping of workspace, etc. The gentrification of central city is considered as ‘re-accumulation of capital after the devaluation of depressed industrial areas’ or ‘production of the space for richer users’. In either way, it means that residents originally with lower social economic status have to make place for richer people and move to places with less access to job opportunities and more commuting difficulties. Spatial exclusion directly results in exclusion of other opportunities and welfare. Gated communities are characterized by enclosing themselves from neighborhoods with walls, fences, real-time monitoring devices and security guards. The concept of gated community, put forward by Blakely and Snyder (1997), highlights the non-publicness of communities, which means excluding the persons out of it from social interactions, resulting in interpersonal isolation and tension. An even more extreme case is the ‘gated cities’ in South America, where the isolation and exclusion are at the city level.

Exclusion brought about by the global flow of workspace mainly occurs in the cities of developed countries. Transnational corporations transfer their production lines to emerging economies and the resultant decrease of job opportunities was directly related to the emergence of troubled communities. Globalization has the assembling line transferred from developed countries to developing countries, and reduced the employment opportunities in the initial industry zones, hence such transfer has caused the unemployment rate increase as well as the decline of the communities development. The diagnosis of communities in Paris in this chapter touches upon the problem of spatial exclusion of job opportunities, which was brought about by globalization. Tianzifang in Shanghai, as a case introduced in this chapter, took an opposite approach and revived the community through collectively

participated community entrepreneurship, instead of the gentrified urban renewal pattern prevailing in China's cities.

### 3. Social Exclusion-Oriented Urban Policies

First, spatial exclusion is not motivated by space itself, but rather the social forces and social processes owning spatial resources and the power to dispose of space. In the past decades, the forces of capital, the state and experts have been dominating the process of urbanization. In a word, it is the forces of elites, and the cities programmed and constructed in light of elite philosophies and interests are not for all the groups. In the case of São Paulo in this manual, the most important lesson is that, without the participation of common citizens in urban planning, urbanization will mostly end in spatial polarization and differentiation where the rich occupy the best location while common people live in the areas far from job opportunities and with poor transport and few service facilities. There are multiple theories addressing urban development, such as 'growth coalition theory' and 'urban regime theory'. They all point out that, as urban development is led by the elitism, those excluded are deprived of the participation right in decision-making and disadvantaged in sharing the accomplishments.

Secondly, economic and social inequality also results in unequal allocation of the opportunities in such aspects as health, education and culture, which can be partly attributed to the orientation of urban policies. The survey in 27 selected cities, which was conducted by UN-Habitat in 2009 revealed the essential root cause in policy for spatial inequality. It is shown by the survey that for the cities in Latin America, the governments both at the state and the regional level have the initiative in formulating urban policies; while in Asia and South Africa, urban policies are mainly formulated by the state, without supportive ones at the city level.

Furthermore, in addition to the coordination between policies, the exclusive orientation of urban public policies is another major reason for aggravating inequality. Typical policies of urban exclusion include household registration policy, unequal right to education, differentiated rights granted by social security system, some deviations of health care and medical policies and suppression measures opposing cultural freedom, which aggravate urban divide to some extent.

Fourthly, lack of fairness in the process of policy making is also a reason

for failing to integrate the public into the urban development system. In most developing countries, there are still some problems in real life, such as the public's unawareness and passiveness in participating in policy making, the lack of channels and obstacles for the public to participate in making public policies and low institution and organization level, which directly result in the failure in integrating the demands of various groups into the policy framework.

Unequal cities and the cities falling into isolation due to exclusion, 'not only just impeded economic growth and the decrease of impoverished people, but also affected human development on all sides'. *State of the World's Cities 2008–2009* described the multi-faceted social impacts of inequality. For example, inequality solidifies the disadvantaged position of low-income earners, depriving them of the hope for cities; inequality allows the very few to succeed at the expense of the majority, intensifying the social antagonism between the rich and the poor; unemployment and income inequality have negative impacts on people's physical and mental health; and inequality is also closely related to social tension, conflicts and unrests of various forms, and so forth. All these situations point to the separation, isolation, antagonism and conflicts among groups of people. Such cities are not sustainable in the sense of social co-existence. In such a case, it is natural and necessary to strive to transform from unequal and excluded cities to inclusive ones where all people live in harmony.

## Vision and Action

Increasing development imbalance between regions and cities and inequality between different groups of people have aroused widespread attention from the international society to fairness and justice. 'Inclusive Development' has gradually become an international consensus. The idea of 'inclusiveness' was brought up by UN Millennium Development Goals in September, 2000. In August, 2007, Asian Development Bank came up with the idea of 'inclusive growth' for the first time. In October, 2010, *Shanghai Declaration* published by Shanghai Expo Summit Forum included the goal of 'pursuing an inclusive and coordinated growth pattern' and proposed that 'a city should coordinate the balanced development of economy and society, focus on the positive interaction between equality and efficiency, create an institutional environment of shared rights, equal opportunity and fair competition,

and strive to narrow down the income gap, so as to enable every resident to have a share of its accomplishments of economic development and fully achieve individual growth’.

Inclusive development means that people from every region, class and ethnic group should have the right to participate in development and enjoy its accomplishments. In 2015, the UN proposed 17 sustainable development goals, of which more than half involve inclusive development for poverty alleviation, health care, education and urban settlements.

Based on inclusive development, UN-Habitat came up with the idea of ‘inclusive city’ in *World Cities Report 2000* for the first time and regarded it as a new goal for the development of world cities. An inclusive city means that everyone in the city, regardless of their wealth, gender, age, race and religion, can participate in productive activities with the opportunities provided by the city. The idea lays stress on the balance and unity of urban development in economy, society, governance, culture, space and other fields, on the inherent consistency of equity and efficiency in the process of urban development, and on the reciprocal connection and promotion of the equality of different entities in the city in terms of their development rights. The idea mentioned above will help resolve the issue of social ‘fragmentation’ in cities, especially global metropolises, resulting from the fast flow of international factors.

UN-Habitat also proposed the goal of ‘Bridging the Urban Divide’ in its *World Cities Report 2010–2011*, and put forward social equality as a top indicator of City Prosperity Index in its *World Cities Report 2012–2013*, and the goal of developing inclusive cities is proposed in the following three dimensions: (1) spatial justice in the distribution of resources; (2) political system; and (3) social, economic and cultural diversity. The idea of inclusive city incorporated the concept of ‘Right to the City’. The concept was originally proposed by Henri Lefebvre (1968), a French sociologist, and stresses that the right of every urban resident not to be excluded from daily life space, not to be deprived of his or her share of urban development accomplishments and to participate in the urban renewal process is a specific protective right to acceptance, representing the qualification and condition of people as an entity to have a share of both the accomplishments and responsibility of the city. In 2004, in the *World Charter on the Rights to the City* supported by UNESCO and UN-Habitat, ‘rights-based approach’ was come up with as a basic approach for cities in the world to realizing their vision of inclusive

Table 2.1 Sorted International Documents Related to Some Ideas

Ideas	Related Documents	Source
Inclusive Cities	Millennium Development Goals (MDGs)	United Nations, 2000
Inclusive growth	<i>Asian Development Review</i>	Asian Development Bank, 2007
‘We commit to promote an integrated approach to planning and building sustainable cities and urban settlements, including through supporting local authorities and increasing public awareness so as to increase the participation of urban residents, including the poor, in decision making.’	<i>The Future We Want</i>	United Nations Conference on Sustainable Development (Rio 20+)
Bridging the Urban Divide	<i>State of the World’s Cities 2010–2011</i>	UN-Habitat, 2012
1. End poverty in all its forms everywhere; 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all; 5. Achieve gender equality and empower all women and girls; 11. Make cities and human settlements inclusive, safe, resilient and sustainable	Sustainable Development Goals (SDGs)	United Nations, 2015

development.

Currently, the development goal of inclusive city has gradually become a global consensus as well as an important topic in *New Urban Agenda: 2030* being promoted by the United Nations Conference on Housing and Sustainable Urban Development (Habitat III). *The Right to the City and Cities for All* is also the theme of the report of UN-Habitat in 2016.

By combining with existing theory interpretation and international practices, this section put forward three key words of sharing, participation and integration starting from the realization way of inclusive cities, and builds a development vision of economic inclusion, social inclusion, political inclusion, cultural inclusion and spatial inclusion.

### 1. Sharing

First, an inclusive city means a city where the accomplishments of economic growth, equal social rights and homogeneous public services are shared. For

people like immigrants, new urban residents, the old, women and children, and the disabled, inclusive development is the only way to eradicate poverty, change their disadvantaged positions and fit in the mainstream society.

Inclusive growth is also known as shared growth, so sharing is the primary vision of an inclusive city. For the international society, developed countries and developing countries should hold mutual respect and adopt an inclusive attitude towards the peaceful development of other countries; for a country, inclusive growth means eliminating the estrangement and gap between social classes and social groups so that each individual can integrate into the trend of economic development and get equal development opportunities and share common accomplishments. According to World Bank, potential labor forces should be motivated to maximize the workforce participating in economic activities and that economic balance should be maintained not only for sustained growth, but also for poverty alleviation. *Europe 2020 Strategy* focuses on ‘smart, sustainable and inclusive’ growth, i. e. innovation in competition, environmental protection and high employment rate, and cohesion of societies and regions. In a word, inclusive growth means that while maintaining a higher economic growth rate, we should also focus on social development and vulnerable groups to enable more people to enjoy the accomplishments of economic globalization, emphasize the vulnerable persons’ acquisition of rights and interests, so it is of vital significance how to protect the interests of the vulnerable groups, such as the old and women, in social policy making and resources integration.

To cope with the future trend of aging of the generation of baby boomers, Calgary of the Province of Alberta in west Canada launched a Seniors Age-Friendly Strategy so as to change the property of vulnerable group of the elderly through thematic strategies. Take social participation and integration for example, four promised results are identified, including (1) older adults feel welcomed and valued; (2) older adults are socially, physically and intellectually active; (3) older adults contribute to the community; and (4) older adults who want/need to work are employed. To make the elderly feel welcomed and valued, Calgary City of Calgary would work with different partners, such as older adults service providers, ethno-cultural organizations, and art and cultural organizations, to create a positive aging in Calgary.

## Vienna in Austria: Gender Mainstreaming Planning Strategy towards a Fair Shared City

Gender Mainstreaming refers to ensuring that people of different genders have equal access to urban resources and that their differentiated needs can be satisfied. ‘Fair Shared City: Gender Mainstreaming Planning Strategy’ is a part of Vienna’s gender mainstreaming strategy. To ensure the implementation of gender mainstreaming planning strategy in the society, Vienna set up a coordination office mainly for the demands in daily life and the special needs of women. The team, with its own staff and budget, can give orders, rather than just suggestions for gender mainstreaming in the society.

By conducting important surveys and understanding the specific needs of the people of different genders, many plans in line with this philosophy, including traffic arrangements, gendered park design, social housing, urban development, or buildings for public use. Based on the results of these plans, it defined the criteria for the future planning aimed at gender-related issues. Whether these pioneering plans have value for gender mainstreaming would be assessed in detail and the lessons from their implementation would be further incorporated into the planning principles for the whole city. By offering training, organizing workshops and conferences, publishing books, and commending on the spot, it has enhanced the society’s (including administrative departments, experts and the public) understanding and appreciation of gender mainstreaming.

The major innovation of the plan is its planning techniques and the arguments, criteria and guiding principles it offers, which not only defined the social sense of gender mainstreaming, but also provided planning tools. One of its goals is to reinforce a people-oriented and transparent planning mode with accessibility. It has successfully introduced a series of highly humanistic representative programs, including:

1. Planning centered on life cycle from the perspective of daily life. Groups of people at the different stages of life cycle are related to the local environment at different levels. After an investigation of the time distribution of paid and unpaid jobs for men and women, the percentages of various types of families with children, trip purposes of men and women, and the ratio of men and women above 75, it designed public facilities based on the above population structure and trip data to facilitate the trips and free interaction of the people of different age

group.

2. Gender-sensitive land use planning, including large-scale urban development planning, individual transformation of developed areas, structural addition or reconstruction, small-scale reconstruction combined with land evaluation and structural improvement strategies, high-quality buildings and the structure of use, accessibility and circulation quality (parks and playgrounds), and public facilities (kindergartens and schools).

3. Gender-sensitive park design. It includes public space fit for social intercourse, security, sports events for women of different age groups, and some recommendations and guides.

4. Gender-sensitive room standard. It includes size and layout (aesthetics, minimal space and natural lighting in kitchen), internal communication channels, public space, open space, and living space designed for people of different age groups, with a view to assisting housework and household routines, boosting neighborhood relations, creating a housing environment where residents can perform activities safely, and providing maximum housing layouts.



Source: <https://globewomen.org/globalsummit/wp-content/uploads/2014/06/ppt-eva-kail.pdf>.

Figure 2.1 Gender-Sensitive Residence Pilot Project in Vienna



For a long period, planned was conducted from the perspective of work and leisure (male's perspective), rather than family and housework. The project of gender mainstreaming is aimed to build a shared, just and women-friendly city, which means that all residents have the full right to use urban space and fairly participate in the decision-making process of the city.

Source: Good Practice Cases from UN-Habitat Database (2008).

[http://mirror.unhabitat.org/bp/bp.list.details.aspx?bp\\_id=1137](http://mirror.unhabitat.org/bp/bp.list.details.aspx?bp_id=1137).

<https://globewomen.org/globalsummit/wp-content/uploads/2014/06/ppt-eva-kail.pdf> (Global Summit of Women, Paris, 2014).

<http://www.kadindostukentler.org/content/docs/presentations/presentation-12-en.pptx>.

## 2. Participation

The rights-based goal of an inclusive city means that all the members of a city have the right to participate in the decision-making process of the city and decide how to reshape their living environments. Only through collaborative participation can we fully incorporate the needs of various groups into urban development planning and urban planning design. It is also the foundation of inclusive development. And it's the broad participation based on community networks and thus makes development the social improvement and community revival which is realized through the collaborative participation of governments, enterprises, NGOs and the public. The case of Tianzifang in Shanghai is a case where five kinds of stakeholders of entrepreneurs, artists, managers, scholars and residents are gathered for collaborative participation and cooperate for action. Public administration methods were innovated through inclusive governance, a transparent and democratic decision-making mechanism and an interests allocation mechanism was built, and, the use value of space and social efficiency was maximized through inclusive urban planning and the collaboration and participation of multiple parties.

The project of Art Youth Research Center in Eldoret, Kenya is aimed at promoting youth empowerment and their consciousness of environmental protection. The organization provides services of collecting and disposing the

solid waste from Kidiwa Kapsuswa, cultivates the residents' consciousness of environmental protection, creates job opportunities beneficial to the youth, and participates in urban landscaping. With its help, more than 100 youngsters have become citizens responsible for the society.

### Istanbul of Turkey: Play the City Istanbul

Play the City Consultant originated from the project of City Gaming started by a young architect Ekim Tan in 2007. The project introduces accurate games into urban construction. City simulation games provide designers with information available only from the real-time interaction between stakeholders to enable them to participate in design collaboratively and test the planning and limits of specific complicated urban problems. As a mini enterprise, Play the City has conducted activities in such cities as Amsterdam, Hague, Istanbul, Brussels, Cape Town and Shenzhen. Play the City continuously designs specific city simulation games for various international urban problems. Play the City helps build communities, and formulates strategies for urban development.

The games set in Istanbul is to study how to resettle a large population of newly-arrived people in Istanbul, an already densely populated city, in the face of threats of an earthquake. The city simulation game, named 'If I Were Istanbul's Mayor', enables the citizens of Istanbul to participate in a poll for future prospects of the city. Citizens with a bus pass only need to put it into a scene they prefer and the scene they choose will be immediately transmitted and shown through RFID imaging technology. Players can evaluate their choices through the real-time images. There is a wide range of dilemmas that players may face, including transport, drinking water, foods, energy, urban density, public space, shopping, transformation, investment and the risk of an earthquake. The campaign was launched in October 2012, and was enthusiastically participated in and responded to by 1,503 citizens.

The game is intended to present pressing urban issues in front of the citizens through interactive tools. With the help of modern technology, serious political issues are incorporated into a relaxing interactive game, which, on the one hand, arouses and enhances the initiative of Istanbul citizens to participate in urban construction, and on the other hand, increases the citizens' perceptual awareness of the consequences of their choices through vivid real-time scenes,

providing the government with the most authentic and accurate opinions from the public.



Source: <http://www.playthecity.nl/17141/en/play-the-city-projects>.

Figure 2.2 Distribution of City Gaming Project

Source:

<http://www.playthecity.nl/>

<http://www.playthecity.nl/17182/en/if-i-were-istanbul-s-mayor>.

### 3. Integration

Integration, as a concept focused on diversity in the first place, means fully recognizing the differences of various groups in such aspects as gender, age, race, religion and identity, and adopting a right approach to face squarely and tolerate social, cultural and economic diversity. United Nations lists the young, the elderly, the disabled, ethnic minorities and natives as important groups in social integration. It means establishing the vision of integration on the precondition of the recognition of the groups, promoting the differentiated interaction and positive connection between different groups in urban development planning, and focusing on the reciprocal cooperation and mutual understanding between different groups in the urban life.

As globalization and urbanization proceed, immigrants gradually emerge as another group in need of social integration. As for the integration of immigrants, the biggest challenge is their integration into economy, i. e. how to settle in the city and be integrated into its development system. An inclusive economic structure needs

to be built by designing an economically diversified industrial structure, in which there should be high-end and high-tech strategic emerging industries and low-end labor-intensive service industries, especially with a diversified culture contributed by a large number of immigrants, which constitute an inexhaustible driving force for the true sustainable development of a city. Saskia Sassen, a famous urban sociologist, proposed in *The Global City* that even in high-tech industry clusters, such as the Silicon Valley, there are many low-skill and low-income jobs. City managers can adopt inclusive governance of informal economy and informal housing to offer supports to the vulnerable group of immigrants in institutional design and take such measures as equalization of public services and affirmative action to enhance the integration of immigrants into the society.

The federal government of the USA launched Temporary Assistance for Needy Families (TANF) <sup>1</sup> in 1997 for low-income immigrant families with immigrant children. TANF is mainly intended to help the parents meeting the employment qualifications by providing them with temporary financial assistance, and the longest term during which a family can be granted assistance is 60 months. And there are 18 million children who benefit from the assistance, accounting for 24% of the children aged between 0 and 17. In addition to the plans launched by governments, NGOs and social forces also play an important role in the integration of immigrants, for example, New York Immigration Coalition (NYIC), a national voluntary organization specially engaged in providing help and services for immigrants, which consists of more than 200 social organizations, including grassroots community organizations, non-profit health and human service organizations, religious and academic organizations, trade unions and legal, social and economic justice organizations. It is a big platform for immigrants groups to interact and exchange, share experience and mutually help each other, and focuses on providing such services as policy consultation, public participation, interest expression, group action, education and training and technology support, so as to promote the reform, fairness and justice of the society in metropolises.

Different from the developed countries, for the cities in the African continent, integration means integrating into modern civilization from tribal civilization, and Dar es Salaam has created referential experience for how to keep balance between sharing the right to be open and develop and protecting tribal traditions.

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<sup>1</sup> <http://www.thenyic.org/what-we-do>. March 21, 2015.

## Dar es Salaam of Tanzania: Integration Traditional Tribal Society into a Modern City

The rapid urbanization process in developing cities has brought the challenge of how to integrating traditional rural communities into modern urban civilization. In Dar es Salaam, the capital of Tanzania, the majority of local residents are black people and original cultures were Islamic culture, and India and Pakistan culture, and traditional tribes comprise the main part of its society. With expansion of trade volumes of various countries in East Africa, as an important port, Dar es Salaam is continuously growing in the scale of foreign trade and has entered the phase of high-speed modern urban expansion. Drastic collision has occurred between native fishing and hunting tribes and modern urban civilization, between different religions and cultures as well as globalized immigrants in the process of accelerated urbanization. Local government endeavors to avoid formation of rich-poor and urban-rural polarization and segregation of different races and religions through culture integration, inclusive employment and equal provision of services.

### 1. Equal Housing Policy and Mixed Community Plans

In the process of rapid urbanization, the government introduces equal housing policies, requiring that different religions, cultures and races must dwell in an area according to a certain proportion and it is forbidden to form social segregation areas in the city and the occurrence of slums should be specially avoided. These measures break the solidification of original domains of fishing and hunting tribes and help traditional tribes integrate into the modern city lives.

### 2. Protection of Traditional Cultures of Tribes and Preservation of the Right of Choice and Autonomy

The traditional life of the tribes in Kilimanjaro National Park and that of some surrounding tribes is protected. Within the designated protection zone, local traditional tribes exercise autonomy and are also allowed to freely live and develop in cities. If local aboriginals are willing to retain their traditional cultures, the government will provide them with economic subsidiaries so as to balance the contradictions between their right of development and heritage preservation.

### 3. Inclusive Employment and Project for Youth Development

Mkapa Industrial Park is a special economic zone built in this country, with

more than 20 export processing plants and 8000 jobs provided. 70% of these jobs are for local people and there is a certain limit placed on the ratio of male and female and that of different religions in order to guarantee the full employment of local aboriginals. Prejudices against certain races, cultures, races and religions are eliminated in the process of cooperative production by encouraging native young people to join modern manufacturing and the tertiary industry from traditional handicraft industry.

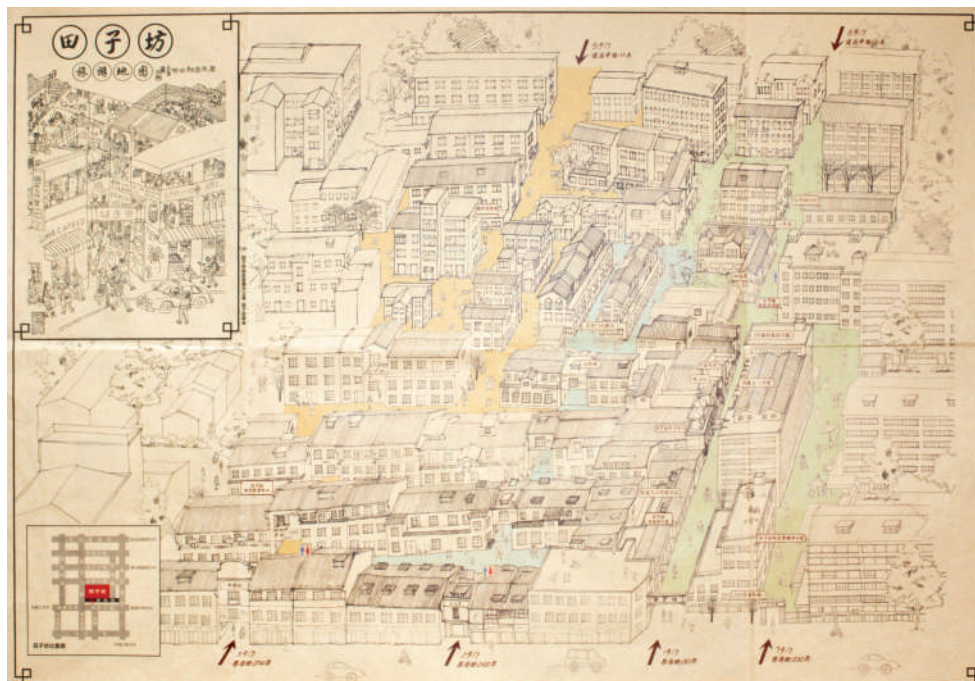
Source: Charles Cosmas, *Projecting Urban Growth of Dar es Salaam-Tanzania*, A Doctoral Dissertation of Tongji University, 2015.

## Reference Cases

### 1. Shanghai, China: Bottom-Up Old City Renewal and Inclusive Entrepreneurship of the Tianzifang Community

#### 1.1 Case Overview

Located in the downtown area of Shanghai, Tianzifang was formed in the concession period in the 1920s and once situated in the transitional area between



Source: Tianzifang Investment Consulting Co., LTD.

Figure 2.3 Hand-Drawn Map of the Tianzifang Neighborhood

the Chinese territory and foreign concession, which is a community that reserves various forms of architectures, including garden villas, new and old Lilongs, and Lilong factories. As a representative of Shanghai downtown communities, Tianzifang, mirrors the downtown development course from rural communities in the south of the Yangtze River in modern times, to mixed communities for both Chinese and foreigners in the French Concession, to productive communities that gathered many Lilong plants, and to mixed communities mainly occupied by creative industries.

By the end of 2015, among the original 671 households in the neighborhood, more than 600 have leased all or some of their houses for stores which are mainly art studios, retail stores (of handicrafts and clothing), and distinctive restaurants.

## 1.2 Implementation

The Tianzifang project was initiated at the end of the 20th century. Its initiators took on a global perspective, drawing lessons from the old city renewal models like that of SoHo, New York. It came at the same time of Shanghai's large-scale old city renovation, so the old residence renewal in the downtown area had the full institutional support.

Vision of the project: firstly, to allow multiple parties to participate in, co-construct and have their shares of the old city renewal system, i.e. to innovate on space development mode and governance institutions so that proprietors, the public, professionals from various fields and other stakeholders can participate in the formulation of renewal plans as a way of co-construction and sharing; and secondly, to optimize the resource allocation and spatial quality of the old downtown area. Through the protective reutilization of the historic neighborhood, the allocation of spatial resources was optimized and the urban heritage was conserved to enhance the appeal of the declining downtown area and the renewal of the old neighborhood.

Missions: firstly, improve the life quality of the residents so that they can have their shares of economic development opportunities (increasing their property income and job opportunities, etc. ) brought about by neighborhood renewal; secondly, improve urban functions, enhance urban dynamics and promote the development of innovative industries; thirdly, improve the supporting facilities for public services and boost the quality of public space; and fourthly, strengthen the protection of historic features and reuse the residential heritages in a protective way.

**(1) Collaborative Development Led by the District and Sub-District Governments.** The sub-district officials applied to the district government

for neighborhood renewal project on their own initiative. After the project was approved, they set up a district-level art festival management office for special management of the project. Afterwards, the sub-district government officials mobilized adequate resources, cooperated with investors and artists, and rented many vacant plants at low rates. With culture as orientation and by delving into the history of the neighborhood, designating cultural names to the spots, improving the facilities, etc. , Tianzifang district attracted a large number of artists and design studios there, thus forming the prototype of a park of cultural and creative industries.

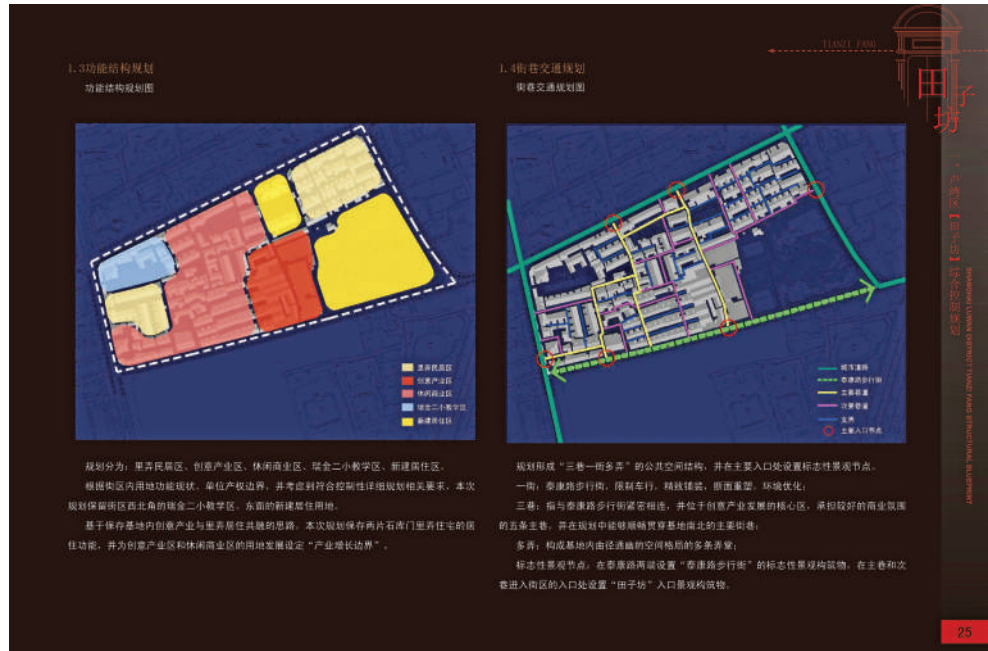
(2) ‘Tianzifang Battle’. After the financial crisis, the land parcel where Tianzifang was located was leased in a batch by the district government to real estate developers from Taiwan in 2003. The neighborhood was in danger of being demolished and the residents there might have to be relocated. Sub-district officials, artists, academic experts, merchants and residents worked together to put up a bottom-up ‘Tianzifang Battle’. They demonstrated the unique value of the neighborhood as urban heritage. Its various architectural types and spatial patterns dating back to different historical periods became the source of ‘creative industries’ that are popular nowadays. In the ‘Fight’ that lasted for nearly 5 years, the team of initiators created practical concepts for renewal of old and localized neighborhoods, including ‘soft regeneration’, community-based urban renewal participated in by communities and ‘street economy’, made the groundbreaking attempt of bottom-up, small-scale and incremental renewal, and proposed to orient the renewal towards a mixed neighborhood mainly occupied by ‘creative industries’ for the first time.



Figure 2.4 Daily Living Space of Tianzifang (Left); Space for Commercial Consumption (Right)



(3) **Legalization of Tianzifang.** In 2008, as celebrated artists moved there successively and visitors from home and abroad swarmed in, Tianzifang became more and more famous with increasingly higher rents. Its development became unstoppable. The district government officially set up Tianzifang Management Committee, invested in improving its infrastructure, and added a series of standardized procedures for land use adjustment and housing purpose adjustment. At this point, Tianzifang had been transformed from an aged and unprotected level-II neighborhood into the only ‘AAA level scenic spot’ of Shikumen in Shanghai. The innovative systems introduced include *Tianzifang Joint Session Duties and Working System*, *Interim Measures of Housing Management for the Development of Creative Industries in Tianzifang*, *Convention on the Protection of Intellectual Property Rights*, and *Catalog of Introduced Creative Industries in Tianzifang*.

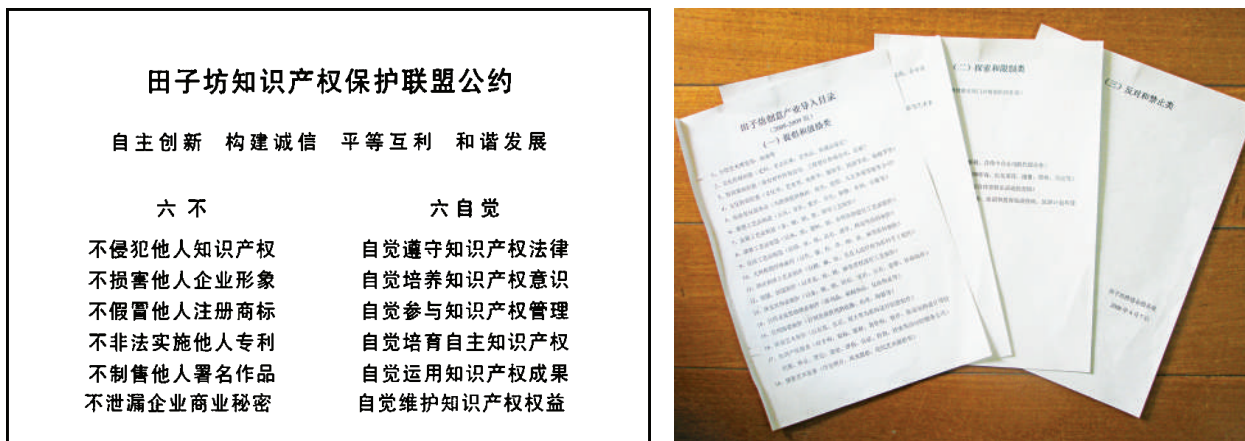


Source: Shanghai Tongji Urban Planning and Design Institute.

Figure 2.5 Comprehensive Planning of ‘Tianzifang’ in Luwan District (2009)

### 1.3 Experience and Inspiration

Rather than completing transformation with mass demolition and mass construction, the neighborhood renewal project of Tianzifang adopted an inclusive and incremental model of ‘soft’ regeneration that gave consideration to the cultural context of the city, industrial innovation, interests of the residents, and social justice. The establishment of relevant community organizations and innovation of institution in the process of project implementation were also



Source: Tianzifang Management Committee.

**Figure 2.6** *Convention of Tianzifang on the Protection of Intellectual Property Rights (Left); Catalog of Introduced Creative Industries in Tianzifang (Right)*

effective attempts at community creation and adaptive governance in the new era. Although this case involves a project for community economic development, it tallies with the objective of this Chapter and has the value of demonstration and promotion.

(1) This case involves broad social participation; more than 80% of the households and residents in Tianzifang have participated in the recreation of Tianzifang and become direct stakeholders.

(2) This case has the connotation of inclusive development. Through the rejuvenation of the old area, the government has explored an innovative road of regeneration of old areas and made achievements in governance; the entrepreneurs made their fortune and earned respects through Tianzifang project and fostered their own brands; the residents were granted the right of option for participation, witnessed the growth of Tianzifang and harvested the benefit from commercial development; Shanghai preserves a living old-style neighborhood with complete architectural types and the old Shanghai culture.

(3) This case is the experimental result of social collaborationism. The case of Tianzifang is the result of the collaboration of the grassroots government officials, artists, medium- and small-sized entrepreneurs, native residents and scholars. Its success is achieved by the joint efforts of the five forces, which is crucial to the sustainable development of a city.

(4) The case represents the achievement of adaptive governance: after 2008, Tianzifang was incorporated into the official system. The district government set up an administrative committee in this neighborhood and introduced a series

of supplementary administrative systems pertaining to Tianzifang, indicating the innovative trend in urban governance matching the development of creative industries, and thus give better consideration to the inclusive relationship between urban context, industrial innovation, residents' interests and social justice.

Reflection on the Case: a complicated power structure caused by the existence of multiple stakeholders has also led to contradictions arising from unequal benefit distribution between the lessors and the families which don't lease their houses, and contradictions arising from space use conflict between the residents and commercial tenants. The intervention policies made by the government fail to effectively conduct control over types of business and coordination of interests, thus resulting in exorbitant rents of the shops in Tianzifang and making many shops difficult in sustaining operation and thus outflow frequently. How to maintain the diversity to rebuild the socially spatial order and guide rational participation of multiple stakeholders are the great challenges facing Tianzifang and similar old urban settlements. It is expected that, the experience from Tianzifang can provide hopes for institutional reform, so as to fully inspire the society's creativity, realize the pursuit of good urban governance and weaken the negative effects caused by globalized consumerism on the local urban context as much as possible.

## 2. Paris, France: Urban Community Strategy for Demarcation of Difficult Settlements and Comprehensive Support for Them

### 2.1 Case Overview

The three decades after the World War II witnessed the construction of a large number of new amalgamated dwellings in the suburbs of Paris, Marseilles and Lyon so as to cater for the social trend of renewal of old cities and acceptance of migrant labors. After the 1980s, with the slowdown of economic growth speed and deindustrialization, these urban settlements mainly resided in by the people from the working class and with low incomes suffered decline in multiple aspects such as employment, education and community environment, falling into difficult settlement. In the case, the Government of France embarked on implementing pertinent 'Policy of City', aiming at alleviating the imbalance in the region and society development and building cities with greater justice and higher degree of integration. Paris is a typical example among the regions implementing the 'Policy of City'.



Figure 2.7 Scenery alongside Seine, Paris

The Greater Paris covering less than 2% of the national territorial area holds nearly 18% of the national population (11.7 million) and the inner-city density of population reaches 212 people/hectare,<sup>1</sup> thus making it one of the most densely populated areas on the continent of Europe. The population comprises the native Parisians as well as a great number of immigrants from the other provinces and countries. According to statistics, the number of immigrants in France has exceeded 6.7 million now, including more than 600,000 ethnic Chinese, and the immigrant population in Paris area has accounted for more than 9% of its total.

Continuous immigration wave and the descendants of immigrants are constantly changing the demographics, industrial structure and spatial form in Paris. Despite the economic vitality and multiple values they bring to the city, they cause serious security and social problems. In particular, the negative segregation of immigrant community directly results in the risk of social exclusion.

## 2.2 Specific Measures

### (1) Regard Democracy as the Core and Specify the Keynote of Actions.

The ‘Policy of City’ in the new era covers multiple important concepts including participation, citizenship, partnership and contract in an attempt to build close

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<sup>1</sup> Yang Chen. ‘Reading City from a Sociological Perspective: Book Review of *Sociologie De Paris*’. *Urban Planning International*, Issue No.2, 2014.

communication and connection between the public and the private domains, and between government and social organizations. It includes the following main tasks in three respects:

**Functionality:** with solving social problems as the primary goal, it is to build flexible and highly efficient public administrative mechanism, and promote the formation of ‘partnership’ between local government and citizens.

**Sociality:** ‘social cohesion’ is the key of ‘Policy of City’, communication and mutual understanding between various participants become particularly important, and creation of shareable social identity and community is deemed as an effective solution.

**Politicality:** protecting the citizens’ right to participation contributes to accelerating the legalization process of various policies. The concept of ‘proximate democracy’ means that the relationship between citizens has exceeded a simple neighborhood relationship.

In summary, the ‘Policy of City’ takes narrowing the development gap between different regions and building unified and inclusive social atmosphere as its ultimate goal.

**(2) Regard Regional Development as Orientation: with Focus on the BEDIER Settlement.** New ‘Policy of City’ realized a smooth conversion ‘from contract of city to urbanization contract based on social cohesion’ (CUCS for short). Macro policy is to conduct pertinent policy support and prioritized regeneration planning in difficult urban settlements and formulate practicable strategies based on the commonness and individuality of these difficult settlements. It is required by specified methods to line out the coverage of difficult settlements according to the following six indexes (compared with the indexes in the whole city of Paris) : the proportion of low-income residents, the proportion of grown-ups without certificates of vocational skills, the proportion of the population getting allowance for low income, the proportion of the families with children suffering late enrollment, the proportion of single parent families and the proportion of immigrant families. Based on this standard, six difficult settlements were lined out from 2000 to 2006 and the beneficiary residents reached 30,000. The number of settlements increased to 14 during 2007–2011. In these settlements, the average consumption level of the residents was two times lower than that of Paris and the proportion of households hovering around the edge of low income was 22% (11% in the whole Paris area).

The policy requires grant of priority to the selected settlements in

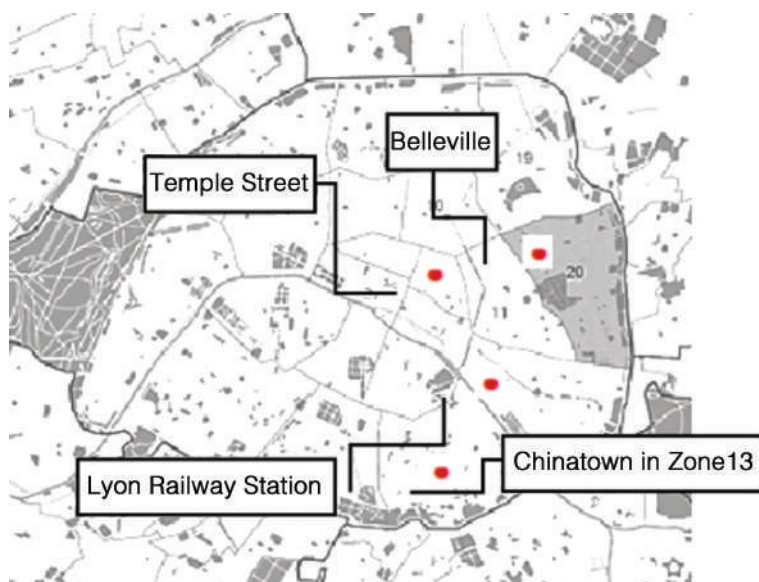
the following aspects: improvement of dwelling and living conditions; development of local economy and re-employment planning; increase in the passing rate of education; health and medicine; crime prevention; citizenship education and right of citizenship; cultural facilities and cultivation; sports facilities.

All the prioritized construction and service planning of Policy of City are intended for all the residents in such settlements, especially the vulnerable groups including women, children, the unemployed and immigrants. All the actions of CUCS are aimed at clearing the barriers to gender equality and particular attention is paid to the single parent families having young girls to guarantee their right of development in multiple aspects such as entertainment and education. The implementation and advance of policy of city depends on the project leaders and their work teams within each settlement.

Another key measure of CUCS is to set up a database of difficult settlements, including six subjects of the basic statistics based on demography, vulnerable groups in income, economic activities and unemployment, young children and education, health, and housing and living quality.

Take the BEDIER Settlement for example, it is located in the Zone 13 of Paris, a part of the sub-project Grand Plan of Urban Renovation (GPRU) of Policy of City Communities, covering a total area of 27 hectares and holding around 4,000 residents. Beginning in 2003, this Settlement signed GPRU cooperation planning with Paris and eight projects had been completed in this Settlement by 2010, including: (1) setting up ‘Settlement Governance Center’; (2) building collective gardens; (3) opening youth service center; (4) renovating messy roads; (5) opening up new green spaces and squares in the Settlement; (6) increasing the quantity of public houses; (7) lengthening the lines of light rail and increasing stops; (8) providing more communal facilities in the Settlement.

**(3) An Inclusive and Developing Settlement of Immigrants: Focusing on the Belleville Settlement.** Over concentration of immigrants in urban space will give birth to some distinctive urban space. Since the 20th century, the number of ethnic Chinese migrating to France has kept growing and statistics has showed that, more than half of the ethnic Chinese in France reside in Greater Paris Area, of whom nearly one third live in the downtown of Paris, especially the four areas marked in the following Figure:



Source: According to Google Map.

Figure 2.8 Ethnic Chinese Colonies in Paris

Located in the northeast part of Zone 20 of Paris, Belleville is an international settlement with a highly mixed population. During the recent nearly ten years, Belleville has become a well-known ‘Chinatown’ in Paris. 30% of its populations are foreigners and one in four residents is under 20 years old; 20% of the residents are hovering around the edge of low income (the overall proportion in Greater Paris Area is 11%); pupils who are admitted to middle schools account for 60.5% (the overall proportion in Greater Paris Area is 79%).

Guided by the ‘Policy of City’, Belleville adopted powerful countermeasures such as rearranging Alexandre-Luquetguang Square and building relevant sports spaces in the adjacent areas for adolescents to carry out sports activities; developing social mediation projects depending on the public powers and respecting the core of democracy; strengthening the vitality of local enterprise and encouraging foreigners to start a business (so far, there are over 200 shops, most of which are operated by ethnic Chinese); and strengthening the output of educational resources and guaranteeing the children’s rights to education.

In addition Belleville, based on its historical and cultural deposition and the support of subsequent policies, has incubated an increasingly profound ambiance of spiritual civilization. As a colony for working class in the past, Belleville has attracted a lot of art workers due to its relatively low living cost (such as housing and shopping). Graffiti can be seen on the communal facilities such as walls and doorplates at every street in the quarter, more and more art businesses such as

photographic studios and art galleries are opened, and the cultural industry has become a major trend driving the economic development and community building in the future.



Figure 2.9 Features of Belleville Settlement

### 2.3 Effect of Renovation

(1) **Establishment of Assessment Mechanism.** The implementation of CUCS (Social Unity Contract) is accompanied by the common will from the national level and the government of Paris and a positive and effective follow-up assessment is put on the agenda, including investigation and appraisal of local participants and professionals in a bid to check the performance of strategic projects and the use ratio of financial resources. Main phases include: assessment inquiry and assessment reference. Assessment reference mainly involves five indexes (employment and economic development, residents' health problem, social connectedness level, housing and level of living quality, and adolescents' level of education of a settlement) and three surveys (surveys of the professionals such as social organizations and experts, and local participants such as project leaders at various levels and local residents).

(2) **Effect of Implementation and Case.** Through the implementation and

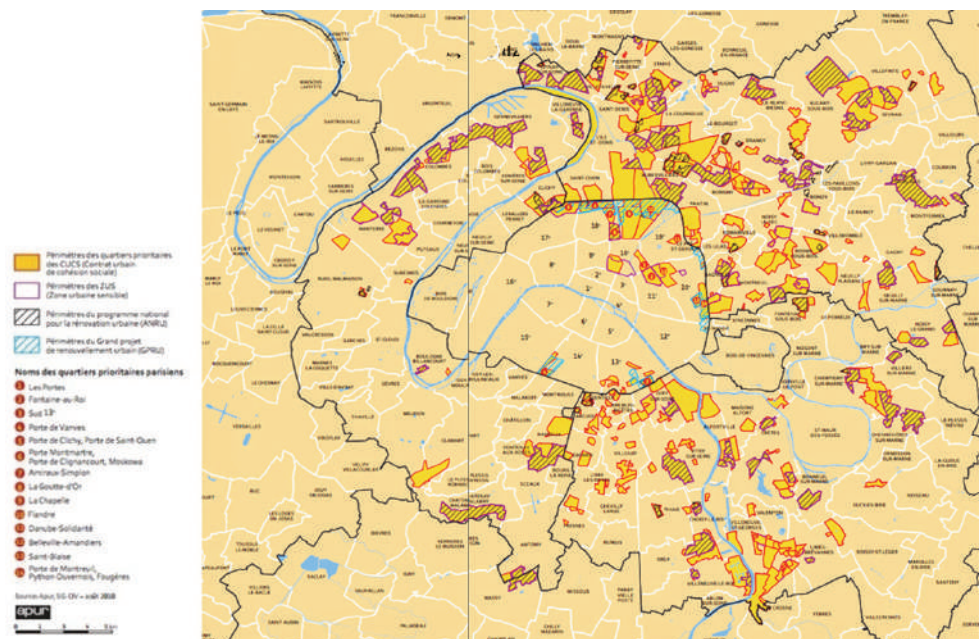


assessment of a full set of policies, preliminary effects have been made: fiscal subsidies from the central government and local (community) governments have leaned towards the prioritized settlements; majority of goals (such as the quantity of built social houses, decrease in crime rate, increase in education passing rate and improvement of local economic vitality) are achieved; and the social image of most difficult settlements has been improved. However, it is difficult to completely eliminate existing social estrangement of the settlements with the label of a difficult settlement.

The assessment results of the Belleville Settlement indicate that 82% of the residents are satisfied and 52% of the residents think the environment and quality of the settlement have been improved, of whom 89% consider that the level of bus service has improved, 71% think the commercial quality of the settlement has improved; 70% think the settlement security has improved; 70% think the housing quality has raised; and 70% think the settlement's service industry has improved.

#### 2.4 Experience and Inspiration

Regional development is an all-round concept, which includes the increase in economic vitality and employment opportunities and improvement of community environment and living quality, especially the healthy development of adolescents. Immigrants and social inclusion are unavoidable problems for Paris as a global city. Twenty years of practices of 'Policy of City' has made certain



Source: APUR, La Politique de la Ville a Paris: Observatoire des Quartiers Prioritaires, Rapport 2010. Edition Mairie de Paris, 2010.

Figure 2.10 Distribution Map of Difficult Settlements

achievements with regard to regional development and unified inclusion. It takes community spaces as the tool and means to drive social integration, promotes the interaction between the adolescent groups in difficult settlements and mainstream social groups and acquisition of foreign immigrants of local culture and their integration into it. In a word, guided by ‘Policy of City’, highly heterogeneous social form in France has generated a more and more distinct trend of integration.

### 3. São Paulo, Brazil: Strategic Directory Plan—A Publically: Participatory Plan

#### 3.1 Case Overview

Located in the southeast part of Brazil, São Paulo is populated by 11,967,825 people and covers an area of 1,521 km<sup>2</sup>. A Strategic Directory Plan has been made with the participation of the public to build São Paulo into a more humanized and modern place.

#### 3.2 Problems and Initiatives

For lack of effective urban planning and adjustment of building activities in history, economic activities such as investment and job opportunities, urban services and infrastructure were all confined to a small central district, while the peripheries remain significantly disadvantaged; with the increase in population, hundreds of thousands of people suffered shortage of housing and the environment was also degrading. Public policies gave high priority to cars, which accounted for only 30% of the total trips taken daily by commuters, while at the same time the lack of mass public transit made mobility around the city an everyday challenge for low-income workers. A major problem caused by imbalanced urban development was that people had to take long-distance commute between home and workplace and poorer workers suffered longer commute and worse travel conditions.

In order to adjust the dynamics of the city, correct the imbalance between commercial and residential areas, break excessive concentration of infrastructure and economic activities in the southeast part, distribute job opportunities and houses equally in the whole city and develop São Paulo into a more humanized and modern place, the Government of São Paulo decided to mobilize the public to participate and formulate a strategic directory plan for the development of São Paulo in the next 16 years.

The executive and legislative branches of the city government initiated activities such as seminars, workshops and public discussions, to enable the public to take a part in the revision of the strategic directory plan. From April to September 2013,

totally 114 conferences were held, with over 10,000 individual proposals received and 25,000 participants involved. This entire process of participatory revision includes four steps:

The first step was inviting 12,342 participants to attend 12 activities (including 7 seminars, 4 segment discussions and the Sixth São Paulo City Conference) for discussing the previous Strategic Directory Plan of 2002, through which new challenges were identified and their solutions were made. Improvement of environmental protection housing availability and general quality of life for all citizens was incorporated in the new plan for future. The city has changed substantially since the creation of the new plan.

The second step was inviting 5,927 people to participate in 31 workshops organized by the executive branch and 4,424 proposals were drafted. This step focused on discussing the city's current situation as well as the vision for the future. It was indicated by the proposals that people had a strong desire in equal distribution of job opportunities, improvement of the quality of public



Source: <http://gestaourbana.prefeitura.sp.gov.br/principal-pde/>.

Figure 2.11 Conference Site

transportation and promotion of the safety and mobility of pedestrians and cyclists, among other things.

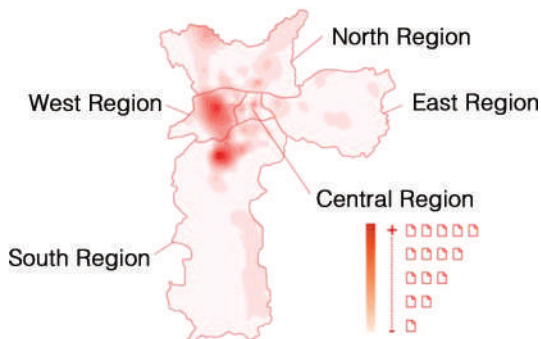
The third step was the systematization of the proposals received, which were mainly about urban mobility (public transportation and the environment for pedestrians and cyclists), improvement of urban services, strengthening citizens'



Source: <http://gestaourbana.prefeitura.sp.gov.br/principal-pde/>.

Figure 2.12 Site of Workshops

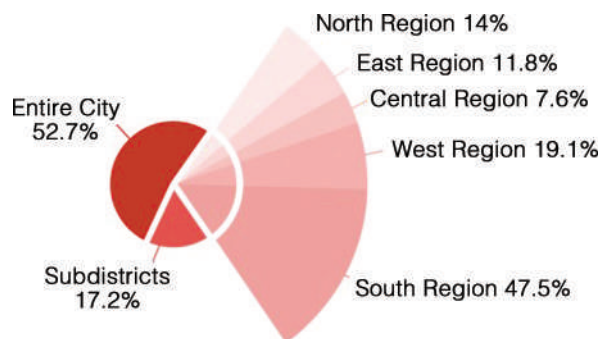
Number of Proposals Put Forward by Each Region of the City



Source: <http://gestaourbana.prefeitura.sp.gov.br/principal-pde/>.

Figure 2.13 Proposals Sent via Digital Platform

Are the Proposals Focused on One Particular Region?



participation and control in the planning process as well as increasing the allocation of public housing space.

The fourth step was the presentation and public discussions of the project drafts. 1,421 people were invited to attend eight regional and thematic activities, five segment activities and two public discussions. The document put forward three major strategies for a more dynamic and just development of the city: metropolitan restructuring, development of structural axes and reduction of social and urban vulnerability. The aim of the final step was to complete this process and rebuild communications between the society and City Hall to build a better city.

### 3.3 Implementation Effect

Through a long-term participatory revision, in June 2014, under the direction of mayor Fernando Haddad, the Government of São Paulo approved ten main strategies directing the development of São Paulo in the coming 16 years: (1) share the profits generated by the city; (2) ensure the right to adequate housing for those who need it; (3) improve urban mobility; (4) improve the quality of life in neighborhoods; (5) orient development towards areas serviced by the public



Source: <http://gestaourbana.prefeitura.sp.gov.br/principal-pde/>.

Figure 2.14 Presentation and Public Discussions of the Drafts



Source: <http://gestaourbana.prefeitura.sp.gov.br/principal-pde/>.

Figure 2.15 Project Introduction on the Website (Left and Middle) and Mobile Display Page (Right)

transportation network; (6) reorganize metropolitan dynamics; (7) promote the economic development; (8) incorporate the environmental agenda into the city’s development; (9) preserve the city’s heritage and valorize cultural initiatives; and (10) empower citizen’s participation in the planning of the city.

The Strategic Directory Plan provides a guide for the actions of public and private sectors to furthest meet the collective needs of people. In addition to inviting the citizens to participate in making proposals and discussing during plan making, the government also concentrated the plan into a guideline easy to understand and made it available to everyone on the city’s website and through an APP.

### 3.4 Experience and Inspiration

São Paulo Strategic Directory Plan contains many important values and philosophies for urban governance. First of all, the philosophy of ‘governance with citizens’ runs through the whole process. One major achievement made currently is the unprecedentedly extensive participation in the plan making. Communities and government made joint efforts in the participatory planning process of the Strategic Directory Plan, sharing their ideas and suggestions about the planning of São Paulo. The government believes that, only the participation of citizens can help build a better city. The government of São Paulo and urban policy paradigm turned from ‘Governing for Citizens’ to ‘Governing with Citizens’. Secondly, the Plan’s content represents the inclusiveness of development. It not

only regards ‘share the profits generated by the city’ as the first strategy, but also involves various aspects such as guarantee of housing right, improvement of urban mobility and the living quality of communities, environmental friendliness and conservation of urban heritage. Thirdly, the Plan’s content continues the train of thought of citizen-participatory urban governance and incorporates ‘Empower citizens’ participation in the planning of the city’ into the Plan. Fourthly, the content reflects the equality of development. The imbalance of urban development was adjusted through restructuring of urban dynamics to promote urban economic development and directing development to the areas with public transportation network services made contribution to solving the commute of low-income workers.

Although the revision of São Paulo’s Strategic Directory Plan was accompanied by a high degree of participation, the implementation effect of the entire plan remains to be checked in the future. If the citizens’ right of participation can be protected all the way and relevant strategies can be completely implemented, the goal of adjusting urban dynamics should be achieved.

## 4. Singapore: Government Policy Promotes Racial Integration

### 4.1 Case Overview

Singapore lies in the southernmost tip of the Malay Peninsular in Southeast Asia. Singapore covers a land area of 714.3 square kilometers in 2013, with a total population of 5.4 million, including 3.845 million of citizens and permanent residents<sup>1</sup>. With economic development and continuous influx of immigrants from all over the world into Singapore—settlement and reproduction of immigrants give birth to a racially diverse feature of Singapore: apart from Chinese who take up around three fourths, there are races such as Eurasian, Indian, Malay and Peranakan<sup>2</sup>. Multiple ethnic groups are accompanied by diverse languages and religions as well as diversified cultures.

In general, Singapore’s ethnically inclusive development is mainly driven by national policies. On one hand, policy guidance is provided to boost interethnic integration and state building, and construct a shared value system of ‘Singaporeans’; on the other hand, systematic institutions such as citizen

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<sup>1</sup> Ministry of Foreign Affairs of the People’s Republic of China, [http://www.fmprc.gov.cn/web/gjhdq\\_676201/gj\\_676203/yz\\_676205/1206\\_677076/1206x0\\_677078/](http://www.fmprc.gov.cn/web/gjhdq_676201/gj_676203/yz_676205/1206_677076/1206x0_677078/).

<sup>2</sup> Singapore Tourism Board, <http://www.yoursingapore.com/travel-guide-tips/about-singapore/people-of-singapore.html>.

participation system and public HDB flats are designed to govern interethnic relationship, which has made Singapore a mode of peaceful coexistence of multiple ethnic groups and integration of diversified cultures.

#### 4.2 Problems and Initiatives<sup>1</sup>

Singapore has a colonial history lasting for 140 years. From an original free port to a current city state, it has long been a hub of integration of eastern and western cultures and economic and trade contacts, as well as a place where multiple races live together. There are more than ten ethnic groups including Chinese, Malays and Indians in Singapore, with more than 20 languages now and more than ten religions. The immigrants from surrounding countries mainly regard Singapore as a place to earn a living, while their native countries are the main object of identity; on the other hand, the reality of multiple ethnic groups and diversified cultures brings great challenges to the administration by the government. Some bloody clashes between different ethnic groups in Singaporean history caused serious turmoil and unrest to the society. Therefore, Singapore was faced with two primary tasks in racial governance after independence: the first one was to enhance the national identity among various ethnic groups and the second one was to promote harmonious coexistence of these ethnic groups.

**Table 2.2 Constitution of Ethnic Groups of Singapore in 2015**

	Chinese	Malays	Indians	Others	Total
Total	2,900,007 74.3%	520,923 13.3%	354,952 9.1%	126,808 3.3%	3,902,690 100%

Source: Singapore Department of Statistics, Population Trends 2015.

Since the early years of the founding of Singapore as a state, the government of Singapore has committed to promoting the inclusion of diversified cultures and the peaceful coexistence of different ethnic groups. Through the practice in the past several decades, Singapore has developed a series of relevant policies and measures. They are mainly focused on two aspects, the first is the official recognition of cultural differences and the respect for the cultural traditions of different ethnic groups by the government; the other is the protection of the rights and interests of minority ethnic groups.

<sup>1</sup> Fan lei and Yang Luhui. 'The Ethnic Governance in Singapore: An Analysis Based on the Relations between State and Society'. *Southeast Asian Studies*, No.3, 2014.





Figure 2.16 Street Scenery of Singapore

The policies of the Singaporean government for promotion of the cultural integration of different ethnic groups mainly include the following aspects:

(1) **Values.** The government provided policy guidance to boost interethnic integration and state building, and construct a shared value system of ‘Singaporeans’. From self-governance to the early years of the founding as state, the Singaporean government had made all-out efforts to build national identity of Singaporeans and cultivate the idea of ‘Singaporean’. In 1991, *White Paper on Shared Values* submitted by the government was approved by the parliament. This White Paper established five major common values for the people of Singapore, i.e. (1) national interest comes above everything and society comes first; (2) family is the root and society is the basis; (3) care and help others, and respect individuals; (4) seek common grounds while reserving differences and negotiate to reach a consensus; and (5) make ethnic groups harmonious and adopt religious tolerance.

(2) **Language and Education.** The Government of Singapore designated Malay, Chinese, Tamil and English as its official languages, with English as the administrative language and Malay as the national language of Singapore. It is specified that all the students in Singapore must learn two languages, of which one is English. In Singapore, English is the teaching language of the primary and secondary schools, as well as a common language at working places. Selecting English as a common language not only helps promote interethnic communications, but also facilitates the exchange with other countries. In the meantime, all the students must learn their own mother tongue by selecting one from Chinese, Malay, Tamil or other languages. Learning mother tongue is of great significance to reserving their consciousness of the ethnic group they belong to and cultural inheritance. Bilingual education is compulsorily carried out in Singapore.

(3) **Public Houses.** Living in compact communities of an ethnic group resulted in serious estrangement of different ethnic groups in Singapore history. In the

1970s, the Singaporean government gradually promoted mixed communities of various ethnic groups by providing ordinary citizens with public HDB estates constructed by government. Currently, there are 85% of the families in Singapore living in the public HDB estates constructed by government, and to ensure no community would become a colony of a single ethnic group, the Housing & Development Board (HDB) of Singapore specifies that all the public HDB estate community and apartment should implement Ethnic Integration Policy (EIP), which guarantees each public HDB estate community and apartment is resided in by different ethnic groups and is thus conducive to interethnic communications; in the meantime, the government also arranges facilities and space for the special foods and items of different ethnic groups in public HDB estate communities. The measures above guarantee that each community has diversified cultures.

(4) **Social Assistance.** In consideration of the weak position of ethnic Malays in the aspect of economic development, the government tried to improve the economic status of ethnic Malays through preferential policies and institutions so as to improve their education and living standard, and for this purpose, agencies such as Presidential Council for Rights of Minority Ethnic Groups were set up to deal with the affairs about the development and religions of ethnic Malays. In addition to governments, religious organization and public-welfare charity organization, the Singaporean government also promoted establishment of ethnic group-based self-service organization, such as the MENDAKI established in 1981, Eurasian Community House established in 1989, Singapore Indian Development Association established in 1990, and Chinese Development Assistance Council established in 1992. These autonomous organization mainly provide social services out of original social security, such as providing training for academically disadvantaged students, providing help for vulnerable groups and strengthening the education of the ethnic group's traditional culture.

(5) **Religious Practices.** In 1990, the Parliament adopted *Government of Singapore Maintenance Religious Harmony Bill* to promote the peaceful coexistence of different religions and the coexistence and harmony of multiple religious beliefs. In 1994, *Maintenance of Religious Harmony Act* was promulgated, which authorized the government to restrict the freedom of those who made use of religions to achieve political goals and posed threat against religious harmony. In the meantime, to guarantee the equal development of the religions of different ethnic groups, 'Presidential Council for Religions Harmony' (PCRH) was set up, which is the bridge connecting governments and religious organization and promotes the communications and coordination between different religions. On July 20, 2003, the government issued *the Declaration of Religious*

*Harmony.* The government of Singapore strictly implements the policy of the separation of religions and the state and protection of the freedom to choose religious belief, and it not only treats various religions equally and recognizes the importance of religion to the public, but also conducts no intervention in the normal activities of different religious organization and protects the freedom to choose religious belief. In addition, the government pays special attention to protecting the interest of minority ethnic groups and minority religious groups, and specially established Islamic Affairs Commission under the social development department and established the Muslim Tribune.

(6) **Cultural Festivals.** The government of Singapore regards multiple ethnic groups and diversified cultures as the cornerstone for administration, respects and recognizes the customs of various ethnic groups. It includes the important festivals of different ethnic groups and religions in national holidays, such as Chinese’s Spring Festival, Vesak Day of Buddhism, Good Friday and Christmas of Christianity, Eid al-Fitr and Hari Raya Hajiof Islam and Deepavali of Hinduism. In the meantime, the government holds Chinese Cultural Festival, Malay Cultural Festival, Indian Cultural Festival and Cultural Heritage Festival and others to provide space for showing the traditional cultures of various ethnic groups.

(7) **Members of the Parliament.** The system that parliament should include representatives from different ethnic groups was established in MP election to ensure MPs elected include the representatives of minority ethnic groups. In the meantime, for local governments, it is universal to designate the representatives of minority ethnic groups in the members of township parliaments, community centers and the Consultative Council of Citizens.

The policies of Singapore for ethnic group integration protect the interests of minority ethnic groups in the political field by means of ideological guidance,



Source: <http://www.propertyguru.com.sg/singapore-property-listing/hdb#>.

Figure 2.17 Distribution of the HDB Estates of the Singaporean Government

congressional legislation, foundation of relevant organizations, establishment of related political systems, development of grassroots organizations, etc. A typical example was the System of Group Representation Constituency, which requires the candidates of a group representation constituency be a team recommended by a political party or alliance of political parties and every team must have one non-ethnic Chinese candidate from a minority ethnic group so as to assure the seat proportion of minority ethnic groups in the parliament. This system came into force in the general election in June 1988.

### 4.3 Implementation Effects

With various measures, Singapore’s ethnic integration has achieved good results, realizing mixed residence of different ethnic groups, building a harmonious relationship between different ethnic groups, and thus making Singapore a model of harmonious ethnic group relations in Southeast Asia. The ethnic groups living in Singapore respect each other mutually, live in harmony and contribute to the prosperity of this city. The diversified cultures not only provided convenience and early-development advantages for Singapore’s being integrated into the era of economic globalization, but also shaped the distinctive urban and cultural features of Singapore.

**Table 2.3 Ten Indexes of Survey of the Harmony of Singapore’s Ethnic Groups and Religions in 2013**

Serial Number	Survey Index	Score
1	No discrimination while using public services	9.75
2	No tension between ethnic groups	7.99
3	Willingness to include diversity	7.63
4	No discrimination at workplaces	7.56
5	Different ethnic groups get on well in the private and public domains	7.46
6	Different ethnic groups trust each other	7.18
7	Willingness to include the ethnic groups with different skin colors	6.96
8	Keen on cultural cognition and interaction among ethnic groups	6.49
9	Minority ethnic groups are not excluded in the society	6.20
10	Various ethnic groups build close friendship	4.51

Note: Full score is 10. To ensure the universality and representativeness of this survey, apart from random sampling survey, 492 Malay Singaporeans and 489 Indian Singaporeans were interviewed additionally so as to better reflect the comment of minority ethnic groups, and there were 1,736 surveyed Chinese Singaporeans from the group which accounted for the highest proportion in the total population.

Since 1969, except some small-scale conflicts and protests caused by cognitive differences and improper words and deeds concerning ethnic relationship, there have never been large-scale ethnic conflict events in Singapore<sup>1</sup>. From the end of 2012 to April 2013, Singapore Institute of Policy Studies and Racial Harmony Resource Center conducted a survey of over 4,000 residents in Singapore and the survey showed that, majority of Singaporeans did not feel obvious tension between ethnic groups in the daily life and the ten indexes reflecting interracial and religious contradictions were favorable in the whole, and only 10% of the interviewees acknowledged that they had been once bothered by ethnic or religious discrimination<sup>2</sup>.

#### 4.4 Experience and Inspiration

Ethnic integration is a multidimensional goal, which requires comprehensive consideration at different levels of politics, economy and culture. National policies can play a positive role at every level, and the tenet is that policy making should fully take into consideration the interests of all ethnic groups. The case of Singapore provides an example of driving ethnic inclusion through national policies and has referential significance to all the cities, which possess multiple ethnic groups and are trapped in ethnic contradictions or even conflicts. To realize ethnic integration, there is no need to assimilate minority ethnic groups, but it is the most necessary to build a shared value system and national identity.

In the meantime, it takes some time to gradually form ethnic and cultural inclusion, but the administrators of a city can accelerate the process via design of institutions and mechanisms. Firstly, urban administrators should recognize the differences between ethnic groups and their cultures and respect the cultural traditions of various ethnic groups. Secondly, it is necessary to establish channels for conversation and communications between different ethnic groups and cultures, for example, conducting bilingual education, on one hand, learning mother tongue can guarantee the inheritance of traditional cultures, and on the other hand, learning a common language can promote the communications between different ethnic groups. Thirdly, it is necessary to strengthen the contact and understanding of different ethnic groups, for example, mixed residence of different ethnic groups at a community and residential building is beneficial to the reciprocal understanding between different cultures. Fourthly, it is necessary to provide different ethnic groups living in a city with space to display their own traditional cultures, such

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<sup>1</sup> Fan Lei. *Research into Multilayered Structure of Ethnic Governance in Singapore*. A Doctoral Dissertation of Shandong University, 2014.

<sup>2</sup> Fan lei and Yang Luhui. 'The Ethnic Governance in Singapore: An Analysis Based on the Relations between State and Society'. *Southeast Asian Studies*, No.3, 2014.

as holding custom and cultural festivals of different ethnic groups, preserving the distinctive buildings of each ethnic group and providing different ethnic groups with facilities and space for operating their distinctive goods and services.

But it is noteworthy that, Singapore is a city state with a small territory and developed economy, and its government is always at a powerful position, so it is easy to make and implement meticulous policies; this case has referential significance to cities rather than the states with a large land area. Singapore pioneers in realizing ethnic integration through public HDB estates, which accommodate 80% of its nationals, while most countries and regions around the world are not in such a condition, so it is necessary to adapt to the local conditions while referring to the method of Singapore.

## Suggestion for Decision-Making .....

<b>Strategy 1: Spatial Inclusion</b>
<p><b>Policy Option 1:</b> De-commodification of urban space</p> <p><b>Policy Option 2:</b> Inclusiveness of public spaces</p> <p><b>Policy Option 3:</b> Accessibility of public services</p> <p><b>Policy Option 4:</b> Improvement of unplanned/informal settlements habitation</p>
<b>Strategy 2: Cultural Inclusion</b>
<p><b>Policy Option 5:</b> Encouragement of cultural diversity and equal rights of cultural expression to promote social integration</p> <p><b>Policy Option 6:</b> Regeneration of cultural heritage to improve social life quality</p> <p><b>Policy Option 7:</b> Management of cultural assets to stimulate social innovation</p>
<b>Strategy 3: Social Inclusion</b>
<p><b>Policy Option 8:</b> Preferential differential treatment (affirmative action) Priority to vulnerable and marginalized groups</p> <p><b>Policy Option 9:</b> Equalization of public services</p>
<b>Strategy 4: Economic Inclusion</b>
<p><b>Policy Option 10:</b> Employment inclusion</p> <p><b>Policy Option 11:</b> Inclusion of informal economy</p> <p><b>Policy Option 12:</b> Sharing economy and collective credit system</p>
<b>Strategy 5: Political Inclusion</b>
<p><b>Policy Option 13:</b> Inclusive governance (administrative innovation, separation of powers—cross-level cooperation, public-private partnership and application of new media and new technology)</p> <p><b>Policy Option 14:</b> Planning of inclusive cities (precise planning, collaborative planning and participatory planning)</p> <p><b>Policy Option 15:</b> Civic right and public participation</p>

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# Chapter 3

## Economic Development and Innovative Cities



## To Promote Scientific and Technological Innovation as a Path to Development

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Cities should strengthen scientific research and technological innovation, as well as establish and improve systems for using new technologies. They should accelerate the application of scientific findings in order to improve the quality of people's lives and create new industries and jobs. They should leverage scientific research and technological innovation to build up the capacity of cities to prevent and mitigate urban and natural disasters. They should apply principles of openness and mutual benefit in strengthening scientific and technological exchanges and collaboration to promote urban development around the world.

—Excerpted from *Shanghai Declaration*

## Introduction\*

Cities not only provide major sites where people live and work, but also act as important engines that drive social and economic development. Questions such as how to develop a city and how to win initiatives in the process of globalization are critical challenges that city managers are facing. Developing countries have undergone rapid urbanization since the beginning of the 21<sup>st</sup> century, resulting in a swift elevation of urbanization in the entire world. As areas with dense population and industries, cities play an important role in propelling national and regional economic development and promoting technological innovations. As proposed in *Competitive Cities for Jobs and Growth*, issued by World Bank in 2015, while improving urban competitiveness is urgently required and complicated, potential rewards for such efforts are high. In this context, improving a city's competitiveness to achieve sustainable economic growth is one of the major concerns of current city managers.

From a general perspective, an improvement in cities competitiveness and the rapid increase in urban economic growth owe themselves to a combination of factors such as technological innovation, capital allocation, labor input, human capital investment utilization, natural resources, etc. First, technological innovation can save economic activity cost and improve production efficiency, especially as seen in recent decades. In the backdrop of rapid development of information technology, grasping technological innovation means getting hold of key competitive advantages. Second, capital allocation efficiency directly affects level of economic output. This also embodies marketization and liberalization of an economy. Therefore, encouraging free flow of capital among regions, finding or creating platforms for collaborations between government and enterprises, or between enterprises will contribute to removing capital flow barriers and improving resource allocation efficiency. Third, labor force is an indispensable factor for economic development. Sufficient supply of labor force is the foundation for sustainable economic development. Such sufficiency is indicated by magnitude of labor force's involvement in the market. Many countries are affected by low market involvement of labor forces, especially women laborers. Fourth, in addition

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\* Chapter 3 is compiled by the team of the Research Institute of Finance and Economics of Shanghai University of Finance and Economics, authors: Zhang Xueliang, Sun Cong, Wang Chen, Lin Yongran, Liao Yijie, Li Lixia, Lan Qiaozhen.

to labor force quantity, labor force quality is worth its weight in gold. An economy with a high proportion of highly skilled workforce always has more potential for economic development than one without. Skilled workforce is not only necessary for technological innovation, but also is the major factor that powers industrial transformation and upgrade. Finally, reasonable utilization of natural resources is also critical. Achieving a balance between economic development and environmental sustainability is an issue many developing countries and regions are facing. An overwhelming focus on economic development while paying no heed to the environment can lead to resource depletion and environmental pollution. This in turn increases operation costs in future, adding obstacles to economic development.

Based on these factors, this chapter will conduct an in-depth analysis of the ways in which these factors affect economic growth. Also, by understanding successful experiences of other countries and regions, and considering characteristics of local cities, this chapter seeks to enhance economic development efficiency and quality. Currently, signs of slowing the economic growth have begun to emerge in a few cities in some countries and regions. The causes of such slowdown can be traced through factors listed above, and solutions might be worked out thereby to the problems, and challenges which are likely to exist in the economic development. Such challenges include, for instance, limited innovation levels due to insufficient investment in R&D, lower market activity due to inefficient capital allocation, unobservable knowledge spillover effect of highly talented personnel due to low HR investment, uncoordinated regional development due to imbalanced allocation of resources, to name just a few. Therefore, city managers can draw lessons from the cases in this chapter to find appropriate solutions to promote orderly flow of capital and labor force, to introduce, research and develop cutting-edge technology, to improve resource utilization efficiency, to build an environment for talented personnel, to promote cooperation between governments and enterprises, and to promote green, low carbon production technologies.

This chapter will select typical cases of urban economic development and innovation, analyze reasons and measures that led to successful economic development of these cities, and provide referential experiences for formulation of urban management systems and policies.

## Problems and Challenges

The global economy has suffered three severe crises since World War I. The first one is known as the 1929–1933 global crisis, the second one is the 1970s economic stagflation which took place mainly in European and American countries, and the third one is the 1998 Southeast Asian Financial Crisis which stretched across such nations and regions as Japan, South Korea, Hong Kong China and those of Southeast Asia. The most recent one is the subprime mortgage crisis that broke out in 2008. In the context of a number of economic problems like the increasingly acute European debt crisis and the lowered sovereign credit rating of the United States, economic growth on a global basis has seen a continued slowdown. Today, even 7 years after the financial crisis and economic recession, the world's economic recovery levels remain unbalanced. Economy continues to decline in Brazil and Russia, and there are no signs of an upturn in Japan and Europe either. Chinese economy, which has been acting as the global economic engine, is also slowing down. Based on financial performance ranking of 300 major global metropolises in 2014, issued by the Brookings Institution and JP Morgan, 65% of European cities and 57% of North American cities have not yet recovered their economic vitality. This is despite the fact that many cities in most developed countries are out of the shadows of the great depression.

In terms of innovation and accelerated global competition, many countries, especially developing ones are facing challenges, hence more knowledge and research are required to drive these countries' economic growth. A World Bank report pointed out that developing countries' innovation environment is weak mainly due to four reasons: The primary reason would be low education levels and low proportion of skilled workforce. This creates innovation roadblocks for developing countries. It also means that there is an extremely limited possibility for receiving spillover of other countries' innovations. Second, developing countries are yet to create a commercial and political environment with certain levels of quality. Environments that are highly bureaucratic present obstacles for development of enterprises and the innovation they bring. Third, some developing countries lack necessary infrastructures, and in some cases they do not even have the basic facilities, such as telephones. Although mobile phone technology has become popular in developing countries, its density and popularity in some countries is still limited. In addition, there are prerequisites for innovation, such as roads and health

systems, which are often in poor conditions in these countries. Finally, investment in scientific research is relatively insufficient in some developing countries.

In terms of employment, the unemployment rate has rocketed as a result of the 2007–2009 financial crisis. Despite the global unemployment rate had gradually returned to pre-crisis levels by 2014, people are still pessimistic about employment situations in many countries. As indicated by statistics issued by India's Labor Bureau, India's unemployment rate was 4.9% in 2013, youth unemployment was particularly serious, as high as 12.9%. Labor participation rate in the entire country was as low as 52.5%. In the same year, the unemployment rate of Iran was as high as 25.4%, Australia's unemployment rate was 12%, and the EU's average unemployment rate was as high as 19.1%, compared to low rates in Germany and Japan, which were 6.5% and 5.8% respectively. Arthur M. Okun, a renowned American economist, found that when a country's unemployment rate rose by 1%, its potential growth rate declined by 2%. How to reduce unemployment rate, how to improve labor participation rate, how to ensure a steady rise in employment are all questions that both developed and developing countries need to answer together.

Environmental issues in developing countries are becoming increasingly serious as well. Out of 3,119 Indian cities, only 209 are equipped with sewage treatment plants or facilities. 114 cities around the River Ganges with a population of over 50,000 residents dump untreated sewage directly into this river. Tanneries, pulp mills and rubber factories all directly discharge their industrial wastewater into rivers. 60% of Kolkata's residents are suffering from pneumonia, bronchitis and other air pollution induced diseases. Environmental issues in China are increasingly highlighted as well. China's manufacturing industries are mostly found in over 20 cities, and outdated coal-fueled boilers that generate a large amount of fumes, are still in use. The lung cancer death toll in Chinese cities is 4 to 7 times higher than the national average. In Malaysia's Klang Valley, the emerging industrial center (including the capital Kuala Lumpur), where economic and cultural events are booming, pollution caused mainly by agricultural and industrial wastewater discharge is becoming an increasingly serious issue. Environmental problems directly affect the quality of people's lives, and are not conducive to the development of human capital; they increase environment protection costs, affect marine industries and hinder sustainable economic development.

## Vision and Action

### 1. Giving Full Play to Comparative Advantage of Cities

Whether a city is part of a region or a country, precise understanding of its comparative advantages is of great importance for its economic development. It is also the key to why a city can excel, in comparison with its competitors. A city's comparative advantages are seen in many aspects, including natural endowment, geographical location, industrial layout, etc. These advantages are not invariable, but can change with urban economic factors, and market supplies and demands in different development stages. For instance, a city endowed with resources can rely on its abundant resource reserve in early stages of its growth. However, when its resources are depleted to a certain level, reassessment of its developing model is necessary.

As often as not, a city's location is related to its congenital conditions such as transportation costs, market potentiality and openness. To a great extent, this determines its development level, making it the most important comparative advantage of the city. From a historical perspective on a global basis, favorably located cities are always at the core of regional and even national development. Therefore, policies governing development of urban industries should properly consider the city's geographical characteristics, and should be formulated based on periodical growth targets. In Bilbao, Spain, for example, its advantageous location not only promoted rapid development of its early industries, but also provided a good foundation for its successful transformation into a cultural and tourism city during the 'post-industrial' period.

As the center of economic activities, a city plays an important role in promoting the industrial scale and coordinated development. For cities that are experiencing or at the verge of industrialization, following economic rules and bringing to full play their potential advantages in certain industries, will greatly contribute to enhancing the cities' competitiveness as well as rapid and sustainable economic development. Cities with limited industrial types should encourage enterprises to share their market information and reduce transaction costs, while expanding their business scale, so that they can enjoy the resultant positive effects, such as increased financial profits. This will promote coordination and collaboration between upstream and downstream industries; and leading industries will be bellwethers

that lead development of other industries in the city, promoting diversification of industrial agglomeration. For instance, Ottawa has coordinated its administrative and market resources by bringing to full play the advantages of its public sectors, and optimized the city's positioning and industrial layout.

By understanding the comparative advantages among different cities in a region, promoting industrial interaction and economic collaborations between cities, the confluence of a coordinated regional development which is shaped in this way will noticeably enhance the market potential of different cities within the region, narrow the intercity gap and consolidate an economic effect of '1+1 > 2'.

## 2. Promoting an Economic Development Driven by Innovation

Innovation is the driving force that promotes the development of urban economy, and a key factor that leads to the birth of cities and maintains their vitality. Cities can stimulate the innovative potential not only on the micro level of technological management, but also on a macro level of the systematic environment. These two levels are complementary to each other.

Innovations in technical expertise and the management mode are important approaches to an increased economic efficiency of cities. There might be incentive policies for enterprises to invest in R&D and for emerging companies to enter the market. By means of renewal and restructuring of enterprises, an increase will be seen in their technical caliber as well as in their efficiency of production element utilization, so as to form a first mover advantage. Investment in technological R&D usually requires a certain scale. For SMEs, which generally have relatively weaker financial capabilities, city managers can establish platforms for them to communicate with large enterprises so that they can also enjoy the spillover effect of knowledge and technology. Ties between enterprises and colleges, universities and institutions should be established to realize a transfer of advanced technologies and managerial modes from labs to practice. Entrepreneurial enterprises should also be encouraged and developed so as to form an innovative drive in the market competition and to stimulate the inside innovation of existing enterprises. Customized enterprise development projects such as EcoProfit produce win-win results of economic development and environmental protection.

Under the context of globalized open economy, regions where economic development relatively lags behind can draw on their late developing advantage by learning and drawing lessons from the developed region for mature technical expertise and managerial experience and by introducing advanced equipment,



technology and managerial modes for enterprises so as to improve their production efficiency. One example is China Suzhou Industrial Park, which learns from the ‘Singaporean Mode’. At present, the Internet and big data era also create opportunities for the application of e-commerce on traditional industries to realize the upgrading of the latter to form new types of business and productivity.

Besides, innovation on a macro mechanistic and systematic level should also draw sufficient attention of city managers. For many developing countries, the existing mechanism is being plagued by many obstructive factors which depress the market vitality and to a great extent, restrict the development level of urban economies. Therefore breaking through these obstacles can contribute a great deal to the transformation and development of cities. In the course of opening up the market and introduction of foreign capitals, availability of a decent systematic and market environment becomes more necessary than ever, which gives pressure to reformation and innovation on the system. Sure enough, gaps in politics and culture do exist between different countries. When designing a system by following the models of developed countries and regions, the characteristics and adaptability of this country at the current stage should be taken into full consideration.

### 3. Attaching Great Importance to the Improvement of Human Capital of Workforce

Workforce is the major support of urban industrial development and economic growth. For some developing countries that are still suffering from poverty, the introduction of labor-intensive enterprises creates a considerable number of jobs. Meanwhile, city managers should also create favorable conditions for human capital accumulation and ascension, and the latter are more critical for the long-term sustainable development of urban economy. Argentina and a few major Latin American cities have realized this matter, and are seeking to improve the workforce’s basic skills to get out of the predicament of the economic development. Therefore, effective investment in education and in professional skill training should be considered as a major policy for the city managers. It is impossible for the accumulation of human capital to complete overnight, so the long-term stability of the system design and market incentive measures is also indispensable.

Industrial structure adjustment and upgrading take place in various stages of a city’s development. For instance, a city can transfer its main focus on the second industry to that on the tertiary industry. During such a transition, the demands on the size and skill level of the workforce will change accordingly. City managers

can make judgments in view of the trend of market demand for the workforce and create opportunities in appropriate advance for human capital accumulation; or they can guide the market to spontaneously create an environment that caters to the ascension of human capitals.

The innovation of a city's knowledge and technology depends upon the development of advanced education and scientific research. Therefore, importance should be attached to the attraction and fostering of highly skilled talents so as to elevate the soft power needed for the city's economy development and innovations. Gauteng Province of South Africa, for example, has successfully accelerated knowledge spillover and innovation by means of attracting high-skilled talents into its science and technology parks. The knowledge-orientated economy provides powerful support for the growth of other local industries, which brings forth higher industrial added values.

## Reference Cases

### 1. Bilbao, Spain: Industrial Transformation and Innovative Development

#### 1.1 Case Overview

Bilbao is located in north of Spain. Being the major port second only to Barcelona, it is the largest municipality of the Autonomous Community of the Basque Country. In its history, Bilbao's economy mainly depended on heavy industry, including steel, shipbuilding, and manufacturing of other machineries. Hit by the global energy crisis in the mid-1970s, traditional industrial departments kept declining. During the 2 decades between 1975 and 1995, Bilbao lost 60,000 jobs in manufacturing. Meanwhile a continually growing incidence of alcoholism and drug abuse, bloodshed committed by the terrorist group ETA and a series of serious environmental issues altogether plunged Bilbao into a dangerous situation. The severe flood in 1983 made things even worse and put the city to the verge of collapse.

Confronted with an increasingly severe economic, social and environmental situation, Bilbao witnessed a debate on urban renewal strategies and actions in the late 1980s. Through brainstorming between governmental departments at all levels, consensus was reached that immediate actions should be taken to carry out an urban renewal strategy against the worsening matters. In 1991, the 'Strategic Plan



Figure 3.1 Bilbao in Progress

of Urban Renewal for Bilbao' was approved and implemented, taking powerful effect in four areas of action: (1) interior urban update, especially renewal of the old town area; (2) improvement of the environment, that is, reduction of river pollution and restoration of industrial brownfields; (3) enhancement of cultural identity by means of urban renovation prioritizing culture; and (4) establishment of high-tech industrial sectors based upon knowledge.

Through the implementation of a series of plans of renewal, Bilbao was able to make some achievements. The population of Bilbao in 2012 reached 970,000, ranking the fifth in Spain; the total output value of this region reached USD 41.788 billion, ranking the fourth; per capita GDP reached USD 43,059; it was placed 210<sup>th</sup> on the list of Globalization and World Cities (GaWC), considered to be a city with high sufficiency. A continued progress of urban innovative development has made Bilbao one of the richest and most livable cities in Europe, with its GDP per capita 28% higher than the average level of the 28 EU member countries, and its unemployment rate 4% lower than the average in Spain. In 2015, the total output value of this region scored a growth rate of 3%.

### 1.2 Measures and Effects

The early renovation plan of Bilbao gave priority to arts, culture, trade and tourism. Part of the plan is about space layout planning, which emphasizes landscape construction along both sides of the Nervion River, in order to enhance the riverside landscape value; and part of it is about planning of the development strategy, setting the focus of the city's future construction and planning—a

coordinated city image and a cultural background. In December 2014, Bilbao was awarded the title of ‘Creative Cities Network—City of Design’ by the UNESCO.

The renewal of Bilbao was commended as ‘a miracle created by a museum’. This museum is Guggenheim Museum, designed by the renowned architect Frank Owen Gehry and started operation in 1997. As a banner that remarks Bilbao’s amazing transformation, it has brought a high reputation and great economic benefits to the city. It is even referred to as ‘the Bilbao Effect’ or ‘Guggenheim Effect’. From its opening in October 1997 to 2012, the museum attracted over 15 million visitors and the annual visiting volume is around 1 million.

The miracle did not happen by chance; instead it is seen as an inevitable result for the industrial transformation of Bilbao. Generally speaking, the development of a city requires the support of industries. What kind of industries to develop and how to develop them are the choices that a city necessarily needs to face in the predicament of its growth. The key for a traditional industrial city to realize a smooth transition consists in the development of alternative industries, including extension of industries and industrial transformation. The former requires a potent support from science and technology, capital, talents and market, while the latter turns out to be a more thorough and greater challenge than the former.

Tourism is a typical labor-intensive industry capable of mitigating the problem of mass unemployment caused by industry recession. Besides, its labor costs are relatively low, and can bring forward considerable foreign consumption; meanwhile, with Bilbao being a port city with developed land and water transportation, the development of tourism may bring forth external consumption and an improvement of the inner environment; in addition, the growth of tourism always parallels that of several other industries, such as entertainment and culture, and does not depend too much on the natural resources. Therefore, to spur local economic development and realize industrial transformation through the development of culture and tourism undoubtedly has a great appeal to an industrial city which has been seriously polluted. However, due to Bilbao’s relative scarcity of tourism resources such as natural landscape and historical sites, the development of tourism and cultural industries is restricted. Therefore, the city badly needed a major project to lead the transformation of urbanity and to boost the confidence in various sectors. Meanwhile, the America-based Guggenheim Foundation also intended to extend its reach to Europe, which established the common base for both sides for cooperation.

Guggenheim Museum is a microcosm of the urban renewal process of Bilbao. To improve the overall urban image, Bilbao also took actions in several aspects, including old town renovation, infrastructure construction, ancient structure reuse, environmental protection and urban development. In terms of transportation infrastructure, Bilbao has successively built subway, light rails, new bridges, redesigned and built its airport, which improved the inner and intercity connectivity; as to promoting the city's cultural taste and the development of its recreational functions, Bilbao has built a series of supporting facilities including hotels, exhibition centers and music halls, covering culture, exhibition, entertainment and many other aspects. The design and construction of these projects not merely address those functional needs, but also highlight the aesthetic dynamics by creating and magnifying the cultural image of the city through each detail. Bilbao also devotes huge efforts to protecting and renovating ancient buildings, making full use of its historical legacies. Some of them are turned into new projects and become new cultural resources of the city.



Figure 3.2 Guggenheim Museum in Bilbao

While a radical change is taking place in the city, great attention is being paid to the improvement of the quality of life and the living environment of Bilbao's residents. On one hand, efforts are made to restore the riverside landscape value

and improve the living environment of residents by managing the River Nervion; on the other hand, basic leisure entertainment facilities were built, such as activity sites for children and senior citizens, and sports stadiums with a view to enhancing the quality of life. In recent years, Bilbao's attention is not only resting on the development of physical infrastructure like roads, but also on creating virtual infrastructure as well, so as to tap the potential of the available data of the city and bring each citizen the convenience of the information age through constructing a digital city.

Urban renewal is to cater to the needs of industrial transformation. One important orientation of Bilbao's industrial transformation is towards the development of creative industries. The interconnection between urban construction projects and the local culture and art forms the initial resource endowment that attracts art lovers from both in and out of the city. It drives the development of supporting industries in the form of an industrial chain, including publishing, education, tourism and consumption, boosting crowd gathering and various forms of consumption. Bilbao also attaches great importance to the investment in human capital, including enhancing the scale of college education, vocational training, holiday training and strengthening the connection between universities and enterprises, providing training for people engaged in relevant industries (e. g. cultural and creative industry), and improving the skill level of human capital.

While great efforts are made to develop tourism and creative industries for the industrial transformation, Bilbao is also promoting the combination of traditional industries with the tertiary industry. The biannual Bilbao International Hardware Tool Exhibition is the largest and most influential event of hardware and DIY industries of Spain. In Europe it plays second fiddle only to the International Hardware Fair at Koln and is the third most influential of all hardware industry exhibitions in the world. Since January 2008, Koelmesse Exhibition Co. , Ltd. and the Bilbao Exhibition Center have been in a strategic cooperative relation to jointly promote the International Hardware Fair at Koln and the Bilbao International Hardware Tool Exhibition. The two exhibitions are held in alternate years, odd years for Bilbao and even years for Koln, providing an international platform for communication and trade in hardware and DIY industries worldwide. The 2013 exhibition attracted 362 exhibitors from 26 countries and 13,000 professional visitors from 61 countries. The event consisted of activities like product exhibition, B2B and technical forums. The construction of the exhibition halls and the display brought forward more than 10 million Euros in tax, of which 69% came from hotels

and restaurants, 15% from trade show activities, 12% from transportation and 4% from retail trading, not including revenues generated from subsequent activities held for the exhibitors and visitors.

Another example of the combination between manufacturing and the tertiary industry is the development of the digital entertainment industry. Currently leisure, as a lifestyle, is exerting a great driving force on the digital revolution of cities and industries. Bilbao hosts Europe's largest video game festival to boost the development of the digital leisure industry. The opening ceremony of the 5<sup>th</sup> video game festival held in 2015 attracted 20,000 visitors.

In 2010, with the rise of a new round of industrial revolution, Bilbao also welcomed brand-new reforms in production methods and lifestyle. To better respond to the profound influence brought by the fourth industrial revolution (Industrial 4.0), Bilbao proposes a development strategy of 'Smart Bilbao' in a belief that a smart city can bring great convenience in livability, sustainability of its development and urban management. A series of related measures are formulated to highlight the smart city strategy under the brand of 'Smart Bilbao'. Take the construction of a smart urban market for example. Bilbao established a market which is highly dynamic and knowledge-intensive, and which can be divided into 3 dimensions: public-private partnership, service provision for citizens or companies by means of public data, and the ability to provide services for citizens without the need of participating into public administration. This market had a total turnover of €400 million in 2014 and the figure is expected to reach €1.1 billion in 2019.

Bilbao has also set up a series of incubators for specific departments through collaborations with universities, clusters and private enterprises. By means of attracting new investment and talents, it has accelerated its response to this transformation. Bilbao's municipal government adopts different measures regulating its enterprises, entrepreneurs, and residents to enhance its attraction to investors.

Existing enterprises are brought to the focus of the new market according to the new context of economic development in order to help them integrate into the global market. For local entrepreneurs, the smart city helps them develop projects which are related to new digital economy. For those traditional enterprises, new digital economy helps them integrate into the new digital era and to form new perception to the Industrial 4.0 Age with innovated business modes and by providing them with advanced services. For all its residents, the city increases the

investment in human capital, enhances the cooperation with universities and other institutions of education, helping their students cope with the arrival of the digital age, offering all the local residents access to training for electronic technology to ensure that nobody is left behind in the digital age.

The transformation and development of industry is advancing with the times. In addition to the above-mentioned urban developing strategies, industrial developing orientations and methods of promoting the implementation of these strategic projects, Bilbao also puts forward the following directions for its development in the future:

**A digital government.** The purpose of the governmental digitization reform includes 2 parts. Firstly, it is to enhance the government's transparency so that people can have a clear understanding of the city; secondly, it is to allow the government and relevant organs to obtain information about the city's development dynamic at any time during their administration, such as understanding of the feelings of the people in the city (including those local residents and travelers) so that relevant measures can be taken accordingly.

**Transparency.** Bilbao believes that the best way to increase citizens' participation in government management and to promote the development of digital economy is to digitize all municipal information and share it freely with urban citizens and enterprises. Bilbao hopes that a digitized government can be built by 2020 to constantly discover new opportunities for economic development through gradual release of public data and financial data of economic sectors.

**Digital infrastructure.** The foundation for a digitized government and increased transparency is improved digital infrastructure. Bilbao is to create good virtual infrastructure for enterprises, institutions, academia, and entrepreneurs, etc. , so as to bring to full play the potential of all available data, and provide a technical channel to improve the quality of government decision-making and realize intelligent management.

Just as inseparable are industrial transformation and innovative development. The innovative development of a city includes the innovation of technology, system and concepts. Since what Bilbao's urban transformation adopts is not the mode of industrial extension, but that of industrial substitution, the innovation of production technology is more reflected in the current requirement of Industrial 4.0. Technological innovation is more of a service for urban industrial functions. Innovation in production is enhanced, through the application of information technology in such aspects as organization, production and business model, with



the purpose of helping local companies develop and utilize new smart technologies.

Concept innovation permeates every aspect of Bilbao's transformation, including the selection of alternative industries at an early stage of the transformational development, project developing modes, and the subsequent development of the tertiary industry represented by tourism and exhibitions, which supported the development of traditional industries and digitized entertainment industries. Meanwhile, in order to better adapt to the changes in society and the times, Bilbao actively pays attention to the changes of the industrial technology, putting forward the idea of creating a digital life, so as to better welcome the Digital Age.

The innovation of Bilbao's urban system is mainly reflected in the setting of its related structures. To ensure the smooth implementation of the Renewal Plan, Bilbao has successively established new co-operative institutions such as 'Bilbao Metropoli-30' and 'Bilbao Ria 2000', where various administrative levels, interest groups are united to play a part in the reconstruction campaign and crack the financial and managerial problems by means of public-private partnership. The main obligation of the former is to promote the reconstruction of the city through a variety of methods, and to help Bilbao realize its targets set in the strategic plan; the latter is mainly about the innovative reconstruction of 'opportunity areas', which were historically occupied by ports and steel industries, operating these ports in the form of private enterprises. Various investing and financing methods are effectively adopted in the form of project companies through the comprehensive development of the land combined with the integrated construction of urban renewal projects. Flexible collaborative public and private institutions can deal with problems arising from both society and the market. Through government guidance, market operation, enterprise operation, construction of lawfully managed financial and investment systems, investment opportunities are open to the public and individuals.

### 1.3 Problems and Challenges

The development of Bilbao is also faced with a few challenges. The success of Guggenheim Museum has become the synonym for Bilbao's revival. However, compared with the popular Guggenheim Museum, the Navigation Museum, which tells the history of this seaport city, seems rather obscure. At the same time, just as severe is the challenge as to how the construction and development of the new urban area can promote the development of old towns. Other cities in Spain and in the world venture to copy Bilbao's successful experience by blindly building 'symbolic' museums. This, as it were, turns out to be a drag for urban transformation as it only gives birth to glossy buildings without practical values.

#### 1.4 Experience and Inspiration

Bilbao's transformation and development starts from its innovation of the old city and urban renewal efforts. With a flagship project, it establishes a brand for the city and further extends its influence through resource development and comprehensive operations. We can be inspired from this mode that the transformation and development of a city is the outcome of multilateral cooperation, including governmental leadership, mechanism innovation, overall planning and public participation. The first step is to fix upon the direction of the city's industrial transformation, and clearly defined its industrial positioning and the new growth engine. For Bilbao, the development of innovative industries and tourism is the key factor for its successful industrial transformation, as in this way, historical traditions are well preserved and the city's culture is protected from discontinuity; secondly, mechanism innovation provides a guarantee for transformation and development. This includes the innovation of technology, mentality and system and can bring forward new ideas and models for development; thirdly, the development of a flagship project needs the support from many aspects, including brand, capital, and government to drive consumption in the whole city, employment growth and may even affect the selection of an industrial developing orientation.

In the process of urban transformation, the municipal government should not only emphasize its role as a coordinator, but also, with regards to the implementation of specific projects, draw on the role of the market in transformation to establish an independent company consisting of the municipal government and enterprises to carry out corporate operation. In the case of Bilbao's transformation, co-operative institutions such as 'Bilbao Metropoli-30' and 'Bilbao Ria 2000' play an important part. Due to the diversity of the participators, and by courtesy of the authority that is independent of the city council to conduct separate planning, the city is able to integrate the reconstruction activities with different administrative levels and interest groups, while maintaining a balance of the interests of various parties.

When it comes to capital, in addition to actively attracting investment from international institutions such as the European Foundation, the city also improves its financing mode in order to obtain sufficient financial supports. 'Bilbao Ria 2000' obtains capital through coordinating interests of various parties, and by means of land evaluation, land replacement, and increasing the added value of land. The profits gained from the land are reinvested to other urban renewal projects, which flexibly balance the relationship between investment and proceeds.

As technological development and the various changes that go along with it are exogenous forces beyond control, the municipal government of Bilbao deems it necessary to help their enterprises become more competitive in a context of globalization where demands grow increasing large to ensure that they have the correspondent technologies to adapt to this change and to establish a more inclusive and fair mode for their production activities and daily life. In this sense, public sectors should act as a service force for these upcoming spontaneous behaviors and should catalyze a city's overall progress by providing cases and necessary infrastructure and tools.

## 2. Ottawa, Canada: Diversified Development of Public Sector Economy

### 2.1 Case Overview

Ottawa is the capital of Canada, covering an area of 2,779 square kilometers. Located in the southeast of Ontario and on the southern bank of the Ottawa River, the city is 400 kilometers east of Toronto and 190 kilometers west of Montreal. According to the results of the demographic census in Ottawa-Gatineau, the metropolis has a population of about 1.3 million, making it the sixth largest metropolitan area in Canada. The word 'Ottawa' derives from the Algonquian language, meaning 'trading'. It was initially a town populated by Irish and French Christians.

Ottawa's boundaries have been stretching after many merges, gradually forming an international metropolis with diversified cultures, a high level of living and low unemployment rate. Ottawa has become the center of politics and industrial technologies of Canada. The unique cultural characteristics, beautiful urban scenery and comfortable life make Ottawa a popular sightseeing attraction worldwide.

According to the statistics from Mercer, Ottawa ranks the first in North America in terms of the quality of life. Meanwhile, it is also the second cleanest city in Canada and the third in the world. According to the latest ranking of Canada's most livable cities released by the renowned Canadian magazine *Money Sense*, Ottawa, as the capital city of the country, has occupied the first place among 190 cities of the country for 3 straight years. In 2013, Martin Prosperity Institute of the University of Toronto conducted an assessment on 61 cities worldwide as per 3 economic indexes, respectively technology, talents and inclusiveness as well as the quality of life, and the Canadian capital Ottawa ranked the first. Ottawa was placed on the highest level in the aspect of talents in particular, that is, indexes such as



Figure 3.3 Landscape in Ottawa

education expenses, education institutions, occupation rate of creative classes, and educated population.

Currently Ottawa's economy is basically supported by competent public sectors, since almost all economy-related activities are connected with the government. Employees of relevant public sectors, including government agencies and government-funded organizations, universities and hospitals, contribute around 30% of the total number of jobs in Ottawa. Government daily necessities, services and contracts constitute the major part of the economic life of Ottawa.

By courtesy of powerful public sectors of a capital economy, Ottawa has rich resources of higher education. The most influential natural science and social science research institutions are respectively the Canadian National Institute of Natural Sciences and the North American Society of Canada. These two major research institutions consist of Canada's most influential natural scientists and sociologists. Carleton University, located in the center of the city, is not only a member of Canadian Universities and Colleges Committee, but also a member of the International Association of Universities (IAU). Another is the prominently reputable University of Ottawa, which is the oldest and largest university of North America that gives lessons in English and French. According to a government report of 2014, of all the people being employed in Ottawa, around 128,000 held a master or doctoral degree; moreover, there were more than 120,000 students with a bachelor's degree or above who were still in campus.

With sufficient high-quality workforce, Ottawa has always been attaching importance to the development of the knowledge-oriented industries, which

involve the enterprises that grow through the generation or delivery of knowledge. Scientific research institutions of national, municipal and large corporate level can be found everywhere in Ottawa. The high-tech development area in the north of the city, known as ‘the Northern Silicon Valley’, is located in the Ottawa-Gatineau region. It is a place with the greatest density of employment of researchers and engineers in North America except the Silicon Valley. Ottawa categorizes six of its industries as strategic ones, including the clusters of science and technology, public policies, digital media, life technologies, research and education and clean industries. According to a 2010 government report, clean industries, life technologies and digital media were the clusters that saw a growth of over 73% during 2006 and 2008.

However, in the *Outlook of Economic Circles of Canadian Metropolises* released by the Canadian parliament in the spring of 2010, it was predicted that during the 5-year period between 2010 and 2014, the growth rate of output of Ottawa-Gatineau was only 9.8%, far lower than that of other metropolitan circles of Canada. For example, the figure of Calgary was 18.6%, Toronto 16.3% and Vancouver 14.6%. Similarly, the growth rate of employment in Ottawa-Gatineau during 2010–2014 was as low as 5.4%, which lagged far behind Toronto and Calgary (12.6% and 10.5% respectively).

The powerful public sectors have provided a unique edge for the early development of Ottawa. However, the city also paid a high price for such kind of overdependence. First of all, a complicated structure of government departments made the Ottawa government suffer from huge fiscal deficits. According to a 2010 government report, the growth rate of the direct fiscal spending over the next three years would be limited to 1.3%, which means that the jobs in public sectors of Ottawa-Gatineau would be cut by an average of 0.8% each year. Secondly, the image of public sectors was generally associated with low efficiency, which led to gradually diminished attraction to the city’s investors. Furthermore, bureaucracy raised doubts on the leadership and vision of government departments which were believed to be inadequate in their understanding of the economic development.

Ottawa’s development of the knowledge industries also faced serious challenges. First of all, diversified small and medium-size enterprises were the key to resist industrial impacts. However, since Ottawa’s knowledge-oriented industries relied too heavily on a few large companies, which means that the stability of these industries was relatively weak. Secondly, the strict capital barriers hindered the commercialization of Ottawa’s enterprises and technologies. Moreover, Ottawa

was threatened with the possibility of workforce recession. Now 70% of the city's population is within the work age range, which is similar to the other cities in Canada as well as other parts of the world. However, due to the lowered birth rate and the fading of the baby boom, the work-age population will decline over the next 10 years to 70% of the current level.

## 2.2 Measures and Effects

In the face of a slowed-down economic growth under the context of economic globalization, the Ottawa government has taken a series of initiatives. It formulated in 2011 a 5-year economic boosting strategy titled *Partnership for Prosperity and Development*, targeting to boost Ottawa into a competitive global center with an orientation of innovation and knowledge for talents, enterprises and organizations.

**(1) Change of the Government's Image.** 'InvestOttawa' was established to rebuild the brand image of the city. The Ottawa Government compressed the former economic development team of the government departments into 'Invest-Ottawa', Ottawa's first brand serving entrepreneurs. Invest Ottawa receives financial support from the Government and provides enterprises with pioneering entrepreneur tutorial activities, assistance in the startup and development of enterprises, business incubation centers and commercialization services. 'InvestOttawa' has independent web portals demonstrating the advantages and corresponding policies of Ottawa, creates job opportunities, attracts venture capital investment and introduces direct foreign investment into Ottawa. For example, it has successfully attracted a development team from Zhongguancun in Beijing, China to establish the first international enterprise incubation center in Canada, which is also the second incubation center in North America. The 'Business Outreach Program' is being implemented and tutorial guidance provided by Planning and Growth Management so as to meet the development proposals of enterprises one-to-one, provide information and necessary resources, and change the image of the government departments.

Diversify investment in economic sectors and public sectors; promote the Business Assistance Program and provide the low-cost translation and recruitment services of bilingual employees. As the official languages of Ottawa are English and French, this plan can reduce the operation costs of shopping centers, the hotel industry and tourism. Set up the 'Immigrant Entrepreneur Awards' to acknowledge the outstanding contributions of immigrants to the economy and communities of Ottawa, and encourage immigrants to start their own businesses. Promote close connection between local agriculture and downtown restaurants through the 'Food

First' project and guide farmers to expand their business to other regions. In 2012, the project created an economic income of USD 6.5 million and more job opportunities in the suburbs.

Public Private Partnerships (PPPs). The Ottawa government opens public services and projects based on the mode of shared ownership—Public Private Partnerships (PPPs) —to attract stakeholders in private sectors to implement projects that are difficult to undertake for both the public and private sectors. Thus while sharing the benefits and risks, both parties can jointly promote the development and construction of the city together. For example, such projects as the construction of the Ottawa Paramedic Service Headquarters and the renovation of the Shenkman Arts Center and Orléans Town Center can be effectively promoted. In addition, Ottawa promotes the 'Bid More, Host More, Win More' project. The Ottawa government specially selects and assigns personnel to conduct competition management and publicity. The project's benefits are shared with the private sector; meanwhile, more popular activities are held to enhance the popularity and influence of the city.

In order to ensure the promotion of PPPs, Ottawa adopts new indexes to measure projects quantifiably. The OEDA (Oakville Economic Development Alliance) Index is used to measure the influence of economic development organizations in investment maintenance and attraction. It was proposed by the Oakville Alliance for Economic Development in the 1990s, with newly created job opportunities and tax revenue as its references. The 'Annual Balanced Score Card' is used to measure the annual performance; it gives priority to projects related to development strategies in terms of resource allocation, and carries out track management for projects. In addition, Ottawa implements 'Ensuring Accountability' for the external and internal service providers of projects and assesses the key indexes of both parties (government and enterprises) on an annual basis to ensure the steady promotion of cooperative projects.

**(2) Deepening the Knowledge Industry.** Special efforts are made to support the development of start-ups. Ottawa rebuilt a discarded garage into a USD 30 million 'Sea View Park Creativity Center' as a new base for the most promising entrepreneurs, which provides a manufacturing place for revolutionary product prototypes. With the Capital Investment Track Program (CIT), it provides newly-established high-tech enterprises with timely and immediate services in city approval and service needs. In addition, the Ottawa government expands its domestic and foreign markets for local middle and small-sized enterprises. The government assigned a group to visit China and India respectively in 2013 and 2016, including members recruited from

local middle and small-sized high-tech enterprises. To date, Ottawa has more than 1,900 technology companies with over 75,000 employees. It has become a gathering place of scientists and engineers second only to the Silicon Valley, fairly balancing the development between transnational organizations and middle and small-sized enterprises. In addition to such transnational giants as IBM, Alcatel-Lucent, Cisco, Huawei, Ericsson and BlackBerry, 50 high-tech enterprises with fewer than 1,500 employees have established their regional enterprise headquarters in Ottawa.

Eliminate barriers in capital and technology commercialization. The Ottawa government actively attracts the regional headquarters of large transnational enterprises to enter, and provides related industries with space to develop technology commercialization. In addition, Ottawa actively introduces venture capital investment to guarantee the supply of funds for newly-established enterprises. Over the past decade, newly-established high-tech enterprises in Ottawa have obtained a venture capital investment amount exceeding USD 4.3 billion.

Actively attract, train and retain young talents. The ‘Youth Futures’ plan provides students with opportunities in leadership training and voluntary service to help improve their ability. The ‘Summer Student Employment Program’ provides students with the opportunity to work as interns in local enterprises so as to provide them with guidance in employment development and improve their corresponding ability. The ‘Federal Student Work Experience Program’ (FSWEP) provides young students with work experience in government departments. Today, Ottawa has become the largest, most popular, most diversified and most environmental employment center in Canada.

### 2.3 Experience and Inspiration

Ottawa’s success can provide valuable experience for cities in other countries, especially those with powerful public sectors. Ottawa has proved that an efficient government and reasonable urban planning can guide the future of a city and realize the development from a ‘government city’ to a ‘diversified city’.

First, a city should give full play to its own comparative advantages and develop the knowledge industry. The rich high-quality labor resources of Ottawa are the key to the development of the knowledge industry, and its powerful public sector provides unique advantages for the knowledge industry in talent training, scientific and technological innovation and enterprise introduction.

Second, diversification is the future trend of urban development. Although powerful public sectors provide convenience in many aspects for a city’s economic development, such problems as insufficient economic vitality and low efficiency



may occur. The reform of government departments and their attention to the city's micro-economy are the key factors for sustainable urban development.

### 3. Gauteng Province, South Africa: Transformational Development and Innovation-Driven Modes

#### 3.1 Case Overview

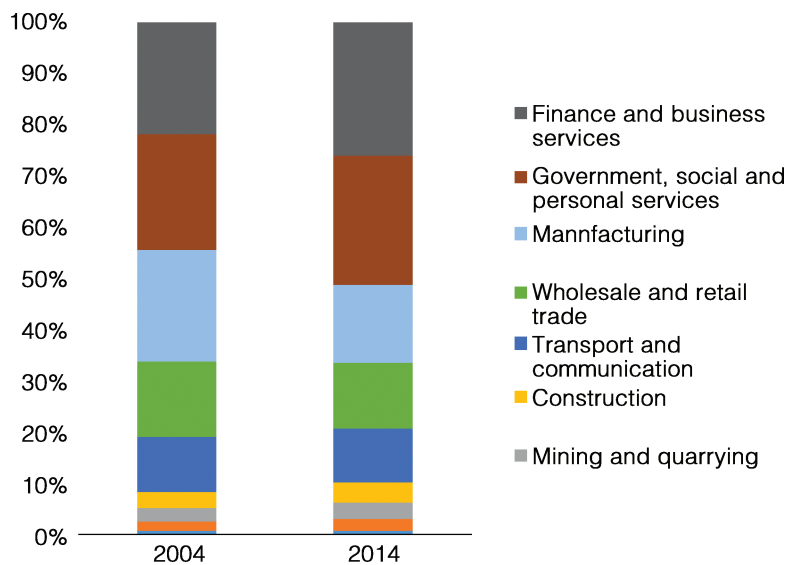
Known as the 'place of gold', Gauteng Province is a typical resource-based city that possesses 40% of the world's gold resources. It also enjoys diversified industry development, with South Africa's finance, transportation, technical and communication industries gathered in Gauteng. With a total area of 16,548 km<sup>2</sup>, it is the smallest province of all the 9 provinces of South Africa, accounting for only 1.4% of the country's total land area. However, it is also the province with the largest population. The mid-year census in 2014 showed that the total population of Gauteng Province was about 12.8 million, accounting for 23.7% of the total population of South Africa. It is also the province with the most advanced economy in South Africa and the financial and economic center of the country. *A Socio-Economic Review and Outlook of Gauteng Province in 2015* shows that the Province has gathered over 70 headquarters of foreign banks and has the largest stock exchange in Africa. In 2014, the GDP of Gauteng Province was about USD 118.7 billion, accounting for 33.9% of South Africa's aggregate economic volume. In addition, it should be noted that 97% of the people of Gauteng live in cities, and the whole of the Province is more like a large city; this is the main reason why the entire Gauteng Province is selected as a case for study.

The main industries of Gauteng Province are the tertiary and secondary industries. As is shown in Figure 3.5, tertiary industries mainly include financial and business services, government, social and personal services, wholesale and retail trade, and transport and communication; secondary industries mainly consist of manufacturing. From 2004 to 2014, the share of tertiary industries gradually increased and that of manufacturing decreased to some extent.



Source: <http://www.southafrica.info/about/geography/gauteng.htm#.VxhG5HoQjq1>.

Figure 3.4 Map of Gauteng Province



Data source: *A Socio-Economic Review and Outlook of Gauteng Province in 2015*.

Figure 3.5 Industrial Structure of Gauteng Province

### 3.2 Problems and Challenges

Although Gauteng Province is the province with the most developed economy in South Africa, it experiences certain problems and challenges restricting its economic development, including energy security, labor shortage, high investment cost and under-investment. According to *A Socio-Economic Review and Outlook of Gauteng Province in 2015*, these problems are specifically reflected in the following aspects: first, the share of manufacturing has decreased continuously from 21.7% in 2004 to 15.2% in 2014. Second, Gauteng Province suffers from a high unemployment rate; the unemployment rate among young people, the main labor force, is particularly high. The unemployment rate of Gauteng Province reached 25.1% in 2013. Third, the poverty problem remains acute. The share of the population below the food poverty line was 15.9% in 2013. Poverty has become the main factor restricting the economic development of the Province to some extent. Fourth, income inequality is obvious; although Gauteng Province is the richest area in South Africa, it is also the province in which income inequality is the most serious; the Gini coefficient of Gauteng Province was 0.65 in 2013, ranking first nationwide.

Therefore it can be concluded that the economic development of Gauteng Province is in urgent need of a transformational development. In the development strategies of recent years, Gauteng has given priority to the development of the financial industry, manufacturing (automobile making), information and communication technology, tourism, pharmacy, cultural and creative industry,

architecture, real estate, ore dressing and agricultural product processing so as to drive the economy to realize a thorough transformation.

### 3.3 Measures and Effects

**(1) Transformational Development—the Major Theme of Economic Development.** Since the establishment of New South Africa in 1994, the economy of the region has witnessed a rapid development through a series of policy reform measures. At present, transformational development and an innovation-driven mode have become the main features of South Africa's economic development. In recent years, under the main theme of transformational development and innovation-driven mode of South Africa, and in the context of more prominent problems faced by Gauteng Province's own development, in order to realize a thorough economic transformation, economic re-industrialization and modernization, and for the purpose of more efficiently releasing and implementing the policies for economic growth in Gauteng and those of development agencies, Gauteng Province has determined 10 pillars in the transformational development of economy, society, government management, and the modernization of economy, public services and other aspects. These 10 pillars include a thorough economic transformation, spatial transformation, social transformation, transformation of the government and management, economic modernization, public service modernization, modernization of residence and urban development, public infrastructure modernization, Gauteng Province's re-industrialization, and leading Africa's new industrial revolution. Through the successful transformational development of these 10 pillars, Gauteng Province will realize the promotion and application of intelligent and green development, technology and processes in economic development, create more decent employment, reduce unemployment, boost economic growth, create more job opportunities for women, young people and those physically challenged, and cultivate an appropriate number of skillful workers and private sectors (large, medium and small enterprises, cooperatives and emerging business), so as to meet the demands of economic development and key sectors.

On the level of specific implementation, in order to achieve the goal of the abovementioned economic transformational development, Gauteng Province has successively introduced six programs to support economic development. These six programs contain different sub-programs, providing support for the economic development of Gauteng Province in such aspects as policy, law, technology and talent through knowledge and innovation related strategies.

The specific situation is that Gauteng Province actively popularizes financial accountability and obedience, promotes fair employment of women and the physically challenged people and ensures successful implementation of other strategic measures, for which it introduces in its administration sub-programs; meanwhile, the Province actively boosts the intellectualization of commercial management and ensures successful release of research reports on economic development and re-industrialization and the packaging and successful progress of commercial programs. To this end, Gauteng Province introduces in the BIP (Business Intelligence and Planning) sub-program. In addition, Gauteng Province actively attracts domestic and overseas investments, promotes high value-added manufacturing in Gauteng Province and trade between Africa and the rest of the world, supports the development of the commercial department and helps investors discover investment opportunities and realize the implementation of investment programs. Therefore, Gauteng established the TIRE (Trade, Investment and Regulatory Enablement) sub-program to enhance investment in strategic industries and promote global trade, on which basis the province gives great impetus to the development of special economic zones and the implementation of the green economic strategy of its economic sustainable development, and particularly establishes the EPMO (Enterprise Project Management Office). The abovementioned four sub-programs, i. e. respectively administration, BIP, TIRE and EPMO, are all under the Gauteng Growth and Development Agency (GGDA). In 2014, the holdings of the Agency created 5,444 job opportunities, of which 3,363 were permanent job opportunities and 2,081 were temporary ones.

Gauteng Province also actively develops the automotive industry to revitalize its township economy and thereby realize the thorough transformation and re-industrialization of its economy. Gauteng Province introduces in the Automotive Industry Development Center (AIDC) which focuses on the implementation of advanced technical programs and the supply of relevant services, facilitates cooperation between small, medium and micro enterprises of the automotive industry, and cultivates high-skilled human resources and commercial talents to cater to the development of the automotive industry; it also takes charge of the construction, maintenance and management of strategic infrastructure, enhances relations with the Southern African Development Community (SADC) and with Africa, and maintains the relationship with other governments at all levels. At present, this program has established the Automotive Industry Park and Nissan Automotive Industry Incubation Center to realize specific strategic goals. In 2014,

the AIDC created altogether 104 job opportunities.

In order to develop an economy with orientations of innovation and knowledge, Gauteng Province also establishes the Innovation Hub; it is the first science and technology park in South Africa, the catalyst of Gauteng's innovation and entrepreneurship, and the main driving force of the Province's knowledge and green economic development. The main purpose of this program is to promote innovation and the commercialization of innovative achievements, establish new intelligent knowledge-oriented industries and economy, accelerate the sustainable development of Gauteng's economy and create more decent jobs to reduce poverty. This program consists of seven specific sub-programs. In 2014, the Innovation Hub created 214 job opportunities in total, 158 of which were permanent job opportunities and 56 were temporary ones.

In an attempt to actively develop park economy, Gauteng Province launches a project of the Gauteng Industrial Development Zone. It is mainly based at the OR Tambo International Airport and managed by the Gauteng Industrial Development Zone Development Company. Gauteng Industrial Development Zone establishes corresponding infrastructure to promote the development of employment economy and that of the products of high value-added manufacturers in the Zone. This main task of this program in the first stage is to promote the development of the Province's jewelry manufacturing industry.

In the aspect of urban construction, Gauteng Province not only focuses on the reconstruction of the inner city but also the development of the New Town. For this purpose, it successively launches the programs of Constitution Hill and the Greater Newtown Development Company. Constitution Hill is an inner city reconstruction program worth several million rand (a unit of currency used in South Africa). This program aims to revitalize the development of the inner city and drive the development of the surrounding areas through building strategic economic infrastructure. By building strategic economic infrastructure, it is to preserve the cultural relics, promote a comprehensive urban development and develop tourism and education. In 2014, the number of tourists to Constitution Hill increased by 127,939, that of exhibitors and public programs increased respectively by 20 and 63 compared with the preceding year. The New Town is an economic development zone in Johannesburg, designed to become a creative capital of Johannesburg and South Africa as well as a vibrant and international cultural capital. With the joint efforts of the GGDA and Johannesburg, the development of the New Town has enjoyed initial success.

## (2) New Dynamics for Economic Growth from the Innovation Hub.

The transformational development of Gauteng Province is closely related to its innovation driving force. For this reason, it establishes the Innovation Hub to be the main carrier of the Province's strategy for an innovation-and-knowledge-oriented economy. It mainly adopts a stockholding system which is mainly led by public authorities. It is directly administrated by the Innovation Hub Administration Company. The Provincial Government of Gauteng provides it with support through the Gauteng Growth and Development Agency, thereby becoming its main shareholder. The main functions of the Provincial Government of Gauteng include subsidizing the construction of the Innovation Hub's core infrastructure and incubation facilities, making strategic directions, providing financial support to the Innovation Hub (through endowments, local financing channels and so on) and offering other convenient government support. The other three shareholders are Gauteng Online, the South Africa Department of Economic Development and the Gauteng Economy Growth and Development Agency.

The purpose of the Innovation Hub is to promote social economic development and enhance the competitiveness of Gauteng Province. The main strategic measures are as follows: creating new business opportunities for technique and knowledge-intensive industries and improving the value of mature enterprises; providing human resources for prioritized industrial sectors; promoting the coordinated development of the Government, academic institutions and research departments; cultivating entrepreneurs and incubating new innovative enterprises; and providing attractive space for emerging knowledge-based enterprises.

Measures of the Innovation Hub Strategy are essentially taken based on the implementation of specific programs. So far, altogether seven major program platforms have been established in such aspects as talent cultivation, technical research and development, and enterprise incubation, among which the Maxum program, which provides training services to knowledge-based pioneering enterprises, incubated 41 enterprises and 23 pre-incubated enterprises in 2015, 12 of which have commercialized their technologies; and the Training Lab for Highly Skilled Talents program, which serves the purpose of fostering talents with a high professional caliber, witnessed the participation of 129 postgraduates in 2015 who completed various public courses. In addition, these students will continue to join private training programs to transfer their focus from academia to the industrial sector. There is also an Exchange Program for Innovative Solutions which aims to provide innovators with a communication platform. At

the same time, the Innovation Hub will offer later-stage management to these innovation solutions to ensure their commercialization; the year 2015 saw the signing of incubation contracts of 5 innovative solutions. On October 12<sup>th</sup>, 2014, Gauteng Province established a park program so as to facilitate the agglomeration of the biosciences industry. The enterprises inside the park mainly include agriculture/biology processing enterprises, diagnosis and equipment enterprises, medicine and cosmetics enterprises, and the Climate Innovation Center. In order to conduct experiments to innovate solutions and designs for small-scale production, Gauteng also established a manufacturing lab. In order to transmit the innovation achievements of the Innovation Hub to the basic level, the Province established an innovation center, the eKasi Lab, in the township so as to create job opportunities for the local people; in order to facilitate stakeholders to share data experiences and solutions concerning climate change and environmental sustainability, the Innovation Hub established the Climate Innovation Center; and in order to promote innovation in green economy, information and communication technology, medical treatment, biosciences, etc. with the help of Gauteng's innovation and competitiveness platform, the Innovation Hub initiated a Gauteng Accelerator Program (GAP). The bioscience program, launched in cooperation with the Emory University of USA, received from technological innovation institutions which includes financial support, which includes awards for individual researchers.

**(3) Economic Foundation Consolidated by the Transformation and Upgrading of the Manufacturing Industry.** The transformation of Gauteng Province also involves the transformation of the manufacturing industry. Gauteng's manufacturing industry has a profound historical foundation, but its previous development still hit a bottleneck. Hence the province has taken a series of strategic measures to promote the transformation and upgrading of the manufacturing industry, from traditional manufacturing to the manufacturing of new high-tech products and high value-added products so as to achieve the goal of Gauteng's economic transformation and re-industrialization. First, efforts are made to vigorously develop the automobile industry as its relatively long industry chain which can drive the development of other relevant industries and create more jobs. The specific practices include establishing the Ford and Nissan Automotive Industry Incubation Center to cultivate professional talents in automobile and establish the Automotive Industrial Zone. Secondly, the jewelry industry, a traditional industry with a comparative advantage, keeps on developing. Gauteng Province has

established an Industrial Development Zone at OR Tambo International Airport. The Jewelry Manufacturing Park is the main program of the first stage of this Zone, which promotes the development of the jewelry industry through such methods as infrastructure investment, investment promotion and technical incubation. Meanwhile, the Jewelry Manufacture Park is also part of the aviation city program, which was established to facilitate the development of the east corridor of Gauteng Province.

### 3.4 Experience and Inspiration

The case of Gauteng Provincereveals what an important role that knowledge and innovation play in economic growth, and how the government exerts positive effects on innovation and the knowledge-oriented economy.

First, knowledge and innovation are undoubtedly the main driving force of future urban economic development. Gauteng's economic strategy of innovation and knowledge integrates urban economic development into the knowledge-oriented economy with the Innovation Hub as the carrier, and also through talent cultivation, technology research and development and enterprise incubation. The innovation and knowledge-oriented economy will definitely become the engine for the sustainable economic development of Gauteng Province and other cities in the future.

Second, the Innovation Hub of Gauteng Province demonstrates how the government plays a positive and active role in economic development and builds a solid platform for economic growth through infrastructure investment, financial support and the coordination of communication among different stakeholders.

## 4. Buenos Aires, Argentina: Re-employment Promotion for Impoverished People in the City

### 4.1 Case Overview

In the 1970s, Argentina was already among the middle-income countries. At that time, impoverished urban families in the country accounted for 5%. After World War II, the economic development of Argentina was for a time regarded as a good example, with every aspect developing harmoniously. However, influenced by the global oil crisis and continuous financial crises, Argentina started to show signs of economic stagnation, inflation and currency devaluation. Moreover, dozens of residents were poverty-stricken. Between 1980 and 1990, the national income of Argentina was reduced by a quarter, and the average household income decreased by 22%. Statistical data from the State Statistics Bureau of Argentina shows that



the poverty rate in Argentine cities in 1999 was 6.6%, and this proportion rapidly decreased to 2.8% in 2010. Statistical data from the World Bank also shows that the poverty rate decreased from 5.7% in 2000 to 1.8% in 2013.

Poverty in Argentina is closely related to its deficient labor market, which faces a quite complex situation with such problems as social segregation, high unemployment rates among the labor force, work instability of those who are employed, underemployment and so on. Therefore, many people are living in uncertain conditions. Moreover, these people lack the professional skills and resources to enable themselves to become the labor force needed by society. As a result, most of them are excluded from the labor market, or they finally get into the market only to be excluded again.



Figure 3.6 Streetscape in Buenos Aires

As the capital of Argentina, Buenos Aires suffers from a high poverty rate. A good number of citizens, especially women and youths lead an impoverished life. Many of them grow up in families which have been kept away from the labor market for up to 2 generations. Women are the ones under greater influences. With a traditional role in the family, their placements are often limited by the role of taking care of the children, so they can hardly find balance between work and family. These influences generate a negative impact not only on their work, but also on their mental health. Particularly for impoverished women living in slums, they

often work in informal sectors with middle and low level of salaries and low skills requirements, or work at home. Hence it becomes more difficult for them to get rid of poverty.



Source: <https://panampost.com/raquel-garcia/2016/04/04/poverty-in-argentina-soars/>.

**Figure 3.7 Argentine Women Living in Poverty**

#### 4.2 Measures and Effects

To help youths and adults, and especially women, who live in Buenos Aires in uncertain conditions, the Argentine government unites 6 organizations to carry out the project of ‘Allowing Impoverished Men and Women to Return to the Labor Market’ in order to raise the participation rate in the labor market, especially that of the impoverished people. This plan includes two main measures to raise the resident workforce: the first is skills training and employment guidance; the second is consultation and persuasion concerning the social emotions of the people. These measures, with a purpose of poverty elimination by activating the labor force and raising the participation into the labor market, ultimately ensure a stable decrease in the poverty rate as they enhance positive emotions towards social interactions, help people gain a steady foothold in the labor market so as to avoid the possibility of them being excluded again. With notable effects of poverty alleviation, this project of Buenos Aires was awarded ‘Best Practice’ in 2014 by UN-Habitat.

The project is expected to achieve effects in three aspects:

(1) Allow people to have positive social emotions and a sense of happiness both during and after the project. Specifically, the project is designed to inspire self-esteem and self-love among impoverished people, enabling them to work stably and achieve self-improvement and professional progress in their work. To realize these goals, the heterogeneity of the people also has to be taken into consideration, i. e.

quality education individualized according to different backgrounds and adaptation to local conditions. Moreover, the project would arrange volunteers to keep in touch with those who have received psychological counseling so as to ensure that their mental quality is truly enhanced.

(2) Help people acquire a series of skills, such as computer operation, job hunting and drafting a clear career orientation. In this way, the recipients improve their education level, reduce the mismatching of skills required by work and become more desirable in the labor market. By studying the daily behavior, personality of people and the impression they usually leave on others, employment guidance helps them, during their job hunting, avoid missing the jobs which they are competent in due to a lack of experience. Recent research by the Inter-American Development Bank shows that these are key factors in boosting employment among youths and adults; however, they are not given sufficient attention in general education and social programs.

(3) Promote gender equality, for which impoverished women are the primary objects of assistance. In many countries, women nowadays are richer, healthier, more influential and more creative than the past, which can be counted as a result of social development and a higher educational level of women. However, in a few other countries, the women there still encounter difficulties in finding a job, driving a car, or owning a house, which brings great limits and disadvantages for both local women and the development of the local economy. A report released by the World Bank entitled *Women, Business and the Law* points out that among 173 economies, females in 100 countries meet restrictions in employment. There are 18 countries in which a husband has a legal right to prevent his wife from getting a job, and around 24 countries in which a married woman cannot pass her citizenship on to her own children (only the father can). Therefore, the Buenos Aires project is inclined more towards women living in poverty in order to help them establish a healthier mental quality, provide chances and platforms for training, and make it easier for them to enter the labor market and find a job.

During the implementation of the project, there are also some challenges:

(1) The stability of the aid recipients. Many of the recipients face the problem of job insecurity. They work as temporary workers or informal staff, receiving a temporary and low income and unable to foresee long-term financial support (they are called ‘changas’ in Argentina). As what the project is concerned about is the welfare improvement of recipients in the middle and long term, difficulties occur to the continuity of the project.

(2) The effectiveness of assistance for women. These women recipients receive little, if not none, aid or support from their family members. Due to their obligation to take care of the children at home, they cannot guarantee their attendance. To solve this problem, the social workers would contact them ahead of time, learn about their situation and provide more flexible training. These measures are absolutely necessary, and can effectively ensure the quality of the assistance provided to the women so as to enhance their degree of participation and promote gender equality.

The participants of this project come from all walks of life, including the project's organization team, social workers, skill trainers, volunteers and recipients, i. e. the impoverished people. To ensure that the recipients are better assisted, a carefully designed questionnaire with detailed questions was given out at the commencement of the project in order to gather knowledge about the recipients' current skills, interests and the kind of training and assistance they hoped to receive. In this way, the situation of each recipient could be taken into consideration, which reduced the loss in cost and efficiency of the training caused by information asymmetry.

The Buenos Aires Government and relevant organizations are also united together to evaluate this project. In this way, feedback can be collected by checking the results of the evaluation to improve the project's implementation; also it may come as a reference for similar measures to be taken by other countries and regions in the future. Detailed evaluation indexes are as follows: (1) number of recipients who have successfully finished the professional training; (2) number of recipients who take part in incentive training for social emotions; (3) number of recipients who have received an increased income or improvement in work conditions, or found a new job; (4) number of recipients who have the chance for an interview; and (5) improvement degree of recipients' social emotions, which mainly consist of the recipients' openness to new experiences, responsibility, extroversion, social interaction, kindness, emotional stability, self-esteem, self-respect and confidence.

From its commencement in 2005 to 2014, the project made some achievements:

(1) Stability of the project. Since the beginning of its implementation in 2005, this project successively received subsidies and donations in 2007, 2009, 2010, 2011 and 2012, which laid a firm foundation for its sustained advancement. As for the supervision of funds, the project also ensured financial transparency, and a regular audition was carried out on utilization of funds.

(2) Social and economic stability. This project sustainably promoted social integration. For the recipients, it was not enough to help them receive professional and mental training, and get back into the labor market. Support in social emotions helped them stably improve their personal ability and overall welfare, and attain a stable long-term personal development in an attempt to get rid of poverty. This project also promoted gender equality, encouraging women who are more likely to be trapped in poverty and live in relatively less certain conditions to get involved in the labor market and find a suitable job.

(3) Cultural stability. This project respected cultural diversity. Most recipients come from different social groups with different backgrounds of cultural traditions. Among them, some come from Jewish communities, and others, although with a Latin American identity, come from Peru and Bolivia. They live in the poorest regions of Buenos Aires. Respect for the different cultural backgrounds of the recipients maximized the expected effect of the project.

(4) The project was stable and duplicable. It gained support in terms of manpower, material and financial resources from the government, enterprises, and academic and social organizations, which laid a firm foundation for proceeding with the assistance plan. So far, the project has been copied by the district of Tigre, which is not far from Buenos Aires.

### 4.3 Experience and Inspiration

A decreased degree of poverty in Buenos Aires stands in an indivisible relation with the improvement of its labor market and the increase of its labor force participation rate, especially when the benefit of that improvement is related to the impoverished people. This form of poverty reduction will have more notable effects in the long run, which can be highly beneficial to the long-term development of an economy. The fact that this project is gradually carried out in other regions after its success in Buenos Aires indicates that as a classic and duplicable case, the project may serve as a reference for similar projects and plans in the future.

First of all, the recipients are assisted in getting to know the procedures of job hunting and the reality of the working environment. Many of them come from extremely impoverished families that have gone through 2 or even 3 generations without the family members entering the labor market. In this case, the recipients lack necessary information about the relevant situations of jobs and the labor market. However, that information is a crucial factor in job hunting. Therefore, the project carries out simulation experiments of job hunting; for example, mock interviews are conducted to train the recipients.

Second, mental training is as important as skills training. During the implementation of the project, the working staffs find that many recipients have no confidence in their ability. They cannot recognize their advantages or effectively express their emotions and feelings, and such mental problems really affect them a lot in retaining a job and career development in the future. Therefore, the project subscribes to the idea that the recipients should acquire some methods of psychological adjustment to face job opportunities and attain to their own happiness.

Last but not least, the resource edge of the project has been drawn upon. This project gains support from the government and academic and industrial circles, and advanced computers may be used for free, which is a God-given chance for the impoverished people of Buenos Aires. Nowadays, computer operation skills are necessary for most jobs, and these are precisely what the recipients are short of and badly need to improve. Providing them with training in such skills may bring them more opportunities in job hunting. The project also trains the impoverished group in terms of the auxiliary management ability with a view to increasing the possibility for them to find a suitable job.

## 5. ECOPROFIT<sup>®</sup> : To Achieve Win-win Effects of Urban Economy and Eco-efficiency

### 5.1 Case Overview

ECOPROFIT<sup>®</sup>, short for ‘Ecological Project for Integrated Environmental Technology’, is an operating mode designed to promote a sustainable development of the social economy, which requires the embodiment of environmental protection concepts and the assurance of such economic efficiencies as technology, products and relevant services. ECOPROFIT<sup>®</sup> was established in 1991 in Graz City, Austria. To date, it can be found in more than 70 countries and over 1,200 corporations.

The basic idea of the ECOPROFIT<sup>®</sup> project is the win-win mode of economic efficiency and environmental protection; in other words, the local government establishes a productive cooperative relationship with enterprises and jointly adopts conservation technologies with them in order to reduce emissions, cut down consumption and improve the ecological environment in local areas, while increasing the economic benefit and product competitiveness of the enterprises at the same time. This is a specific application of Public-Private Partnership in the conservation field which emphasizes collaboration between the government and relevant enterprises, realizes the optimization of technology and management,

establishes horizontal cooperation relations between participating enterprises, and subsequently establishes an intercity and internationalized ECOPROFIT<sup>®</sup> cooperative network system.

Due to the implementation of the ECOPROFIT<sup>®</sup> project, Graz City was honored as a ‘European City of Sustainable Development’ in 1996, recommended to the public as a model ‘Ecological City’ on the World Exposition 2000 held in Hanover, Germany, and received the ‘Dubai Award for Best International Living Environment Improvement Techniques’ in 2002. In addition, Graz City was responsible for the international promotion and development of the ECOPROFIT<sup>®</sup> project, which achieved favorable results. For example, the Austrian Cleaner Production Center, which is an authorized agency summoned by organizations and experts of the international ECOPROFIT<sup>®</sup> research agency, was granted the ‘Styria Global Energy Prize’ of 2004 for its efforts and success in promoting ECOPROFIT<sup>®</sup> ideas and methods on an international scale. The outcome of the Austrian ECOPROFIT<sup>®</sup> project shows that, when computed according to the benefit model, the benefit ratio of economic boosting to a city or district is 1:10 (expenses invested and saved by the whole society), and the input-output ratio of enterprises is 1:20.



Source: <http://www.ecoprofit.com/>.

Figure 3.8 Logo of ECOPROFIT<sup>®</sup>

## 5.2 Project Implementation Process

The ECOPROFIT<sup>®</sup> project establishes a cooperative relation between the local government and relevant enterprises, and an interactive network system is formed horizontally between these enterprises.

First, taking the win-win goal of ecological benefit and economic benefit as the starting point, the local government launches the ECOPROFIT<sup>®</sup> project, and organizes and establishes relevant specialized agencies/committees (SPV). These agencies/committees intensively train consultant experts and government officials through imparting the principles, methods and specific operating steps of ECOPROFIT<sup>®</sup>; they are responsible for providing on-site technical support and services as well as program inspections, assessment and supervision, thereby ensuring the effective advancement of the programs. The ECOPROFIT<sup>®</sup> project is mainly composed of the Basic Program and the Club Program. The Club Program aims to ensure and promote a sustainable development of enterprises which

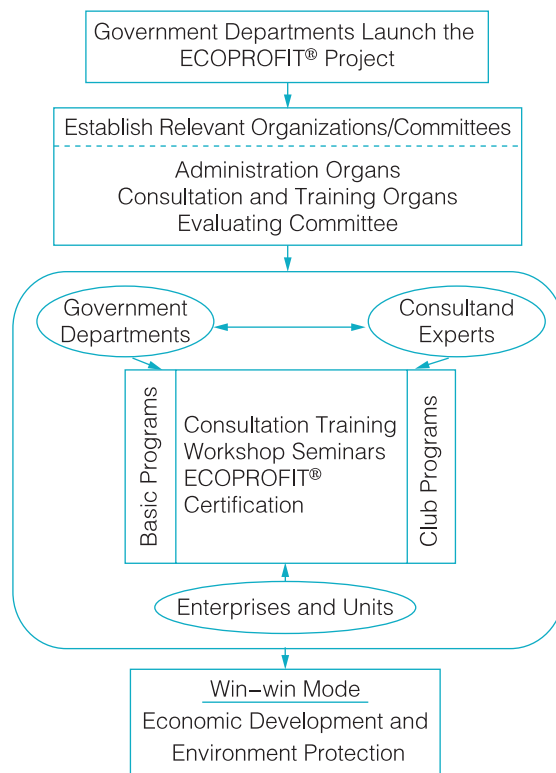


Figure 3.9 ECOPROFIT® Project Model

have completed the Basic Program, i. e. it provides a series of comprehensive training and consultancy measures for enterprises which have completed the Basic Program, so as to realize sustainable energy efficiency improvement, resource optimization and environmental performance enhancement through such systems as the direction and supervision of national and international experts, and the exchange of information, demonstration and learning between enterprises.

Next, under the network framework in which administrative departments, consulting units, enterprises and promoting media play a part, specialized agencies impart technologies and knowledge to enterprises, and implement the classification of the programs' systems according to the specialization requirements and by means of modular expert consultation, symposiums, on-site visits and so on. The enterprises sign project participation agreements, and a project leader is determined and a project group established within participating enterprises to prepare for the implementation of relevant programs. Specifically, during the one-year stage of the Basic Program, relevant personnel (from enterprises, consulting agencies, administrative management agencies and institutions of higher learning at home and abroad, and project participants where the ECOPROFIT® project



has been implemented) with qualification in project management and consultation are appointed as program leaders on site, to provide an expertise foundation of independent inventory control over the implementation of operating data concerning the environment. The ECOPROFIT<sup>®</sup> consultants organize project seminars where they can work out an implementation plan for the project. All enterprises, public institutions, experts and administrative agencies participate in it as basic groups and by means of the workshop linking method, set up a training and consultancy network, and hold seminars on such topics as energy, logistics management, technical support and environmental protection laws and policies. Just as they are providing technical support, the ECOPROFIT<sup>®</sup> consultants will at the same time identify the specific fields among legal certainty, environmental burden alleviation and cost reduction in which improvements need to be made and determine an implementation scheme for the project. All enterprises will perform their responsibilities and stay within budget, taking specific measures one by one according to their schedule. After finishing the Basic Program, an independent and authoritative ECOPROFIT<sup>®</sup> evaluating committee will conduct assessment and review the implementation performance of the enterprises' specific measures according to various kinds of standards, such as whether there is a concept about waste disposal, whether all measures have been carried out successfully, whether a strict environmental plan and policy have been formulated, whether an environmental protection team has been established, and whether performance data has been effectively used; it will then grant that enterprise a title of 'ECOPROFIT<sup>®</sup> Corporation' in an activity where there is high participation of the public and the media, and confer the ECOPROFIT<sup>®</sup> certificate to qualified enterprises.

Furthermore, the enterprises which have passed the certification of the ECOPROFIT<sup>®</sup> Basic Program will have access to the ECOPROFIT<sup>®</sup> logo, and may participate in the follow-up ECOPROFIT<sup>®</sup> Club Program so as to deepen their understanding of the sustainable development, share experiences and practice the ideas of sustainable development according to EMAS (Ecological Management Auditing System) and ISO14001 (Environmental Management System). In the follow-up actions (Club Program) promoted year by year, we will modify and supplement the program scheme, bring to depth relevant special seminars and research projects, enhance horizontal communications between enterprises and so on, adopting the mechanisms of 'the training of trainers approach' or 'project demonstration' in order to broaden the promotion and application of

technologies and modes in the ECOPROFIT<sup>®</sup> project, and increase the economic and ecological benefits of each individual ECOPROFIT<sup>®</sup> program. In view of the time limit on the ECOPROFIT<sup>®</sup> trademark license, after finishing the next Basic Program, enterprises that continually improve their environment and economy framework will be eligible to receive the ECOPROFIT<sup>®</sup> certification again after they have been judged as qualified by the checking and evaluating committee.

To put it specifically, the ECOPROFIT<sup>®</sup> project includes the following three parts:

**(1) Consultation and Training Program.** One of the most important factors that lead to the ECOPROFIT<sup>®</sup> project's success is its standardized training programs and network platform. Such aspects as environmental protection, production efficiency and management technology, consultation services and an effective information flow between enterprises help enterprise develop efficiently. In particular, the ECOPROFIT<sup>®</sup> Club places emphasis on experience exchanges between certified enterprises, update of its knowledge about the *Environment Law* and new organizations and technologies, and implementation of such follow-up schemes as determining new consultants, so as to ensure that companies learn constantly and make progress in relevant fields, monitor the future opportunities of ecological innovation products, production and organization procedures, and extend the business network.

The ECOPROFIT<sup>®</sup> project of Panzhihua, Sichuan Province, China, officially kicked off on January 1, 2004 after being approved for implementation by the European Union on November 26, 2003, with an implementation period of two years. By providing high-quality training programs and pilot programs of best practice modes, this project aims to diffuse ECOPROFIT<sup>®</sup> knowledge and skills across China with the purpose of improving the production efficiency of enterprises, establishing good cooperative relations between the government and enterprises, boosting local economic development and environmental improvement, and enhancing the quality of life of the local residents.

**(2) Workshop Seminars.** The ECOPROFIT<sup>®</sup> project attaches importance to a basic module designed for the workflow-oriented environmental management system. To be more specific, based on its provision of consultation services which are in alignment with the situation of various enterprises and public institutions, it holds workshop seminars according to the macro-

background of the local social and economic development and the type of enterprises. Also it carries out friendly cooperation with various companies to produce synergies where all participating enterprises may benefit from the project.

Since the first ECOPROFIT® workshop activity was held in Munich in 1998, the ECOPROFIT® procedure has been successfully implemented in more than 100 cities and 2,400 corporations. Taking as an example the ECOPROFIT® project of Bonn City, North Rhine-Westphalia, Germany. Participants attended modular workshop seminars and had their discussion themes mainly revolving around energy, logistics management, technical support and conservation regulations. Each seminar was composed of five parts, with each part lasting half a day. In the duration of the event, attention was paid to identifying the specific fields among legal certainty, environmental burden alleviation and cost reduction in which improvements need to be made and providing enterprises with a knowledge base which is needed for them to conduct independent inventory control over the operation data in environmental terms. By figuring out the potential for cost saving, appropriate measures were devised and efforts were made to promote an environment management system. In addition, environment consultants and advisory consultants paid visits to relevant companies to help them conduct inventory control and identify the specific opportunities to cut down costs and reduce the influence on the environment to the maximum degree.

**(3) The ECOPROFIT® Certification.** After the project was concluded, an independent and authoritative ECOPROFIT® evaluating committee conducted assessment and verification of the enterprise's performance, and worked out a project report according to various kinds of standards, such as whether there was a concept about waste disposal, whether all measures had been taken successfully, whether a strict environmental plan and policy had been formulated, whether an environmental protection team had been established, and whether performance data had been effectively used, and granted the ECOPROFIT® Logo to qualified enterprises.

For example, after the twelve-month Basic Program of ECOPROFIT® at Bonn, Nordrhein-Westfalen of Germany came to an end, the expert committee conducted review and inspection of the executive conditions of specific measures: the 'ECOPROFIT® Corporation' certification was completed in an activity where there was a high attendance rate of the public and people from the media. After receiving

the ECOPROFIT® certificate, the corporation in question could not only get an opportunity to participate in the ECOPROFIT® Club to deepen its knowledge and share its experience, but also apply for a certification of EMAS (Ecological Management Auditing System) and ISO14001 (Environmental Management System) on such basis.

### 5.3 Measures and Effects

The ECOPROFIT® project focuses on a win-win mode between economic efficiency and environmental protection with guaranteed enterprises' benefit. It deals with conservation-related issues from the perspective of promoting social economic development. The economic, ecological and social values reflected in its concepts completely accord with the idea of a sustainable development. It improves the economic benefit and competitive capacity of enterprises and ensures the development of their profit level by specifically bringing in technologies that are innovative, comprehensive and beneficial to the environment for productive enterprises (especially small and medium-sized enterprises), setting up a training and consulting platform, and improving production efficiency. In addition, the united training plan promotes an economic structure which can produce comprehensive effects and is beneficial to a sustainable development to boost a sustainable economic development and improve the local ecological environment.

The preventive emission reduction mode is adopted in the ECOPROFIT® project to optimize the utilization effectiveness of energy. Its emphasis is on energy saving and reduction of waste discharge through the enhancement of an awareness of environmental protection and the optimization of the workflow. Based on the transformation and upgrading of existing production processes and technologies in enterprises, the ECOPROFIT® project provides a customized optimum scheme for reducing the consumption of such resources as raw materials, energy and water, and decreasing the discharge of garbage and waste in the aspects of logistics, management, technologies and so on, thereby both reducing the cost of production and increasing the utilization efficiency of raw materials and energy.

The ECOPROFIT® project establishes a platform for multiple parties to promote knowledge spillover and form an effective mechanism of cooperation between the government and enterprises. Under the guidance of the relevant government departments, the ECOPROFIT® project utilizes such means as training, workshops, and on-site visits to build a cooperative mechanism between

the government, enterprises and ECOPROFIT<sup>®</sup> consultants, and a communicative network between participating enterprises of the project, thereby effectively tapping the function of social capital, promoting information flow and experience sharing, and optimizing the sharing mechanism. The coordination pattern is exactly the specific application of the PPP pattern, and even the ECOPROFIT<sup>®</sup> financing project can be carried out through the cost-sharing mechanism. It also contributes to the implementation of government policies and guarantees and enhances relevant legal support. Efforts can be made based on that to further advance the construction of a systematic platform of the ECOPROFIT<sup>®</sup> network, on a cross-city, cross-industry and even international basis, and the promotion of the project to bring forward comprehensive effects which are helpful to the implementation of the united training plan.

The ECOPROFIT<sup>®</sup> project helps company employees enhance their professional skills and build a good public image in society. By means of the consultation and training module, the project increases employees' capacity in conservation, production and finance, enhance the human capital and an awareness of environmental protection, and provide a better working and living environment to improve the quality of life of the local residents. The participating enterprises can expand their influence in the market with the help of the ECOPROFIT<sup>®</sup> network system. Enterprises can also be granted the ECOPROFIT<sup>®</sup> certification, which will contribute to their good public image. Moreover, the preparation and supplementing of the EMAS and ISO14001 can also help them sharpen their competitive edge on the global market.

On the principle of a win-win mode between economic development and environmental protection, and through the joint efforts of a multitude of groups including government departments, enterprises, expert consultants, research institutes in the aspects of conservation technologies, the ECOPROFIT<sup>®</sup> project propels scheme design, implementation, supervision and assessment and follow-up actions of projects. Noticeable benefits have been seen and lasting in social, economic and ecological terms.

The ECOPROFIT<sup>®</sup> project has been successfully carried out all across Germany. The effects in the first year of implementation were outstanding, and the follow-up implementation also yields good benefits (See Table 3.1 for details).

**Table 3.1 Outcome of the ECOPROFIT® Project in Bonn, North Rhine-Westphalia, Germany**

	2007/2008	2008/2009	2011/2012
Certification	17 enterprises	12 enterprises	9 enterprises
Recertification	0	4 members of ECOPROFIT Club	7 members of ECOPROFIT Club
Number of measures	103	94	NN/A
Cost of measures	€ 2,130,327	€85,268,495	€14,000,000
Annual conservation and reduction	€946,830	€259,102	€567,251
Reduced energy consumption	5,189,685 kWh	1,433,951 kWh	5,900,000 kWh
CO <sub>2</sub> emissions reduction	3,362,900 kg	893,854 kg	1,400,000 kg
Reduction of water resources consumption	164,142,409 L	66,984,000 L	247,840 L

Source: Sino-European Partnership on Low Carbon and Sustainable Urban Development—Bonn ECOPROFIT.

In addition, in the ECOPROFIT® Club Program of Gurgaon, the National Capital Territory of Delhi, India, the 12 participating corporations saved 102.5 tons of oil equivalent (toe) in total, with a total energy-saving potential of 208 tons of oil equivalent (toe); environmental benefits included the reduction of 835 tons of CO<sub>2</sub> equivalent weight, with a further energy-saving potential of 1,994 tons of CO<sub>2</sub> equivalent weight. From 2005 to 2011, through the effective utilization of resources in its energy-saving management system, the KHS Corpoplast Hamburg Corporation successfully cut down the consumption of electrical power by 47%, reduced its water consumption from 3,500 m<sup>3</sup> to 2,400 m<sup>3</sup>, gas consumption by about 40%, and the cost of waste disposal from €38,000 to €17,000.

The ECOPROFIT® project is an ongoing process in which an enterprise joins the ECOPROFIT® Club, which is a wider ECOPROFIT® network system, and continues to carry out follow-up activities with special topics and communicative programs. The project’s rolling-type (sustainable) development at different stages is emphasized, i. e. optimizing the resource chain, undertaking environmental protection projects with international partners, building an international ECOPROFIT® network system, and creating an increase in social, economic and ecological benefits from the ECOPROFIT® project in the era of circular economy.

#### 5.4 Experience and Inspiration

The ECOPROFIT® project is not only a work mode promoting sustainable development, but also an achievement in innovative management systems. The

project enables participating companies to carry out the concept of sustainable development, continue to improve their environmental performance, and effectively reduce the waste and discharge in the region. The key to its success consists in the inclusion of the interested parties of the region, such as the competent authorities, research institutes, consultants and companies, into the ECOPROFIT<sup>®</sup> project, and the effective combination of preventive conservation concepts and advanced conservation management systems to significantly enhance the social, ecological and economic benefits. References can be drawn from the ECOPROFIT<sup>®</sup> project in the following aspects:

**(1) Strengthen the Cooperation between Government and Enterprises, and Exert the Combined Effects of Social Capital.** The establishment of the cooperation relationship between government departments and enterprises contributes to the internalization of social benefits and the information symmetry of interested parties, cost-saving, efficiency improvement and the effectiveness of policies and measures, and ultimately achieving a win-win outcome of economic efficiency and public benefits.

**(2) Establish a Reasonable Organization Structure, and Enhance the Economic Contract Constraint.** The formulation and implementation of the ECOPROFIT<sup>®</sup> project scheme need the establishment of an SPV (Special Purpose Vehicle) as the professional agent of the local government that is responsible for such processes as project operation, supervision, and assessment regulation, ensures the participation of all basic groups under its organization, pays attention to the implementation of economic contract constraints, strengthens the partner relationship between the government and enterprises, and guarantees the sustainable phased development of each project. Meanwhile the qualification of relevant personnel must be determined through a training evaluation system so as to ensure the guidance and service throughout the whole process of the project, and in turn guarantee the realization of related benefits.

**(3) Establish an Information Sharing Platform, and Promote a Mode of Pilot Programs.** The development of the ECOPROFIT<sup>®</sup> project first requires information on all aspects including energy demand, user mode, and adopted technologies & systems in order to lay the foundation for project standards and general budget. Participating enterprises should set up an information sharing mechanism, realize the openness and transparency of information, and reduce friction costs, while promoting the mode of pilot programs at the same time to realize the application of high efficiency technologies or patterns in the

ECOPROFIT<sup>®</sup> project. In addition, under the network framework containing administrative departments, advisory units, enterprises and media, efforts are made to impart technologies and expertise to enterprises in accordance with specialization requirements, and carry out project classification; that is, according to the specific conditions and possibilities, project implementation shall be done in a phased manner, from a modest scale to a large one, and from easy to difficult. Importance shall be attached to the sustained advancement of the project.

**(4) Execute the Government's Public Authority, and Motivate the Initiative of the Beneficiary Groups.** When disparities occur in the expected goals of conservation and other fields of public good between the government and enterprises, the enterprises are likely to take a free ride, namely to habitually carry out production according to the extensive mode of production. The government should focus on the establishment of good systems and a favorable administrative environment so as to ensure the interests of all participatory groups, i. e. to facilitate authority to fully play its function of protection, and achieve a win-win outcome of economic and ecological benefits.

**(5) Establish a Market Platform for Investment and Financing Activities, and Implement a Differentiated Funds Ratio.** Production-oriented enterprises of the ECOPROFIT<sup>®</sup> project, especially small and medium-sized ones, have a long period of capital recovery due to their high cost of project investment. Besides, they are prevented from participating into the project by those deeper-seated problems like their hard-to-assess economic returns, which limits the benefits from the implementation of the project. To deal with that, relevant organs shall bring to full play the market effects and effectively draw on all kinds of investing and financing tools. The government should reasonably determine the differentiated investment allocation portion in accordance with such properties as the industry and size of participating enterprises so as to extend the promotable scope of the project and realize continuous benefits.

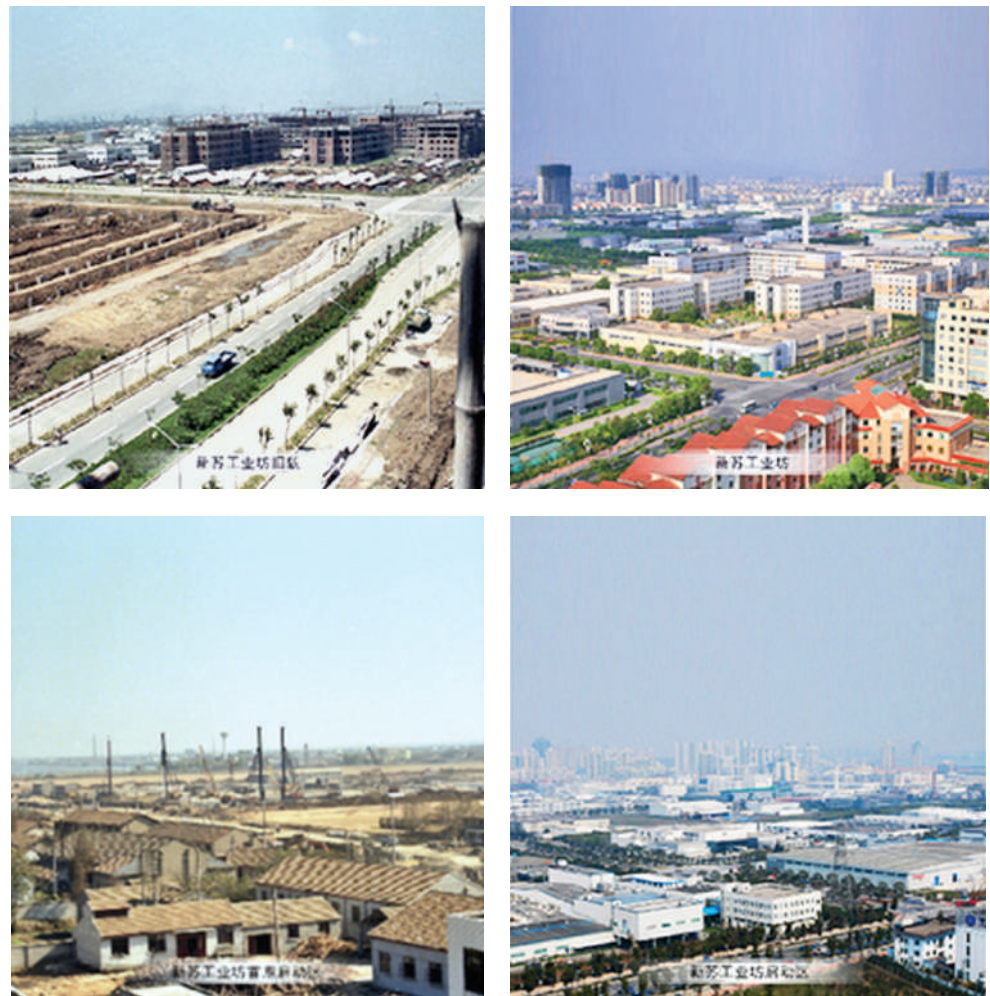
## 6. Suzhou, China: Construction of an Urban Industrial Park Driven by International Cooperation

### 6.1 Case Overview

In the early 1990s, China was at the early stage of its market economy transition, wherein the government accelerated reform, openness as well as urban modernization construction, and attached great importance to the references for successful experience and models of developed countries. At the same time,



the Singaporean Government was also exploring ways to promote overseas investment of domestic enterprises and to extend foreign business of international companies, achieving the transfer and upgrade of the local industry. In this context, the governments of China and Singapore reached a consensus on international cooperation in industrial park construction. Suzhou, a city of Jiangsu Province in the southeast of China's Mainland, borders Shanghai and is an important city of the Yangtze River Delta. In view of the superiority of Suzhou's geographic location and its market potential to drive the development of the regional and urban economy, the governments of both countries, after many consultations and field investigations, finally decided to develop an industrial park in Suzhou as the main carrier and demonstration project for further mutually-beneficial cooperation. Construction of the first phase of the project officially commenced in May 1994.



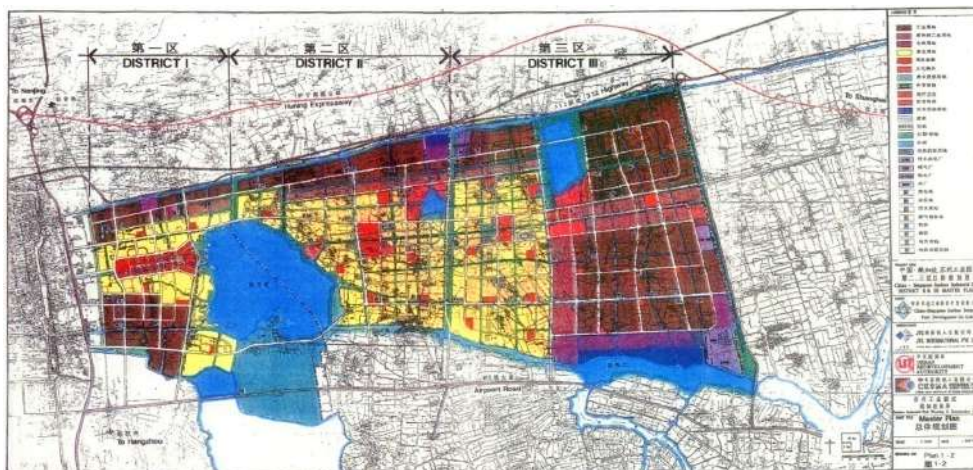
Source: [http://www.china.com.cn/info/zhuanti/szgyy/2009-04/27/content\\_17683744.htm](http://www.china.com.cn/info/zhuanti/szgyy/2009-04/27/content_17683744.htm).

Figure 3.10 A Comparison of the Appearance of Suzhou Industrial Park before and after 15 Years

## 6.2 Measures and Effects

### (1) Planning and Development.

The two central governments attached great importance to the planning and construction work of Suzhou Industrial Park. Lee Kuan Yew, then Prime Minister of Singapore, put forward the concept of ‘software transfer’ in the first phase of the industrial park construction, and explicitly applied the Singaporean Government’s industrial park planning and urban management methods to the new Park. The Chinese government also expected the ‘Singapore model’ of industrial park development to spread nationwide, as well as the city-industry integration model. The municipal government of Suzhou invited Singaporean experts to participate in the industrial park planning on site, fully drawing lessons from Singapore’s development concepts of ‘planning first’ and ‘city-industry integration’, and setting the prospective standards, designs, land layout and partition function combined with long-term trends for urban open economic development. The authority of the spatial layout, industrial planning and coerciveness and sustainability of planning for industrial parks, ‘A blueprint goes the whole hog’, made the industrial park design stable according to the overall framework, which laid an important foundation for the coordinated development of different areas of the Park in later stages, as well as the stable development of the industrial economy.



Source: [http://pcb.sipac.gov.cn/dpchina/ghw\\_bk/showinfo/showinfo.aspx?infoid=1b879549-ca01-40ee-ae35-1cbf1370b58a&categoryNum=072001&siteid=6](http://pcb.sipac.gov.cn/dpchina/ghw_bk/showinfo/showinfo.aspx?infoid=1b879549-ca01-40ee-ae35-1cbf1370b58a&categoryNum=072001&siteid=6).

Figure 3.11 Overall Layout of the Industrial Park in 1995

The development of Suzhou Industrial Park adopted the marketization operation model, got involved in public investment projects and provided market-oriented operation services with China-Singapore Suzhou Industrial Park Development

Co., Ltd. (CSSD), which is funded by the two governments and operates in a state-controlled way, as a carrier. Specifically, it was responsible for the primary land development in the Industrial Park, real estate development and management, municipal public utility constructions and other works, as well as providing investment agency and other diversified services. The company was founded with a total investment of USD 100 million, which then increased to USD 300 million. The two countries' shareholding ratios in this company determined the initiative of the industrial park development. The early development of the Industrial Park was dominated by Singapore, which established a high standard and appropriately advanced infrastructure supporting principle that ensured scientific and rational planning and construction, and took into account both the medium and long-term demands of industrial park development. Through the intensive and highly-efficient utilization of land resources, a 'livable and business-friendly' industrial park environment was created. Since then, the Chinese Government adjusted the shareholding ratio from 35% to 65% to realize a smooth transfer of the Park's development initiative, which better aligned its subsequent construction with the Chinese urban institutional environment and market characteristics.

## (2) Economic Construction.

The main task of economic construction at the initial stage of Suzhou Industrial Park was to attract investment and solve the problem of local labor employment. With the support of the Central Government in tax incentives and a series of competitive policy measures, the Industrial Park gave full play to low land costs, low labor costs and other comparative 'resource investment promotion' advantages to create a favorable marketing environment for multinational enterprises to establish their production bases. At the same time, based on the experience of Singapore's Jurong Industrial Park, it set up a one-stop service center, simplified the procedures of administrative approval of government departments, eliminated the concerns of foreign enterprises on 'policy stability', and built a good investment environment. With the joint efforts of both governments, in December 1994, the Samsung Electronic (Suzhou) Semiconductor Company became the first foreign-invested enterprise to register in the Park. The Singaporean government also encouraged domestic enterprises to enter the Industrial Park as this would also spur Singapore's economy. After that, based on the rich experience of Singapore's international investment promotion cooperation, the Industrial Park selectively attracted investment to ensure the scale and composition quality of foreign investment, and this successfully attracted a large number of high-tech enterprises and high-tech

processing manufacturing enterprises to settle down in the Park, gradually forming an agglomeration base of labor-intensive enterprises in emerging industries.

As land resources became scarcer and scarcer and business cost kept increasing, along with the fact that other development districts continued to release preferential policies for labor-intensive enterprises, the Industrial Park began to focus on innovative economic development modes and promoted the upgrading of a ‘progressive’ industrial structure. After China joined the World Trade Organization (WTO), the Industrial Park actively guided enterprises of the traditional manufacturing industry to complete the transition towards the medium-and-high-end advanced manufacturing industry, and focused on the introduction and development of technological innovation-based enterprises with high added-value and low pollution. Philips, Bosch, Samsung and other well-known international brands entered with a garrison of interrelated projects, forming high-tech industrial clusters with international competitiveness. In contrast, some multinational enterprises began to consider transferring new capacity of low value-added products to Vietnam and other Southeast Asian countries. For the past decade, the Industrial Park has gradually formed a high-end manufacturing industry focusing on electronic information and mechanical equipment, and assisted by nanotechnology and other strategic emerging industries. Meanwhile, combined with its own development advantages and the demands of the market, it has promoted the construction of enterprises with a self-owned brand to drive an innovative development. In 2006, it set up the RMB 1 billion-scale ‘Suzhou Industrial Park Venture Capital Leading Fund’ that uses fund capital to support the registry and development of venture enterprises in the industrial Park in accordance with the developing orientation of industries under the government guidance. Since the implementation of its science and technology leapfrogging plan in 2006, the number of enterprises with a self-owned brand has witnessed a fourfold increase. Currently the Industrial Park possesses cumulative carriers of science and technology covering over 3 million square meters, such as the International Scientific Park, Creative Industry Park, Biotechnology Park, Sino-Singapore Eco Hi-tech City and Nano-industry Park.

In addition, the Industrial Park also attaches importance to the development of the modern service industry in the process of transition. A central business district around Jinji Lake is planned and built, representing finance, trade, tourism and other commercial activities, which forms an urban high-end industry center, financial and business center and cultural administrative center to provide logistics, research and development, information and other support for the Industrial Park’s



Source: <http://pp.163.com/xiaobiqi/pp/13018053.html>.

**Figure 3.12** Aerial View of Part of the Suzhou Industrial Park

development. At present, the added value of tertiary industries in Suzhou Industrial Park accounts for over 42%, and 90% of the bank branches of the whole city and nearly half the insurance branches are located there; this has provided an important platform for international financial cooperation and international investment attraction, forming an area of the highest agglomeration degree for regional foreign financial institutions. The Industrial Park also established Suzhou Venture Group Co., Ltd., which provides the Industrial Park with financial support integrated with venture investment, industrial investment and financing guarantee.

### (3) Talent Cultivation.

The Suzhou Industrial Park project attaches great importance to the important role of talents in the realization of economic development and innovation. In order to improve the internationalization level of the Industrial Park's management, the two governments reach a cooperation agreement on international talent exchange in the first stage of Industrial Park construction. Combined with the actual demands of the Park's development, China sends personnel and professional technical talents with management experience to take training programs in Singapore; in turn, the Singaporean government arranges elite talents in urban construction and management to guide and participate in specific work in Suzhou. In this way, international systems of investment attraction, human resource supporting, and technical training are gradually established. Batches of talents from these training systems will become the backbone to introduce Singaporean experience and models into China's industrial park construction and spread them to other areas, which

will provide important support for such aspects as the implementation of the Park's design, and its development in parallel with the time.

In terms of the introduction and training of scientific and technological talents, with the support of the Chinese Central Government and provincial and municipal governments, the Industrial Park actively makes innovations in the introduction of talents and the training mechanism so as to create a good environment for talent development. It also implements a series of talent plans, such as the entrepreneurship project of forerunners of the technological sphere, entrepreneurship project of high-level leading talents from foreign countries, innovation project of forerunners of scientific education, innovation and entrepreneurship project of leading talents of high-end tertiary industry, and team building project for highly skilled leading talents, to realize the transition and upgrading of the Park's industry and the positive interaction of talent structure optimization, and to enhance knowledge spillover and innovation. The Industrial Park promotes its innovation and development through over 20 pilot exploration platforms, such as China's first 'New Industrialized Demonstration Base', China's first National University Science Park with the feature of specialization, China's first National Human Resources Service Standardization Pilot Areas and China's first Ecological Industrial Demonstration Park.

In 2015, Suzhou Industrial Park was approved by the State Council to become the first region in the whole country to carry out an open experimental program of comprehensive innovation. Its aim is to explore and establish a new open economic system, promote the industrial structure to the high-end level, improve the status of the global value chain, and better cultivate cooperation and new competitive advantages in international economy and technology. In the future, the Industrial Park is expected to promote innovations in financial openness and foreign capital utilization, industrial upgrading and optimization, international innovation environment construction, talent agglomeration, administrative system reform and other respects, thereby realizing the sustainable development of the economy and further enhancing competitiveness.

With the implementation and advancement of the above measures, noticeable achievements have been made by Suzhou Industrial Park. The Park is the test field of China's reform and opening up, and an important window for the government to promote bilateral international cooperation, which makes it a model of industrial parks for international cooperation around the world. As one of the fastest-growing and most globally competitive national development zones in China, Suzhou Industrial Park creates about 15% of the economic aggregate with 3.4% of land

and 5.2% of the population of the Suzhou city, making itself a booster and growth pole for urban economic takeoff. After more than 20 years of development, Suzhou Industrial Park has maintained a strong growth. In 2015, its GDP totaled RMB 207 billion, which was equivalent to that of a country ranks No. 100 for global gross domestic product (GDP). Now some countries and regions are also following the example of Suzhou Industrial Park's model to build similar industrial parks of international cooperation.

In terms of investment promotion, Suzhou Industrial Park has a total of over 5,200 projects of foreign investment attraction, and actually utilizes foreign capital of USD 26.7 billion. Currently, 150 projects of 91 Top 500 enterprises in the world have secured investment in Suzhou Industrial Park, which makes it an industrial park with the largest number of multinational companies and large-scale projects in China, and which also provides a platform for the overseas investment of Singaporean enterprises. By the end of 2013, Singapore had a total of 486 enterprises in the industrial park, with a total investment amount of USD 12 billion. In 2013 alone, Singapore's total import and export volume reached USD 2.71 billion. In recent years, the high-tech industry has made remarkable achievements in rapid and sustainable development. The amount of invention patent applications in the Industrial Park showed an annual growth of 50%, the input of enterprise technology research and investment reached more than 4% of the GRP, and the output value of emerging industries accounted for more than 60% of the total industrial output value above a designated scale, making it the only 'National Nanometer High-Tech Industrialization Base' in China.

Suzhou Industrial Park has also formed a brand effect, and its own development is combined with the strengthening of regional economic cooperation. In 2002, Suzhou Industrial Park initiated a development strategy which marked the transition from 'introducing in' to 'going out', and it also built the Suzhou-Suqian Industrial Park (Jiangsu Suqian), Suzhou-Nantong Science and Technology Industrial Park (Jiangsu Nantong), Suzhou-Chuzhou Modern Industrial Park (Anhui Chuzhou), Suzhou-Xiangcheng Cooperation Zone (Xiangcheng District of Suzhou) and other cooperation projects in other domestic cities to share the experience and practice of the economic development of industrial parks on a national basis, expand the development space and actively explore economic transition and upgrading. In recent years, through actively cooperating with the function radiation of Shanghai Free Trade Zone, the Park achieves the goal of diversified industrial development, improves industrial complementarity and the degree of economic openness, and attempts to realize a coordinated economic development which yields win-win outcome.

### 6.3 Problems and Challenges

Suzhou Industrial Park is confronting certain challenges in its current development stage. With the number of economic development zones continually going up in Chinese cities, the competition among development zones in introducing foreign capital and attracting enterprises is becoming fiercer. Take Suzhou for example: it built a High-tech Industrial Development Zone besides the Industrial Park. Though their orientations are different, competition still exists between them, which weakens the agglomeration effects in the development of Suzhou Industrial Park. At present, the Development Zone still achieves its technological innovation and upgrading through introducing in foreign capital and the R&D achievements of world-famous enterprises (especially domestic enterprises), so the independent R&D capacity of the enterprises in the Zone still remains to be improved. As for the external environment, due to the impact of the financial crisis and the decrease in the new labor supply in recent years, the manufacturing bases of export-oriented and labor-intensive enterprises face the problem of market fluctuation, which can hinder the sustainable development of the Zone's industrial upgrading.

### 6.4 Experience and Inspiration

In retrospect of the development of Suzhou Industrial Park, it can be seen that a bi-fold zone nature was the key power in ensuring its quick and sustainable development. In terms of international cooperation, Suzhou Industrial Park could not have achieved such success without the multi-level cooperative mechanism between governments built by China and Singapore from top to bottom. The combination of the Chinese government's supportive policies and the Singaporean government's potent management and capital support acted as a great spur in the Park's planning and development. Compared with other economic development zones, Suzhou Industrial Park enjoys more tax privileges and policy support from the central government, whose centralized planning and resource allocation contributed to the successful construction of the Park. Meanwhile, the international investment-attracting program jointly initiated by the two governments greatly enhanced the Park's appeal to world-famous enterprises and accelerated its early agglomeration of industries.

Whether a park program launched by two or more countries can prove to be a success in economic terms largely depends on whether the developing mode of a park funded by a developed country can accord with the local institutional environment and market characteristics of the place where the park is located. While learning the advanced concepts of developed countries, Suzhou Industrial Park developed innovative development concepts and modes with local color for



industrial parks. It obtained the soft power necessary for its park construction and industry induction, made efforts to attract and train talents and built an operating mechanism and management system meeting international standards. It also made forward-looking park planning and design in accordance with its long-term development goals, and carried out hardware construction of supporting infrastructure, industrial distribution, optimization and so on.

The main reason why Suzhou Industrial Park has been able to retain an innovation dynamic under a competitive context can be concluded as its successful industrial orientation and adjustment based on its comparative advantages at different stages of its development. From its early stage of development when policy and cheap labor resources were taken advantage of to develop those labor-intensive enterprises, to the current development pattern which mainly focuses on high-tech industries and is supported by the modern service system, the Park has gained the overall market dynamics and remained an accurate judge of its innovative developing direction. It has become a demonstration area for China's innovative development by carrying out dynamic optimization of the industrial structure based on the market competition mechanism, and positive exploration of 'trying first'.

## Suggestion for Decision-Making .....

### Strategy 1: Pay Attention to the Enhancement of an Innovation Driving Force on the Sustainable Development of Urban Economy

**Policy Option 1:** Conduct scientific, long-term planning and designing based on the tendency and rules of urban economic development in which importance is attached to system innovations in line with the current stage of urban development to broadly assimilate opinions from enterprises, academia and the masses, and create an innovative atmosphere for economic development which might inspire dynamics of the market.

**Policy Option 2:** Identify the orientation of industrial transformation and upgrading based on the features of market demands, shape new growth points of traditional industrial economy, and provide necessary support for the development of emerging industries at a starting phase, and guide policy and economic stimulation, including land utilization, tax incentives, and financial subsidies.

### Strategy 2: Comprehensively Draw on the Regional Advantage and Orientation of a City to Develop an Economy with Characteristics

**Policy Option 3:** Fully tap the natural advantage of a city in geographic terms to work out a strategy for economic development with urban characteristics, and form a unique competitive edge of the city, such as the development of a port shipping economy or cultural industry of coastal cities.

**Policy Option 4:** Based on the natural endowment of a city's social economy and the market climate of the region, design a development plan for the city, and shape a coordinated development layout for large, medium and small cities in the region to release the regional market potential of the city.

### Strategy 3: Promote the Industrial Agglomeration and Knowledge Spillover of a City

**Policy Option 5:** In accordance with the practical needs of urban economic development, make scientific planning and arrangements of the inner-park industrial structure, and provide necessary infrastructure and policy environment.

**Policy Option 6:** Offer support to the development of colleges, universities and research institutes, satisfy the need for highly skilled talents in urban development, and provide public platforms and resources for personnel exchange and knowledge-oriented innovations.

### Strategy 4: Increase the Economic Efficiency by Means of R & D of Advanced Technologies and Introduction of Management Models

**Policy Option 7:** Promote government-dominated international cooperation with a pragmatic and mutually beneficial nature, adopt appropriate opening policies to attract the introduction of international capital; learn from developed countries and regions for their advanced scientific technologies and management models through talent exchange, equipment introduction and other means.

**Policy Option 8:** Take relevant measures to promote sharing and transferring of innovative technologies and development experiences from developed cities to those underdeveloped ones inside the country; draw on the latter's late-starting advantage to speed up the economic growth.

### Strategy 5: Create Development Opportunities for the Labor Force and Promote the Accumulation of Human Capital

**Policy Option 9:** From the perspective of a long-term development, create a fine atmosphere for various types of labor force in a city, including enhancing the investment in the basic education of cities (especially the underdeveloped ones), guaranteeing the accumulation of original human capital of urban residents, and improving the quality of higher and vocational education.

**Policy Option 10:** In parallel of creating job opportunities for low-income groups, carry out targeted activities of support and skill training to enable the human capital to meet the demands of urban economic development on the labor force.

### Strategy 6: Draw on the Market Power to Inspire the Innovating and Developing Capacity of Enterprises

**Policy Option 11:** Build up bilateral or multilateral platforms and channels between government, enterprises, institutions of higher education and scientific research, and the masses, enhance full communication and information sharing among all parties to increase the production efficiency of enterprises and meanwhile reduce possible negative effects caused by company production.

**Policy Option 12:** In the construction and management of urban public facilities of some cities, importance shall be attached to the adoption of the PPP model between government departments and enterprises; motivate enterprises and inspire their inner potential of innovative development to increase the supply and service efficiency of facilities.

### Strategy 7: Achieve Coordinated Win-win Outcome of Urban Economic Growth and Environmental Sustainability

**Policy Option 13:** Conduct adequate assessment of the environmental influence of urban economic growth and effectively introduce clean production technologies into the end market. Provide scientific management over the discharge of industrial pollutants, including formulating an energy consumption standard, and carry out market transactions of water rights and pollutant discharge rights.

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Chapter 4  
Green Low-Carbon and Resilient Cities



## To Establish an Ecological Civilization Oriented toward the Future

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Cities should respect nature, consider the urban ecological environment as an asset, integrate environment issues into urban planning and administration, and accelerate the transition to sustainable development. They should promote the use of renewable energy sources and build low-carbon eco-cities. They should strongly advocate for conservation of resources and promote environment-friendly manufacturing. Cities and their citizens should join together to create sustainable lifestyles and an ecological civilization in which people and environment co-exist in harmony.

—Excerpted from *Shanghai Declaration*

## Introduction\*

From a global perspective, cities have become a policy focus for sustainable development. City development is the logical starting point and operational unit concerning sustainable development actions. It can be concluded from the progress of global urbanization that modern urban development is in fact about a course of constant transitions and enhancement of sustainability. Sustainable urban development models and improvement approaches as well as the specific measures to be taken bear a mark of their own uniqueness due to the different endowment of resources and the different stages of development. Therefore, cities need to find a way that is more suitable for their own development to lead their way into the future, and to achieve a diversified sustainable development advocated by the UN Sustainable Development Goals (SDGs).

Urban development worldwide in a green, low-carbon way and resilient manner has been more and more accepted by society. Coordination of these urban elements has also become an important part to achieve a sustainable development of the mankind, and this is mainly reflected in the four aspects of low carbon, recycling, resilience and Not in My Backyard (NIMBY): low carbon is mainly analyzed from the perspective of the production and consumption of energy, and carbon dioxide emissions; recycling is mainly used to investigate the urban metabolism model from the perspective of material flow; resilience generally refers to urban capability to withstand disasters and the recovery capability or adaptability under the influence of climate change; NIMBY campaign analyzes how the public and the government work together to promote green development mainly from the perspective of environmental management.

Problems and challenges: on the basis of an overall analysis of key problems and challenges faced by ‘post 2015’ sustainable urban development, including urban population explosion, damage to the ecological environment, and urban governance bottlenecks, discussions are carried out on outstanding issues in specific areas of urban green innovation, low-carbon cities, resilient cities, NIMBY campaign and environmental management.

Vision and action: key initiatives of green urban transformation are discussed from the dimensions of type of cities, system innovation, intensive space and

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\* Chapter 4 is compiled by the team of Tongji University Sustainable Development and New-type Urbanization Think-tank, authors: Zhu Dajian, Chen Haiyun, Zhang Chao, Xu Jie, Huang Yeqing.

generalized service economy, based on the analysis on mode selection, improvement approaches and means of sustainable urban development. The part of low-carbon cities focuses on low-carbon measures of energy, land utilization, transportation, construction, water supply and sewer systems, waste disposal systems, and daily consumption of urban residents and other aspects involved in the process of urban construction. City resilience emphasizes that city managers could choose from object, mechanism, participants as well as approaches and tools of actions and take effective adaptation action in response to various emergency caused by climate change. NIMBY campaign and environmental management focus on mechanism of mutual trust, ecological compensation mechanism, regulatory mechanism, environmental awareness, citizen engagement green development and initiatives of other aspects.

Reference cases: the cases are selected from six countries in Europe, North America and Asia, including London of U. K. , Hammarby of Sweden, Toronto of Canada, Shanghai Chongming of China, Malacca of Malaysia and Tokyo of Japan. Among them, the case of the United Kingdom's Greater London focuses on city planning and the integration of mainstream elements of sustainable urban development; the case of Shanghai Chongming Eco-island focuses on the construction of green infrastructure in ecological transformation; Swedish Hammarby focuses on high cycle and low energy process of resources and wastes; case of Malaysia focuses on the renewable energy and smart grid construction in the city of Malacca; Toronto of Canada mainly analyzes the practices and experiences in response to climate change, in improving urban adaptation from the perspectives of city resilience; case of incinerators in Tokyo of Japan analyzes from the point of NIMBY campaign and environmental management, how Japan had effectively integrated citizen participation and environmental management in garbage recycling.

Suggestion for decision-making: decisions and recommendations are divided into five fields corresponding to the main areas of this chapter: (1) model selection, approaches and means of improvement for sustainable urban development; (2) the green transformation of sustainable urban development; (3) low-carbon cities; (4) resilient cities; (5) NIMBY campaign and environmental management. Each strategic decision has three specific policy options to support them.

## Problems and Challenges

Attention is paid to significant issues in specific areas of urban green innovation, low carbon, resilience, NIMBY campaign and environmental management based on



an overall analysis of key problems and challenges faced by ‘post 2015’ sustainable urban development.

## 1. Key Issues of Post 2015 Sustainable Urban Development

On the UN Summit of 2000, 189 countries signed the *United Nations Millennium Declaration* where the Millennium Development Goals (MDG) was proposed, serving as a program of action for sustainable development of the global society, economy and ecological environment. 2015 was known as the ‘assessment year’ for MDG, as well as the ‘year of birth’ for a new round of development goals of the United Nations. Over the past 15 years, the world has made extraordinary progress in the fields of major targets including reducing extreme poverty. However, things are not satisfactory in many other spheres, like environmental sustainability in particular, where negative impacts of human activities on the ecological system is protruding at an unprecedented rate. People, Planet, Prosperity, Peace and Partnership have become the core issues of UN Sustainable Development Framework of 2030 in which cities will play a key role. In March 2013, the high-level panel on post-2015 development agenda convened by the UN Secretary-General Ban Ki-moon released a report entitled *New Global Partnership: Eradication of Poverty through Sustainable Development for Economic Transformation* which points out that cities are the main topic to determine the success of post 2015 sustainable development.<sup>1</sup> To sum up, ‘post 2015’ sustainable urban development will face the following several key issues:

### 1.1 Continued Increase in the Global Urban Population and the Urbanization Rate

According to ‘prospect of global urbanization 2014’, about 54% of the world’s population lived in cities in 2014. The large dimensions of urbanization in developing countries will continue to lift up the level of urbanization on a global basis. It is predicted that in 2050 the global population will reach 9 billion and the world’s urbanization rate 66%. To put it otherwise, there will be more than 6 billion people living in cities. Compared with the current level of urbanization, an increase of 2.5 to 3 billion in the global urban population will be seen by the middle of this century.<sup>2</sup> In accordance with the current trend of growth, the number of cities with a population over 100 thousand is likely to increase by 3 times by 2050.

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<sup>1</sup> High-Level Panel on Post-2015 Development Agenda, *A New Global Partnership: Eradicate Poverty and Transform Economies through Sustainable Development*.

<sup>2</sup> UNDP, 2014 Revision of the World Urbanization Prospects, <http://www.un.org/en/development/desa/publications/2014-revision-world-urbanization-prospects.html>.

## 1.2 Damage to the Ecosystem by Unsustainable Urban Production and Lifestyle

Cities are the major consumers of resources and energy. A lot of energy, water resources and raw materials are consumed by transportation, industrial production, heating and cooling of buildings as well as daily life of urban residents. Once completed, urban infrastructure is likely to maintain operation for decades, leading to a long-term impact to resources and the environment.

## 1.3 Governance Bottlenecks in the Progress of Urbanization

The space layout of cities, infrastructure, economic policies and social governance adopted by city managers and urban designers will determine the level of global sustainable development in the future for a long time. Apparently today most countries are not prepared to deal with a substantial increase of urban population and the changes in the economic structure that are brought forth thereby. Especially in many developing countries where there is a lack of proper planning and capital investment, such phenomena have occurred during the process of urbanization as continuously expanding slums, poor infrastructure, environmental hazards and increasing climate risks.

## 1.4 Cities Are the Natural Platform to Promote Changes

Innovation factors of talents, intelligence and capital gather in cities. Constant technical innovations are addressing important challenges facing the human beings and getting a wide scope of application in cities. For example, green energy technologies facilitate carbon emission reductions; advanced pollution control technologies solve the traditional environmental issues in a more cost-effective way; low-carbon transport technologies make people's travel more secure, convenient, while reducing environmental impact. The cities are the driving force to stimulate the global economy, create jobs and stimulate technological innovation.

## 2. Challenges of Green Urban Innovation

From the perspective of resource productivity and ecological development, the key to a green urban transformation consists in the separation of economic and social development from natural capital consumption. The so-called 'separation' means that after the GDP per capita has reached the mark of USD 5,000–10,000, attention should be put on transforming more achievements of economic growth into social welfare during urban development<sup>1</sup>; also, economic growth and material consumption is changed into a mode where a certain degree of growth is achieved

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<sup>1</sup> Zhu Dajian and Qiu Shoufeng. 'Eco-Efficiency—a Proper Measurement of Circular Economy'. *China Population, Resources and Environment*, 5th Edition, 2006, pp.1–6.

at a relatively low cost of resources and the environment due to the scarcity of resources. From the perspective of ecological development performance, the level of urban green development could be expressed by a function with two variables of resource productivity (unit economic output from natural input) and service efficiency (increase of social welfare or life quality resulting from unit economic output). Urban transformation through green innovation should enhance resource productivity in production as well as increase service efficiency in consumption. There are generally four stages to enhance resource productivity and green innovation:

The first stage is ‘process innovation’, or to produce the same product in a more reasonable way. For example, change of raw materials or adopting cleaner production technique. This technique can improve resource productivity by 2 times on the micro level.

The second stage is ‘product innovation’, or using fewer inputs to produce the same product or product with the same value. For example, replace a traditional car with a portable car. This technological innovation includes improved component performance, improved recycling rate, improved disassembly and enhanced reuse performance of components and the like. This can improve resource productivity by 5 times at the micro level.

The third stage is ‘product substitution’. This stage is about the transformation of product concepts and functional development, namely, to provide different kinds of products or services with the same uses. For example, to communicate by means of E-mail instead of paper, taking buses instead of private cars, more generally, it is to use alternative products. This technique can improve resource productivity by 10 times.

The fourth stage is ‘system innovation’. This stage requires a new social system to change the structure and the organization. For example, renting instead of buying, more rational transportation scheduling, more generally, it is to transform product economy to functional economy. Such innovations can enhance resource productivity by up to 20 times.<sup>1</sup>

### 3. Challenges of Low-Carbon Cities

The fifth official Climate Change Assessment Report released by the Intergovernmental Panel on Climate Change (IPCC) in October 2014 indicated that from 1880 to 2012, the average global surface temperature increases by

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<sup>1</sup> Institute of Policy and Management, Chinese Academy of Sciences, Green Development and Green Innovations: From Concepts to Actions, <http://www.docin.com/p-230136739.html>.

approximately 0.85°C, and the 30 years from 1983 to 2012 were the three hottest decades for the past 1,400 years. Greenhouse gas generated in the four decades from 1970 to 2010 accounts for one half of the total emission amount that is caused by human activities from 1750. Hence human activities are undoubtedly considered as the major cause of climate changes, for which the evidence is getting increasingly adequate and the conclusion more definite<sup>1</sup>.

A report published by the World Meteorological Organization (WMO) in 2015 suggests that the content of carbon dioxide in the atmosphere per month in average worldwide has exceeded 400ppm<sup>2</sup>. How to achieve the goal of controlling the temperature rise within 2°C has always been the focus of climate negotiations. However, if more powerful measures of greenhouse emission reduction fail to be taken in a timely manner, the concentration of carbon dioxide will have exceeded 750ppm by the end of this century, and the land surface temperature risen by 3.7°C–4.8°C compared with the pre-industrial period, which will lead to many catastrophic effects on the eco-system and the social economic system.

Cities, as a great contributor to climate changes, consume about two-thirds of the global primary energy, and produce an amount of greenhouse emission that is around 70% of the global total. Urban energy industry, large-scale iron and steel, non-ferrous metal smelting, cement, chemicals and other heavy and chemical industries, and some necessary infrastructure are either direct or indirect sources of greenhouse emissions.

Therefore, the progress of low carbonization of cities is faced with many challenges.

### 3.1 Urban Energy Structure and Infrastructure Need to Meet the Low-Carbon Standard

The transformation of the urban energy structure into a low-carbon model is the key of low-carbon urban construction. In the current situations where costs of renewable energy related technologies (such as solar power, wind power, biomass, etc. ) are still higher than those of traditional fossil fuel energy (such as coal-fired thermal power, natural gas, etc. ), a policy framework which is to promote the development of low-carbon energy badly needs to be set up to build a policy incentive environment for the investment and utilization of renewable energy. Legal system, fiscal policy

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<sup>1</sup> IPCC, Climate Change 2014, Synthesis Report, <http://www.ipcc.ch/report/ar5/syr/>.

<sup>2</sup> Global Carbon Dioxide Levels Break 400ppm Milestone, <https://www.theguardian.com/environment/2015/may/06/global-carbon-dioxide-levels-break-400ppmmilestone>.

and regulation tools need constant improvement to be suitable for energy restructuring.

### 3.2 Behavior of Urban Residents will Directly Affect the Cities' Carbon Emission Performance

Every consumption behavior leaves its 'carbon footprint'. All aspects of residents' life have a direct or indirect association with carbon emissions, in particular their energy consumption behaviors including the means of transportation, preferences of energy-saving products, and the use of building heating and cooling equipment. Changing consumer attitudes and habits is perhaps even more difficult than renovation of urban hardware, because it requires not only the right idea promotions, but also behavior guidance in life. How to achieve low carbon urban lifestyle is another major challenge for low-carbon urban development.

### 3.3 Low-Carbon Infrastructure and Technology Substitution Need to Go through a Process

Speeding up the process of substitution means faster reduction speed and earlier in reaching the emission peak, but it also means that more public and private capitals should be invested in the short term. Compulsory policies to eliminate inefficient and backward production capacity may also trigger a series of social problems, such as unemployment, financial compensation for forced out businesses and other problems caused by reduction and substitution of traditional industry capacity. In promoting low-carbon urban construction, city managers should focus possibly occurred social problems, develop response measures and coordinate the conflict of interests of different social groups.

## 4. Urgency of City Resilience

City resilience refers to a city's preparation, response and recovery capability to minimize the loss when subject to a variety of disaster threats or destruction to the city's safety, health, economy and environment. According to the fifth assessment report of the Intergovernmental Panel on Climate Change (IPCC), floods, storm surges and heat waves will occur more frequently in the future, which, therefore, makes it extraordinarily urgent to increase cities' adaption to extreme weather conditions. From a global perspective, different cities exhibit different degrees of resilience in their response to different disasters and extreme weather problems. The flood that hit Karachi, the largest city of Pakistan, in September 2011 paralyzed the whole city: the flood-stricken streets became impassable, vehicles were trapped

and filling stations were swamped, to deal with which, however, the municipal authorities lacked effective means of drainage. Hurricane ‘Sandy’ lashed the United States in 2012, leading to a power failure that covered over 8.20 million users in 17 states and causing a loss of more than 50 billion dollars. In Amsterdam, capital of the Netherlands, its flood defense system enables the city to withstand intrusion of floods, making it the model city of flood control. The importance of resilient urban construction has dawned on more and more cities in their handling of climate changes and their response to emergencies and disasters.

## 5. The NIMBY Campaign and Environmental Management

The NIMBY (Not in My Backyard) campaign originated from Western countries. It is closely related to environmental protection. Residents initiated the campaign to protest against the construction of related facilities in order to avoid their own life and the living environment being interfered by negative environmental effects of public or industrial facilities. Environmental NIMBY facilities include some potentially polluting facilities, such as incinerators, landfills, power plants and sewage treatment plants, facilities that may generate magnetic waves, such as transmission and distribution facilities, mobile phone base stations and TV broadcast signal relay stations, and possibly noise generating facilities, such as wind power and transportation facilities. Although these facilities were originally intended for the public interest, the construction project is often greeted with the protest of residents ‘not in front of my house!’ when the facilities are to be built near their houses. Residents’ rejection always results in the suspension or cancellation of the construction projects, or even violent conflicts.

The period of 1960s–1970s witnessed high incidence of the NIMBY campaign in developed Western countries. Currently the frequency and intensity of the NIMBY campaign has fallen quite a bit, but it does not mean that the NIMBY campaign has been fully addressed. For example, the Heathrow Airport of Great Britain was originally planning for expansion, and the government had approved the project in 2009, however, it was canceled by the Cameron government in 2010 due to the protests of nearby residents. Another example is the Long Island railway electrification and expansion projects in the U. S., which were forced to be cancelled or shutdown due to the protests of residents along the railway line. The protesters believe that the increase of rail service will affect the living environment and reduce the quality of life in surrounding communities. New energy facilities have also become a hot spot

for objection in developed countries. In 2012, residents in Kings County of Canada opposed the creation of a wind power plant in the vicinity; residents of California in America opposed the establishment of solar energy projects in the vicinity.

In recent years, NIMBY campaigns are also frequently found in developing countries: for example, in India, there are protests against the establishment of dumps, composting sites and sewage plants in Pune and Delhi, and campaigns against the building of 348 public toilets in Chennai; in South Africa, a project is launched in opposition to mercury recycling. Similar campaigns also take place in China, such as people in Xiamen, Fujian opposing to PX project, residents in Liu Li Tun, Beijing opposing the construction of incinerators, Shifang incident in Sichuan and objection to sewage discharge project in Qidong, Jiangsu, and so on. There are three sources of the NIMBY campaign. First, China has entered a stage of accelerated industrialization, where the investment-driven mode of heavy chemical industries, such as steel, cement and chemical engineering, are likely to produce environmental problems, giving rise to ‘conflicts between the plant and the masses’. Secondly, the accelerated urbanized development, population congregation and the extension of urban boundaries in recent years have given birth to the demand



Figure 4.1 In Recent Years, the Problem of Garbage Disposal has been Tough Problem to Many Cities

for new infrastructure; many of these facilities, however, fall into the category of NIMBY facilities, represented mostly by dumps, raw-energy traffic infrastructure and electricity facilities. Undoubtedly the most fundamental factor is that people begin to pay attention to the environment, and their requirements on environmental quality keep increasing. A good environment is becoming a scarce resource.

The NIMBY campaign comes from an effective expression of citizens' appeal to the environment, but it is inaccurate to assess it simply with 'good' or 'bad'. The requirements of the public are sometimes reasonable and sometimes not. The point is how to control the NIMBY campaign within a certain range and frequency so that citizens will be allowed to effectively express their demands for the environment and meanwhile there are systematic and law-based means to respond to these demands.

It needs to be noted that if proper measures fail to be taken in response to the NIMBY campaign, the government is likely to find itself in a crisis of public credibility. When other new NIMBY facilities are launched, the multitudes will oppose the construction of these facilities out of habit, even though such facilities will bring them noticeable environmental benefits, if the government moves such projects and facilities to other remote areas, environmental justice issues will spring up. For example, waste incineration plants that often trigger NIMBY events are opposed by nearby residents no matter which area they are built. In fact, in developed countries such as Japan, Denmark and Germany, many NIMBY facilities such as waste incineration facilities are built right in residential areas for proximal collection and processing of garbage, which is not only environmentally friendly but also energy-saving. Construction of waste incineration plants nearby is generally accepted by the residents, who also take an active part in detailed and incisive environmental measures like refuse classification. This indicates that it is definitely possible to minimize the harm done to the environment by applying identical technologies which are used by developed countries. However, technology is not a complete solution to the NIMBY problem. The core issue is to establish trust among governments, businesses and the public to have them jointly participate in environmental management.

## Vision and Action

Focus on specific initiatives to promote green innovation, low carbon, resilience and NIMBY aspects in a sustainable urban development based on the analysis of mode



selection, improvement approaches and specific means of sustainable urban development.

## 1. Mode Selection, Improvement Approach and Means of Sustainable Urban Development

### 1.1 Mode Selection

Lester R. Brown, an American scholar, divided the modes of urbanization and economic development into two types, one is ‘Mode A’, and the other is ‘Mode B’. Mode A is based on the development pattern of developed countries led by the United States. The main features of this mode are low-density urban extension high energy consumption and the high emissions; countries that are categorized in this mode have a high emission rate of carbon dioxide per capital with 4.4% of the world’s population, they consume roughly 30% of the total energy resources. Under Mode A, economic growth and environmental pressures develop at the same pace and a high economic efficiency is achieved at the expense of massive destruction to the resources and the natural environment. Mode B refers to the urban development mode transiting from high ecological input and high human development into low ecological input and high human development, which is characterized by absolute separation of ecological investment from prosperity and growth. Under Mode B the current human development in cities is enhanced or maintained while the ecological inputs are reduced. Therefore the core features of this mode are known as low-carbon renewable energy, renewable material utilization and the energy efficiency revolution. In the aspect of urban development, clean energy is mostly used and the public rail system is taken as the main urban public transportation, which may effectively protect forests, wetlands and other natural resources. However, from a global perspective, it is obviously impossible to have cities in countries or areas with different levels of economic development adopting Mode B altogether, because while those developed countries are considerably cutting down the ecological inputs, the developing ones still need relatively adequate time and space for transition in their urban development so that expansions can be made to the resource and environment consumption within a reasonable range of time and space.

In view of this, the Chinese scholars, represented by Zhu Dajian, put forward Mode C. Mode C refers to the mode transiting from low ecological input and low human development to low ecological input and high human development, in the pursuit of leaping urban development urban development within the ecological threshold. This mode is characterized by relative decoupling between economic

growth and ecological input, that is, to improve the level of human development in cities within the threshold of ecological input.

When Mode C is being selected, improvements need to be made in both aspects of ecological input and urban development at the same time. Work should be started with new types of industrialization, urbanization and modernization. Enhancements shall be made on the two levels of technology and management mechanism. Finally through improvements in laws and regulations, citizens will be provided with a decent lifestyle. The new industrialization process aims to transform extensive production to intensive production, and raise the proportion of resource-saving and environment-friendly new manufacturing and tertiary industries. Secondly, it needs dematerialization transformation and upgrading to the secondary industries with high consumption and high emission. Moreover, the so-called ‘venous industry’ that reprocesses and recycles post-production and post-consumer wastes should be developed to transform the pressure on resources and the environment into impetus for economic activities. To achieve the core goals of low-carbon, green and resilience in the process of sustainable urban development, we must focus on saving of land, energy, water and materials and adhere to the principle of space saving, emphasize the construction of ecological aggregation group and achieve harmonious coexistence of living system and production systems.

## 1.2 Improvement Approach

In the process of achieving sustainable urban development transformation and upgrading, not only the concepts of green, low-carbon and resilient urban development should be integrated, different stages of development of the city as well as the actual situation of resources and the environment should also be considered to develop different encouraging and inductive policies to achieve transformation by different approaches (See Table 4.1, Figure 4.2 for details).

Mode B is recommended for cities with high ecological input and high human development, or, to choose ‘upgrading’ approach for sustainable urban development and achieve low ecological input and high human development. The so-called ‘upgrading’ means that on the premise of not degrading human development, not only output efficiency of ecological input should be improved, the ecological resource consumption and the total pollution emissions should also be reduced constantly.

Mode C is recommended for cities with low ecological input and low human development, or, to select the expansion approach for sustainable urban development. The so-called ‘expansion’ refers to that sustainable urban

development should take improving the level of human development as the main objective, that under the premise of improved output efficiency of ecological input and within the ecology threshold, the total amount of resource consumption and pollution emissions are still increasing while per unit output of resource inputs and pollution emissions will be reduced.

Cities with a low ecological input and high human development have been in the state of sustainable development. This development mode is defined as Mode S (sustainability). Mode S refers to the development mode with continuous optimization in the sustainable development section. The so-called ‘optimization’ refers to the fact that the city further reduces ecological input, improves the level of human development and pursues the best output efficiency of urban ecological input, which is the common goal for all the urban development continuously striving for excellence and exceeding.

For cities with a high ecological input and low human development, neither Mode B nor C would be helpful to effectively achieve sustainable development goals. Zhu Dajian, a Chinese scholar, defined the development of this type as Mode D (Dual-track). These cities will face two major tasks in sustainable development, one is to reduce the resource consumption and the total amount of pollution of the city, the other is to raise the level of human development. For the former, simply adopting the upgrading approach will get into the trouble of inadequate levels of human development; for the latter, simply adopting the expansion approach is likely to keep increasing the resource consumption and the total amount of pollution emissions, thus leading to further deterioration of local ecology.

**Table 4.1 Mode and Approach Selection for Sustainable Urban Development**

Area	Performance Characteristics of Urban Ecological Benefits	Development Mode	Improvement Approach
Area I	Low eco-input & low human development	Mode C	Expansion
Area II	Low eco-input & high human development	Mode S	Optimization
Area III	High eco-input & high human development	Mode B	Upgrading
Area IV	High eco-input & low human development	Mode D	Upgrading + Expansion

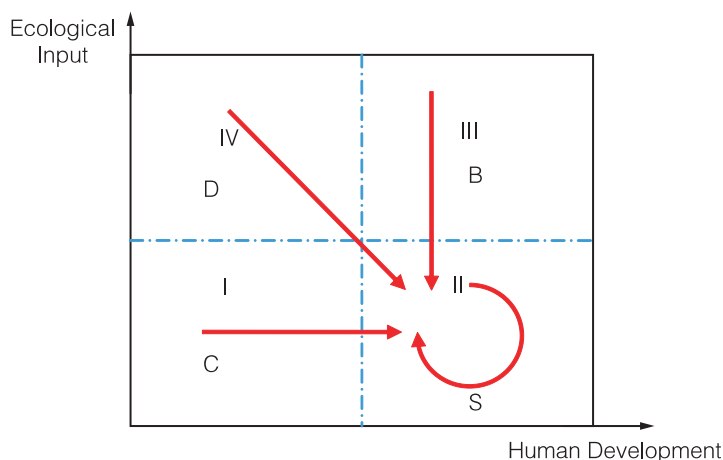
Source: Made by the Author.

Cities in a state of Area I belong to the type of a low ecological input and low human development. Their level of urban ecological input is lower than the international average level, and their level of urban human development is lower than the level of high human development, therefore these cities should choose Mode C of urban development with relative decoupling between the improvement of the level of per capita ecological input and the improvement of the level of human development and choose the expansion for the improvement approach.

Cities in a state of Area II belong to the type of a low ecological input and a high level of human development, of which the urban ecological input level is lower than the international average level and the level of human development has exceeded the high level of human development. It is the ideal state of sustainable urban development. Cities classified in the area should choose Mode S that pursues steady urban development and select constant optimization for continuous improvement of high quality development.

Cities in a state of Area III belong to the type of a high ecological input and high human development, of which the average urban ecological input has exceeded the average international level and the level of human development has exceeded the high level of human development. Cities of this area should cut their ecological input and take the Mode B of sustainable development and the upgrading approach for improvement.

Cities in a state of Area IV belong to the type of a high ecological input and low human development the city, of which the average urban ecological input level is higher than the international average level, but the level of urban development is lower than the high level of human development. This is an unsustainable urban



Source: Made by the Author.

Figure 4.2 Transformation Course for Sustainable Urban Development

development. Therefore, cities in this area should reduce urban ecological input, improve urban human development, take Mode D of sustainable urban development and choose the expansion and upgrading approach for improvement.

### 1.3 Improvement Approaches

In promoting sustainable urban development, cities may choose the right technology and adopt scientific management methods according to the actual situation and the improvement approach to form a joint force to promote sustainable development and thus promote the transformation of sustainable urban development.

**(1) Technical Means.** The enhancement of technology and innovation abilities will not only strengthen protection of the ecological environment, but also accelerate adjustment of the industrial structure and industrial upgrading. Use of technology to promote sustainable urban development may be set about from production process innovation, product innovation and product substitution in production and the improvement ideas of system architecture.

Modern urban development gains benefit from the development of roads, transport, buildings, power grids, electrification and other technologies that support urban development. In turn, with urban development, technical upgrading has met the needs of urban and human development. City managers should enhance the sustainability of urban development in the respects of systematic integration of transportation, energy, construction, industry and infrastructure.

For transportation, technology similar to Integrated Mobility Platform (IMP) should be applied to integrate traffic information to achieve synergy of all means of transport (metros, trams, buses, private cars, sidewalks, parking spots, etc. ) and give a real-time instruction to each person's travel behavior through personal communication tools (such as mobile phones), so as to optimize the overall traffic in the city and improve the air quality.

For energy, on one hand, development of new energy and renewable energy should be accelerated; on the other hand, the sustainability of energy supply should be improved. Use smart grid technology for power consumption balance, improve energy efficiency and install distributed power generation and renewable energy to improve the efficiency of energy production and transport and to reduce pollution emissions.

For urban construction, regional energy centers are drawn upon to provide centralized cooling, heating and power supply to realize intelligent building management and get connected with the smart grid, which will greatly improve the

efficiency and comfort of the building. At the same time, by developing buildings combined with medical facilities and services, further improve the quality of life and satisfy the special demands of people, including those with mobility problems, those physically challenged, and the elderly as a sign of humanistic care.

For the industry, promote the transformation and upgrading of urban industrial structure. Promote the elimination of backward production capacity, transformation and upgrading of public welfare and traditional industries through popularization and application of the technology characterized by green, low-carbon and intelligent cooperation, reduce waste of resource and pollution emissions and develop resource-saving and environment-friendly industries. This will also promote the resource saving, deep processing and comprehensive utilization and conservation of ecological environment, facilitate to meet the needs of improving the living environment and the quality of life and contribute to sustainable development of the city.

The transformation of sustainable urban development should also pay attention to systematic integration of technology, to promote appropriate low-carbon, green and emission reducing technology with low-cost and high-return. Moreover, demonstration projects should be carried out in mature cities or urban centers, and then application and integration of technology should be promoted implemented under effective supervision and following the actual application conditions.

**(2) Management Means.** Under the guidance of sustainable development goals, transition management of a city is a continuous governance process, which is gone through changes in technology, systems and practices to improve the sustainability of the whole city. The management process includes planning and decision-making, decision implementation, evaluation and information feedback of sustainable development management.

In the transformation of sustainable urban development, comprehensive decision is the basis for planning and decision-making, requiring every decision and policy of the city to be of economical, social and environmental integration. Planning and decision-making of sustainable development is a specific implementation of the strategic objectives of sustainable urban development. In the process of implementation, the city needs to make a comprehensive multidimensional analysis and assessment to the domestic and international opportunities and challenges of sustainable urban development to develop specific action programs to determine the subject and content of each action to be implemented.

The implementation of the sustainable urban development planning needs specific, flexible and effective technics, regulatory, marketing, finance, banking, education

and other tools to fulfill the effective planning and decision-making that results in the government's daily work and specific city operation areas through technology, system and capacity-building route. At the stage of decision-making and planning, stakeholders often use a vague language to facilitate the decision-making process of the policy in order to reach a final solution, but at the execution phase of decision, reconfiguration of resources and transfer of control is inevitable, resulting in beneficiaries and losers. Then obstacles to the transformation of sustainable urban development are inevitable. In order that decisions for sustainable urban development planning can be implemented smoothly, the municipal government, on one hand, needs to break through system obstacles in sustainable development through the administrative process re-engineering, on the other hand, also needs to use a variety of means such as technical, regulatory, marketing, finance, banking, education means and so on, to drive the implementation of decisions. All localities and departments need to combine their stage of development, economic, social and environmental background and the existing policy framework to combine implementation means and method related to balance to improve the effectiveness of decision implementation.

There is no ready, systematic experience and mode for strategy of sustainable development to learn from. At the same time, economics, society, population, resources, environment and other issues are involved in the sustainable development. And the implementation of sustainable development strategy is cross-sectorial, cross-industrial and inter-regional systematic engineering, so the transformation of sustainable urban development needs continuous exploration and practice of all localities and various departments to figure out a variety of development modes and gather rich experience. Therefore, it is particularly important to give full play to demonstration management tools and for model and demonstration areas to play the leading role in implementation of sustainable development strategies.

Assessment of sustainable urban development is to monitor and determine the status of implementation of sustainable development plans of the city from the perspective of sustainable development. With sustainability assessment, it is able to test whether the ways and methods adopted are appropriate, whether targeting is appropriate and to evaluate the impact caused by the practice in the implementation of urban development planning. With results and analysis of the assessment, city managers can find changes in the economy, environmental and social conditions, pressure and reaction to determine the priority areas and priority policies for balance among economic, environmental and social objectives, providing feedback for the next stage of sustainable urban activities.

It is noteworthy that the broad participation of all sectors and all interest groups is the basic idea throughout all aspects of transformation management of sustainable urban development and also an important force to promote further improvement in decision-making, implementation and evaluation of sustainable urban development. Sustainable development is complicated and widely involved. It is closely connected to the public, social justice and other issues and is inseparable from all aspects of social areas, so public participation is absolutely necessary for planning, implementation and evaluation of sustainable development.

## 2. Green Transformation

Development of green, low-carbon and resilient cities must be aware that the economic system is smaller than the social system and the social system is smaller than the ecosystem, not the opposite; it must be determined which part cannot be developed, and then make the appropriate economic development. It is also important for green transformation of cities to distinguish the types of cities, emphasize the systematic innovation, and develop spatial intensification and general service economy.

### 2.1 Green Transformation Needs to Distinguish the Type of Cities

If the traditional urban development is to take the development strategy that indefinitely expands the physical size and space, then green transformation of the city is the urban development mode to achieve moderate development of physical and spatial scale. Since different ecological development performance of the city is caused by different reasons, there can be two green urban transformation strategies, namely, the mode based on ecological optimization and based on rational growth. The mode of ecological optimization refers to that consumption of the nature and resources needs to be absolutely decoupled from economic and social growth for further development when urban economic and social development has exceeded the bearing capacity of natural ecosystems. This mode is characterized by improved service efficiency and efficient use of stocks to meet the growing demand for welfare. Flows are to replenish the stock of depreciation. The mode of rational growth refers to that urban economic and social development remains within the bearing capacity of resources and environment. This mode features improved technical efficiency. It requires that consumption of resources and the environment be relatively decoupled from the economic and social growth while meeting the scale expansion of economic and social development by substantial use of natural capital flows.



## 2.2 Green Transformation Needs to Emphasize Systematic Innovation of the City

Systematic urban green innovation should focus on two aspects: the development of a variety of technological innovations that can effectively improve the resource productivity; government put forward system innovation to promote green transformation. Both structural improvements of product substitution and systematic must be paid more attention to in order to significantly increase resource productivity in the process of urban development. At the same time, the issues of resource consumption in green urban transformation should be addressed at government management level to reduce and eliminate the impact of the rebound effect by controlling the total amount. In addition, public-private partnership should be established to implement green management innovation, where government and businesses or businesses to businesses cooperation is possible to substitute product sales with service delivery.

## 2.3 Green Transformation Needs to Develop Space-intensive Cities

Sustainable urban development needs to be decoupled from space occupation and land consumption and to be turned from outward expanding cities into intensive compact ones. Furthermore, the city should pay attention to function integration. The city has four functions, namely habitation, employment, leisure and transportation. In the original era of industrial economy, cities were required to develop by functions, which led to uncontrolled urban sprawl. To turn into green city, it must be emphasized that urban functions should be integrated and mixed to reduce travel distances and motorized transport space.

## 2.4 Green Transformation Needs to Develop General Service Economy

Green urban transformation should not only develop human labor-based service economy, but also the service economy based on material goods and on ecological functions. Labor-based service economy means no or less physical product intervention, where the services are mainly provided by individuals or organizations. Material goods based service economy refers to service economy extended from products. If the production of products are manufacturing, then usage of the product is service. Its novelty lies in: it is not necessary to have a product to obtain the product service; services can also be realized or shared through lease, loaning, third-party payments or other means. Ecological function based economic service means that services provided by economic systems and by natural system should both be concerned about. With continuous consumption of natural system by the economic system, services from natural system are having more and more influence on the quality of human life. Nature-based services include the supply of

natural resources, environmental purification capacity and the beauty and pleasure endowed by the ecology to life. These services cannot be replaced with by manual labor neither by material goods to a great extent. Apparently only when a city has got enough services from human, products and nature can it provide a high level of quality of life and development.

### 3. Low-Carbon Cities

The core principle of a low-carbon city is to reduce direct and indirect greenhouse gas emission from all aspects of the city's production and consumption and increase carbon sequestration, so that the city can play an active role in delaying climate change. Low-carbon city construction involves energy, land use, transportation, construction, water supply and drainage systems, waste treatment systems as well as all aspects of daily consumption of city residents. Comprehensive low-carbon urban planning provides a blueprint for the development of low-carbon city, where low-carbon energy is the most fundamental basis of low-carbon city, and all kinds of urban infrastructure contains tremendous energy saving potential, at the same time, behavior and consumption of urban residents is the indispensable soft environment for low-carbon city development.

#### 3.1 Low-Carbon Urban Planning

It is an essential part, which plays a leading role in the promotion of low-carbon urban construction to devise low-carbon urban planning with the emission of urban greenhouse gas as its core. Low-carbon urban planning should be strategic, integrated and operable. City managers need to establish the position and effectiveness of low-carbon urban planning in the urban planning system and to clarify the relation existing between various types of existing urban planning. In general, there are two modes for low-carbon urban planning: one is the formation of an independent low-carbon urban planning; the other is integration of the low-carbon city concepts and measures into existing planning, especially national economy and social development planning, urban land use planning, urban transport planning, urban industrial development planning and so on.

City planners should preferentially choose the first approach and, if possible, develop an independent low-carbon urban planning and strengthen its importance in the overall planning system. ICLEI-Local Governments for Sustainability brings forward 'five steps' for low-carbon development planning that serves as the reference framework for the preparation of low-carbon urban development planning, namely: (1) emission accounting, (2) setting emission reduction targets

and vision for the city, (3) the establishment of key policies and optional actions, (4) the implementation of policies, and (5) monitoring and evaluation.<sup>1</sup>

Low-carbon urban planning should clearly present a low-carbon urban development vision and goal in different stages (short, medium and long-term). Quantitative objectives must include the total amount control targets of municipal greenhouse gas emissions and intensity control targets of urban greenhouse gas emissions (such as unit GDP carbon emissions, carbon emissions per unit of industrial added value). City planners should set forth sub-sector goals under the overall objective according to the status, development trends and proposed emission reduction measures of each department. In general, low-carbon urban planning needs to propose measures to optimize the function zoning, spatial layout and industrial structure of the city. Generally speaking, low-carbon urban planners carry on sub-area planning covering energy, industry, transportation, construction, water treatment, solid waste treatment, urban green space and other sectors, and develop policy measures involving encouraging green consumption, low-carbon technology innovation and so on.<sup>2</sup>

### 3.2 Low-Carbon Transport

Layout optimization of urban space is a prerequisite for the development of low-carbon transport. In general, the spatial layout of low carbon city is characterized by high density, compactness, mixed land use, high connectivity and so on,



Figure 4.3 Low-Carbon Travel

<sup>1</sup> ICLEI. ICLEI's Low Carbon City Agenda, <http://archive.iclei.org/index.php?id=10828>.

<sup>2</sup> ICLEI. Local Climate Action-KLEI's Role towards Low Carbon Solutions, <http://unfccc.saveoursky.org.tw/iclei/images/uploads/ppt/Emani-Kumar.pdf>.

prompting the single centered and radiant city function structure to a polycentric cluster development through reasonable arrangements of each function zoning, improving land use and reducing commuter traffic demand.

Low-carbon transport initiatives include low-carbon transport infrastructure, vehicles and transport demand side management. Low-carbon transport infrastructure requires adhering to bus priority development strategy, developing rail transport and urban BRT channel, developing bicycle rental system and constructing new energy automotive service facilities. Low-carbon transport needs to execute strict vehicle fuel consumption standards and vehicle exhaust emissions standards, speed up the elimination of old vehicles and promote hybrid vehicles, electric vehicles, fuel cell vehicles, natural gas vehicles and other new energy vehicles through appropriate government subsidies and licensing policies. Non-motorized vehicles are encouraged to the demand for short distance travel. As for traffic demand-side management, guide the purchase and use of private vehicles; release congestion in the urban center through congestion charging, differentiated parking fees and other measures to promote more city residents to choose public transport; and explore new traffic mode of private car sharing.

### 3.3 Low-Carbon Buildings

Urban residents spend most of their daily life in urban buildings. Building energy conservation is not only one of the core areas of low-carbon urban development, but also one with a closest relationship with the residents' daily life and work. Low-carbon urban buildings can be started with low carbon building technical standards, optimized building energy structure, improved building energy efficiency and promotion of building energy efficiency certification: building technology standard not only determines the energy performance of new buildings, but also affects the energy saving reconstruction needs of existing buildings. According to the features of low-carbon cities, building floor area ratio should be increased to develop high-density and compact urban architecture and improve building energy consumption standards as a basis for promoting energy-saving buildings. For optimization of building energy structure, we can speed up the substitution of coal-fired boilers with gas boilers at heating areas; promote the use of water source heat pump, ground source heat pump technology at residential and public buildings; promote application of renewable energy in buildings, such as building-integrated photovoltaic technology. Improving building energy efficiency should widely adopt new building insulation material, energy efficient lighting and energy efficient appliances, promote natural ventilation design of buildings, strictly control

the number of large public buildings with high energy consumption and promote information technology-based integrated building energy management system. In addition, the government should encourage energy-saving building reconstruction and building energy management by adopting energy performance contracting (EPC) mode.

### 3.4 Low-Carbon Water System

All aspects (raw water purification, water supply, water use and waste water treatment, etc.) of urban water systems are accompanied by energy consumption and biochemical treatment of urban sewage will produce direct emission of methane and nitrous oxide. First of all, low-carbon urban water systems should adhere to the priority strategy of water conservation, promote water-saving appliances, advocate water-saving way of life and production and reduce urban sewage generation. Secondly, urban alternative sources of water should be excavated, especially in cities with water shortage. Through water reuse, rainwater collection and other measures, not only release the pressure on urban water resources, but also reduce the energy consumption of raw water production and distribution processes. Recycling of methane from sewage treatment plants will reduce untreated dissipation.

### 3.5 Management of Solid Urban Wastes

Greenhouse gas emission of urban solid waste disposal mainly comes from methane generated by refuse landfill. Similar to low-carbon water system, urban solid waste management should also give priority to reduction to reduce the burden on urban waste treatment as a whole, thereby reducing the related environmental impact. Waste reduction measures include: establishment of waste classification system; perfecting the urban venous industry, improving the recycling rate of paper, textiles, plastics, glass, metal, electronic products and waste household appliances; development of packaging standards to prevent excessive packaging. In addition, pilot projects to promote applicable advanced solid waste resources technology, development of recycling economy and recycling waste materials can create a wide range of renewable resources and energy for the city. Such techniques include food waste recycling technology, composting organic waste, landfill gas collection and power generation technology, dismantling and recycling technology of waste household appliances and automobile electronic products and so on.

### 3.6 Urban Green Space

Urban green space is an important part of the urban ecosystem, and is helpful to increase carbon sequestration of the city, to ease the heat island effect and beautify the urban environment. Beautiful urban green space design is indispensable to

the creation of an urban life, which provides an intimate feel to nature. At the space layout planning stage of low-carbon cities, it is important to clearly define an ecological protection area of the city, to protect the forestry resources and its surrounding areas through the mechanism of ecological compensation and reform of the property rights system. For artificial or semi-artificial greenbelts located within the central urban district, planning and design should take into consideration such as aspects as eco-efficiency, environmental benefits, functionality, aesthetic features, as well as coordination with surrounding facilities, so that the greenbelt may serve the purpose of environmental purification and carbon sequestration while improving the urban landscape, thus providing urban residents with high-quality resting places and outdoor activity spaces.

### 3.7 Low-Carbon Consumption

In addition to the low-carbon technologies and measure stated above, city managers need to pay attention to developing consumer behavior in favor of energy saving, so that tangible and intangible conditions of low-carbon city complement each other. Green consumption involves a wide range of sectors, including encouraging consumers to buy energy-saving, water-saving and material-saving products; advocating energy-saving and water-saving behavior in daily life; popularizing green low-carbon products through government procurement, and so on. Although the publicity and education can play a positive role in developing low-carbon consumption behavior, but it is not enough. We need to use more price leverage and subsidy policies to provide incentives for low-carbon consumption behavior and gradually develop the concept and behavior habit of low-carbon consumption.

## 4. Resilient City

Climate change has brought along hotter summer, colder winter and other extreme weather conditions which will lead to and increase in electricity consumption, resulting in overload of the power system; also extreme weather will increase the risk of road wear and give rise to higher maintenance cost of roads and buildings. Moreover, due to such weather conditions, fire accidents and power failure might be caused and as a result, there will be higher operational costs to be born by police stations and fire departments in maintaining social stability. In addition, under extreme weather conditions, the potential of heavy rain and snow is greatly increased, and heavy rains will not only increase the risk of urban residents in travel, but also flood and pollute water, destruct agricultural land, increase the operating load of urban infrastructure and disrupt transportation. Climate change

will increase the risk of local ecosystems.

The city may take the following adaptation actions in response to heat waves, droughts, floods and other emergencies due to climate change:

First, landscaping the city surface; cover the exposed urban space with grass, shrubs, vines and other plants for landscaping and water system to reduce the urban heat absorption. In cities where surface landscaping is not applicable, use heat-reflective paint or light-colored paint to reduce heat entering the building by improving the glass equipment system and interior walls. At the same time, increasing the permeable surface of the city can improve the absorption capacity of the excess precipitation.

Second, social policies. For example, improve the adaptability and risk resisting capacity in extreme weather conditions for urban vulnerable groups, such as the elderly, children, poor families, or shack residents.

Third, urban adaptation actions must have predictability and rapid crisis response and should realize system normalization. All aspects of the management processes in all areas of city should consider extreme weather factors caused by climate change, in order to achieve security of water, electricity and food supply under extreme weather conditions.

Fourth, the city is the residents' city, so building resilient city should pay more attention on improving the enthusiasm and education of city stakeholders, so as to involve a wider range of urban residents and related groups.

Fifth, on the choice of specific tools, building resilient city should choose the means of planning, administration, economic and financial instruments, technology and involvement to promote the implementation of various measures.

Sixth, on the approach of action, building resilient city should focus on key areas and key industries. Key areas and key industries should put forward their adaptation programs. Resilience of the city varies with different industries and regions. Some adaptation measures include significant synergies and trade-offs.

## 5. The NIMBY Campaign and Environmental Management

NIMBY campaign is not a scourge. Construction of projects with less negative environmental impact and public interest may adopt prior prevention and post intervention and other measures afterwards to effectively resolve NIMBY problems. Meanwhile, in the process, through mobilizing participation of government, businesses, society, individuals and other parties in environmental governance will not only effectively resolve the NIMBY dilemma, but also promote a green and

sustainable development of the urban environment.

### 5.1 Information Transparency and the Establishment of Mutual Trust between the Public and the Government

First, strengthen popularization and propaganda of scientific environmental knowledge. Take waste incineration project for example. In fact, waste incineration technology is already quite mature in developed countries. Denmark and Sweden has been a pioneer in the use of incineration to produce energy, while Netherlands, Germany and France also rely on incineration to handle city refuse. Objection to waste incineration is mainly due to worry about emission of dioxin that may endanger human health. Today, proportion of dioxin in the exhaust gas is very small due to enhanced design standard of emissions control and government's strengthened new regulation. On the other hand, there is a lot of resistance to the implementation of waste incineration in China, because of lacking popularization and publicity of relevant scientific knowledge and the public lacking scientific way to understand waste incineration technology and its advantages. Japan and Taiwan China are doing a good job in this regard. Primary schools in such countries as Japan and South Korea have classes on garbage classification and other environmental knowledge, as well as extracurricular activities to visit incinerators. The government should make the media, relevant agencies and other channels release authoritative information to improve the level of public awareness of these projects.

Second, have full communication and consultation with stakeholders before, during and after NIMBY project approval to ensure validity and justice of the procedure. Guaranteeing fair, open and just siting of NIMBY facility is an effective means to prevent NIMBY campaign. To allow full participation of stakeholders in the project approval of NIMBY facilities can improve the transparency of environmental information. If the Government conceals environmental information, it is easy to raise resentment in the public. But with full communication and consultation, stakeholders can fully express their interest demands and their concerns of the project. Then, through repeated communication and consultations, establish in line with the interests of the majority of the site location and conclude appropriate compensation scheme for losers.

In general, there will be very few supporters at the initial stage of site selection of NIMBY facilities, who may be able to directly benefit from the construction of NIMBY facilities. Most of them live far from the facilities and can enjoy benefits brought by the construction of facilities. There are also a few people who strongly



oppose the NIMBY facilities siting from the very beginning, because they may be closest to the facility and may be affected most seriously. There is another group of the population that generally has no interest in community affairs. Actually 60% of the population takes a neutral stand, who would observe the entire process of NIMBY facilities from site selection to construction and then establish their attitude. And their attitude will affect the trend of NIMBY facilities in the future to a large extent. Legal procedures and equal communication are an important way to establish equal stakeholder relationships. Approval of the construction of an NIMBY facility with simple persuasion and education or under the premise of unequal communication is likely to cause public resentment.

Third, attach importance to the role of expert scholars in scientific information transmission and opinion expression with their own discourse power. Experts and scholars are the people who have thorough investigation and research in the technologies involved in the project and its environmental impact. As an independent third party, they can look at pros and cons from a more neutral perspective. Meanwhile, experts are often important members for independent environmental impact assessment, and their objective and neutral assessment are more convincing. In addition, other actors, including environmentalists, NGOs and other third-party organizations, will also be helpful to the institutional environment that guarantees public participation.

Fourth, enhance the legalization and institutionalization to solve NIMBY disputes. Citizens should learn to use legal weapons to seek formal channels to express their environmental appeals and avoid blind opposition and extreme emotions. In China Taiwan, environmental police could respond effectively to environmental rouge and public nuisance dispute processing mechanism can effectively deal with public nuisance disputes. In addition, the environmental protection authorities would cooperate actively with the judiciary to enhance the judge's awareness on practices such as public nuisance dispute resolution, identification and compensation through a variety of public nuisance dispute investigation practices seminar.

## 5.2 Establishing a Diversified Ecological Compensation Mechanism

The establishment of an ecological compensation mechanism is an institutional arrangement to protect the environment, promote the harmonious development between human and nature and regulate the conflict of interests among stakeholders through economic means. Compensation expenses should come from the beneficiaries of the project, with the objects generally being victims of the

environment in a real sense. Ecological compensation includes monetary and non-monetary ecological compensation.

The purpose of monetary ecological compensation is to compensate the affected residents directly with certain amount of money. When residents face certain threats to the environment, they may use the obtained money to improve the environment close to them, or it might be economic appeasement for those whose interest of environment is damaged. Monetary compensation is mainly to individuals and families, such as reduction of utilities and sewage treatment fee and giving community residents welfare benefits, scholarships, or buying health insurance for them.

In fact, non-monetary compensation can be very beneficial. Non-monetary compensation covers a wide range of applications, including: (1) local facilities such as a spa pool, park, landscaping, gymnasium, outdoor stadium, roads and bridges, etc.; (2) community activity compensation, such as health checks, festival celebration; and (3) employment opportunities for community residents. Nowadays, compensation is more and more pragmatic and diversified.

### 5.3 Establishing and Improving Legal and Tax Regulatory System, and Strengthening Environmental Awareness

Improving the legal and regulatory system mainly refers to an improvement of environmental law development to have a powerful supervision on the environmental impact by project operation through legal means. Since the 1960s, Swedish government has issued acts on natural protection, against dumping wastes into the ocean, on motor vehicle exhaust emissions and the National Environmental Protection, etc., to provide legal support and protection for environmental protection and ecological city construction. Sweden has more than 70 types of environmental taxes and fees, where families have to pay for the garbage and enterprises have to pay for the emissions, while the government encourages the purchase of cleaner fuels and gives certain reward for it. It is through these legal and tax initiatives, city established effective environment accountability mechanisms, increased government regulation of the environment, hence individuals and businesses are obliged with the environment protection rules.

Solving the NIMBY problem is not a fundamental means for environmental protection. Increasing the public participation, strengthening environmental awareness and adhering to low-carbon ecological development are the key to solving environmental problems. Governments may use the NIMBY campaign to further promote environmental protection and green development. In 1970s, developed countries faced energy crisis and environmental pollution in the

process of industrialization, so exploration and development of renewable energy, adhering to low-carbon ecological development, changing patterns of economic growth and consumption and realizing sustainable development of economic, social and ecosystem were an important approach. In this process, the public is more and more active in environmental protection. On June 25, 1998, EU countries signed the famous ‘Aarhus Convention’ in Denmark. The Convention sets out three basic rights of citizens on environmental issues: (1) equal access to environmental information. Any citizen is entitled to have a broad and convenient access to environmental information, and the public sector should provide relevant information in a timely manner to realize transparency and openness of information; (2) public participation in decision-making. The public must know all environment-related projects and have the opportunity to participate in decision-making and the judicial process. Decision-makers should improve the quality and results of environmental decision-making through full brainstorming and ensure validity of the procedure; (3) entitled to environmental justice. The public is entitled to judicial or administrative proceedings when they find a party violates or fails to comply with relevant environmental laws and principles.

## Reference Cases

### 1. London, Britain: Integration of the Great Planning System and Sustainable Urban Development

#### 1.1 Case Overview

Located in the southeast of England, Greater London is one of the primary administrative divisions of England, covering roughly the metropolitan area comprising the British capital and its surrounding satellite towns. Administratively, the region was set up in 1965, including the City of London, the 32 London Boroughs and a total of 33 secondary administrative regions. It covers an area of 1,580 square kilometers, with a population of over 7.5 million. Greater London began to prepare strategic planning in 2000, with a theme of ‘a prosperous, pleasant, accessible, fair and green city’, to make it a highly respected, sustainable world-class city.

#### 1.2 Measures and Effects

The Greater London plan systematically integrated the ecological, green, low-



Figure 4.4 Tower Bridge of London

carbon and recycling elements in urban development and organically integrated these mainstream elements into the process of sustainable urban development.

(1) **Ecological and Green Planning.** Resolve the bottleneck of land resources development and utilization through ecological and green plan, thus to meet the quality of life of residents in the Greater London area is one of the important goals of the Greater London Plan. In the Greater London area, various buildings and public infrastructure accounts for about one-third of the Greater London area, and the remaining area is mainly used for public services, particularly water areas, wetlands, green spaces, woodlands and other urban ecological and green elements. In order to ensure that residents have enough outdoor activity and green space, the British Parliament has enacted the ‘Green Belt Act’, which clearly stated that the Greater London area should provide local residents free green space in the urban planning and construction process and establish supporting basic services facilities to meet the public demand for leisure and outdoor activities. This is to effectively prevent extrusion or occupation of public green space during the urban expansion process in order to create an ecological and green city space for residents.

(2) **Energy Saving and Emission Reduction Plan.** Energy saving and emission reduction is another important designing element in the Greater London Plan. Britain’s ‘Climate Change Act 2008’ explicitly defined that by 2050 the whole country should have reduced the emission of greenhouse gas by 80%. Greater London also pointed out in its periodical targets that the whole London area should strive to reduce emissions by 60% by 2025, with a focus on the optimization and upgrading of industrial structures with high pollution, high emissions and high



Figure 4.5 Hyde Park of London

energy consumption, so as to reduce the amount and intensity of carbon emission throughout the whole process of production, distribution and utilization. In addition, the Greater London Plan also had explicit stipulation on low-carbon energy supply, for example, optimization and real-time monitoring of energy supply and transport process, upgrading of seriously aging, energy extensive piping, wiring and platform to build a distributed energy network and make an integrated optimization of the energy structure of electricity, oil, natural gas, coal and so on. Also, it also needs to improve the proportion of renewable energy in the whole energy supply network and the total supply and to develop new energy products through technological innovation, so that the Greater London has a collaborative and sustainable energy supply and demand structure.

### (3) Waste Recycling.

Waste recycling is an important indicator of sustainable urban development. How to recycle waste material and extract the potential economic and ecological value wastes had been included in the long-term development strategy of Greater London Plan. During waste processing of London,



Source: <http://www.hbzhan.com/news/Detail/98400.html>.

Figure 4.6 Carbon Emission

an important concept is about design on the institutional level; first, to strictly control the source of waste; second, to improve usage effectiveness and the scope of waste through technical innovation, and reduce greenhouse gas emissions of waste in secondary handling and processing. In specific operation, the Plan divided waste into three major categories: industrial waste, commercial waste and household waste. Recycling rates and treatment of various types of waste had been clearly stated. For example, the recycling rate of industrial waste and commercial waste must be guaranteed over 20%, hazardous chemicals and toxic and hazardous substances should be treated separately. Household waste had also been broken down, such as organic waste, glass, paper trash and large solid waste (e.g. waste desks and chairs). Household waste must be classified before getting out of the door, and should be placed at a specified time in the specified location for separation and recovery by appropriate staff.

**(4) Strict Monitoring of the Air Quality.** London used to be plagued with severe air pollution for a long time in history, due to industrial emissions, automobile exhaust and other reasons. Although air quality in London has improved in recent years, the city planners and managers have proposed higher requirements on urban development for the future. Thus, London had developed very strict regulatory measures for air quality. First, strictly control vehicle exhaust emissions and have real-time monitoring and evaluation on related road air quality. Set up air quality testing system at certain sections, have real-time monitoring of airborne harmful substances at road and adjacent areas, release the information in a timely manner, and regulate or control road traffic according to the data released. Secondly, monitor the air quality at fixed places, and implement monitoring and rectification in accordance with relevant air quality standards.

### 1.3 Experience and Inspiration

(1) Greater London has undoubtedly provided rational reflection and rich experience for sustainable development of cities in the world. It has, from the perspective of sustainable development of the entire city, provided residents with ecological, green and livable life and living environment.

(2) Sustainable urban development plan should organically integrate the important elements. Ecology, green, low-carbon, circular and other mainstream elements of urban development have all been well represented in the Greater London Plan. Throughout the Plan, organic combination was made between the green planning of public space and the supply of public services, the energy supply and demand structure and the emission standards, as well

as the waste recycling and the guidance of living behaviors, so that these mainstream elements can be well reflected throughout the sustainable urban development.

(3) The city must have a formal institutional arrangement guarantee for sustainable development plan. The Greater London Plan has appropriate institutional arrangements guarantee from specific programs to implementation details, which is an important manifestation of whether the urban development is sustainable. In addition, the urban planning integrates the short-term goals with the city's overall long-term goal under the state system for a gradual and orderly urban development.

## 2. Hammarby, Sweden: A Recyclable, Livable Ecological City

### 2.1 Case Overview

Hammarby is located in the southeastern part of Stockholm, Sweden. In the early 1990s, the municipal government of Stockholm began to carry out transformation to Hammarby in order to win over the right to host the 2004 Olympic Games, and planned the future Olympic Village of it. Although the Olympic bid failed, the construction of Hammarby was not stopped. Hammarby currently covers about 2.04 million square meters, with about 28,000 residents, 12,000 apartments and more than 16,000 working personnel. It is now a high-cycle, low energy consumption



Source: <https://d3vjk4jagnknqc.cloudfront.net/uploads/2013/06/Hammarby-Sjostad-1024x682.jpg>.

Figure 4.7 Landscape in Hammarby

livable ecological city and has become a model worldwide for the construction of sustainable urban development.

## 2.2 Measures and Effects

**(1) Automatic Waste Collecting System.** Hammarby has a world leading automatic waste collecting system. In the ecological city of Hammarby, the floor ground of each resident building is placed with garbage cans in different colors. Actually, these garbage cans are the entrance to the underground waste collection pipes and are connected to the underground waste collection network system. Waste collection sensing system is installed within each garbage can, when there is certain amount of garbage at the recycling waste pipe entrance, the sensing system will send a signal to the central control system of the entire recovery system, and the central control system will open immediately the baffle between the pipeline and the garbage isolation region, then all the garbage will enter the underground waste collection pipes, and eventually be drawn into the waste treatment plant at



Source: <http://www.archcy.com/focus/Ecologicalcity/fbede99623509e72>.

Figure 4.8 Garbage Cans in the Eco-City of Hammarby



Source: <http://www.icaijing.org/guangzhou/article1917169/>.

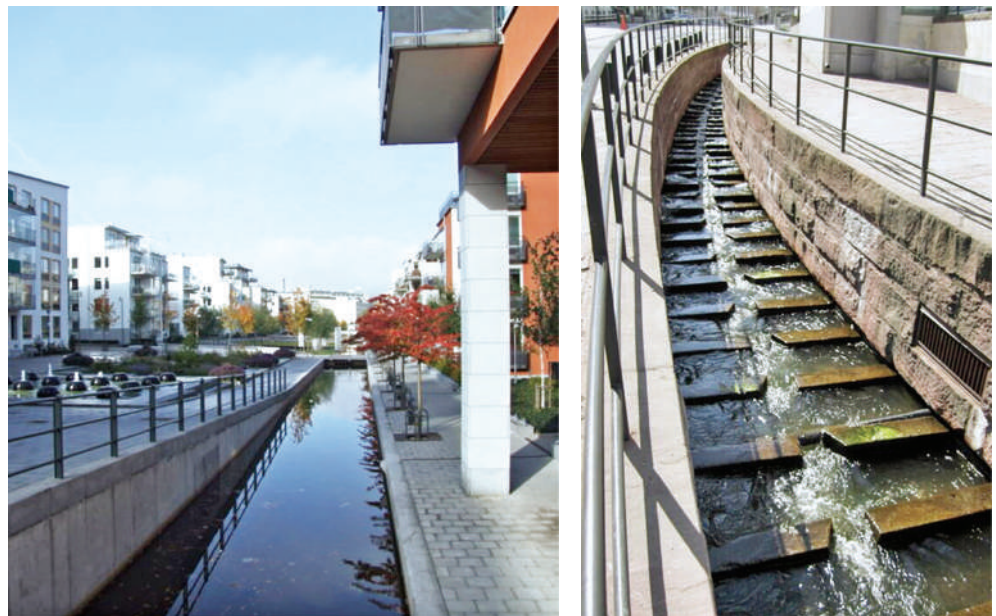
Figure 4.9 Waste Sorting and Recycling System in the Eco-City of Hammarby



outskirts of the city. Design of the entire waste collecting system follows a basic principle: three levels of ‘source sorting at the nearest building’ ‘recycling at the nearest neighborhood’ and ‘environmental protection station in nearby areas’. At the same time, not all garbage can be automatically recovered by the waste collecting system, so residents should classify the garbage before getting them out. For example, organic food residue and paper waste can be thrown into the recycling system. Some of the plastic products, metal and other recyclable waste need artificial classification. Toxic and hazardous substances especially need to comply strictly with the processes and be placed at specified location to be recycled by dedicated staff.

### (2) Water-Saving Measures and Water Classification Processing System.

Currently the average amount of water consumption per capita in Hammarby is about 150 liters. In order to reduce the per capita daily water usage to 100 liters, the community residents draw on technological innovations to raise the recycling rate of water resources from every detail of daily life. Every family is encouraged to install flush toilets with low water consumption, use high standard dishwashers and washing machines, and install an air valve on the faucet, thus effectively reducing household water consumption. In the water classification treatment process, sewage and natural water (such as rain and snow) are treated differently. There are landscape drains between all buildings in Hammarby, which have no



Source: <http://comments.caijing.com.cn/20140923/3706723.shtml>.

Figure 4.10 An Overview of Water Saving Countermeasures in Hammarby

intersection with sewage discharge channels, so they will not be contaminated. When gathered to a certain amount, water in these channels will be discharged to the surrounding larger river systems. Impurities in water are precipitated and purified naturally, trying to avoid tools that may result in energy consumption and emissions.

**(3) Resource Recycling System.** In addition to advanced waste collecting systems and classification systems, Hammarby's success also consists in the recycling of these wastes, which has set up a good model in urban practice of high recycling and low energy consumption. It's learnt from expectations goal of the city plan that, energy for ordinary community residents of Hammarby will be supplied through its own resource recycling system in the future. As is mentioned above, the function of the terminal of the underground waste collecting system, i.e. the refuse processing plants in the city's outskirts, is more than mere garbage classification; it also has an important mission of energy recycling. For example, thermal power plants and underground waste collecting systems and sewage treatment systems are combined to produce heat and electricity. Waste residue from production process can be used to produce biofuels, to supply Hammarby's urban public transport and new energy automotive. In addition, most buildings in Hammarby are not only designed to be energy-saving, but also to produce energy through solar panels installed on the exterior walls and roof, to meet part of the energy demands of families.



Source: <http://www.mnordic.com/2012/08/hammarby-sjostad/>.

Figure 4.11 Urban Public Transport and New Energy Automobile in Hammarby

### 2.3 Experience and Inspiration

(1) After 20 years of development, Hammarby has undoubtedly become a model of sustainable urban development in the world. From low resource consumption to waste recycling, from green low-carbon urban transport network to popular concept of environmental protection, there is no doubt that Hammarby wants to be perfect in every aspect and every detail.

(2) Hammarby has been ahead of the times when many cities around the world are vigorously promoting garbage classification, because what it offers to the world is not just the garbage classification itself. More importantly, with its successful practice, Hammarby has interpreted what to do after garbage classification, such as how to recycle garbage and how to seek a sustainable solution with constrained time costs, space costs and human capital.

(3) Municipal water supply, sewage treatment and discharge have become an important topic of urban development. How to save water with the basic need of life being satisfied? How to achieve this goal from the perspective of technology and usage? How to recycle household wastewater? How to achieve low-cost and zero pollution in emission process? It seems that solutions to these questions that have plagued many cities' development can be found in Hammarby.

(4) It should be emphasized that Hammarby has success not just in providing solutions to many urban problems, but also in integrating fairly well these solutions altogether. Resource recycling and waste disposal, green building, urban public services and many other city functions are incorporated into an organic system, just like the human body's respiratory, digestive or absorption function, they can be used as part of a community for coordinated operation although belonging to different systems.

## 3. Shanghai, China: Green Infrastructure Construction of Chongming Island

### 3.1 Case Overview

Located at the Yangtze Estuary, Chongming Island is the world's largest alluvial island with an existing area of 1,267 km<sup>2</sup>, boasting an advantageous location and abundant biological resources. As a special ecosystem in the megalopolis region, and also the only existent low-urbanized area of Shanghai, great attention is paid to the development and construction of Chongming by Shanghai municipal government and even authorities on the national level. It has become a typical case

of China to explore how to build an ecological civilization. According to Achim Steiner, the UN Deputy Secretary General and UNEP Executive Director, the ecological Chongming Island had applied China's concept of ecological civilization into various levels of ecological construction and had built an innovation pattern for local development. Its practice has proved that ecology can effectively promote coordinated social, environmental and economic development, and its construction concepts and successful experience had been a good role model for the construction of ecological civilization for other developing countries and regions.<sup>1</sup>



Figure 4.12 Ecological Island of Chongming

### 3.2 Measures and Effects

**(1) Construction of Renewable Energy Projects.** Chongming Island is one of the regions with the richest wind energy resources in China, as well as the region with richest solar energy and bioenergy in Shanghai. In the construction of Chongming Island, construction of renewable energy projects is an important ecological composition. During the past 20 years, it has built five wind farms in succession and the installed wind power capacity has reached 200,000 kilowatts. The solar collector area throughout Chongming Island is up to 90,000 square meters and rural residents' utilization of solar water heaters is 35%. In addition, the development and usage of biogas is another important manifestation of renewable

<sup>1</sup> UNEP. Chongming Eco-Island International Evaluation Report, <http://www.unep.org/chinese/publications/pdf/chongming.pdf>.

energy projects. Various types of residential and livestock waste are put together to establish various types of digesters, with a total area of over 3 million cubic meters. At the same time, the whole process of biogas production and utilization was organically combined with other industries, which effectively promoted the development of the whole industry chain.



Figure 4.13 Solar Photovoltaic Panels on the Roof of Dwellings of Chongming Island

**(2) Construction of Collection, Transportation and Disposal System for Household Wastes.** On Chongming Island, household waste enjoys fully-covered collection, fully-closed transportation and full flow disposal. Household waste is used for further resource utilization after classification, especially the disposal of food waste. Food waste is turned into organic fertilizer and returned to the soil by classification and degrading treatment techniques. Waste oil in household waste is a major threat to China's food security. This kind of waste oil is converted into the energy that can be further used, thereby enhancing the regeneration capacity of household waste. Relevant institutional design and hardware support ensures the recycling throughout the material flow of household waste to turn waste into treasure. It not only improves the efficiency of waste, but also broadens the supply channels of renewable energy, as well as performing operation of scale, thus realizing double harvest of efficient use of resources and ecological environment effects.

### (3) Construction of the Intensive Water Supply System and the Dongfeng Xisha Reservoir.

For a long period, the drinking water for residents on Chongming Island has been supplied from the surrounding natural water systems. There are no corresponding reservoirs and water pipeline network. In 2011, Shanghai started implementation of intensive water supply project ‘1 reservoir and 4 plants’. ‘1 reservoir’ refers to the ‘Dongfeng Xisha’ reservoir at Yangtze estuary. It adopts intake gates and pump gates in linkage and many other innovative technologies, with water storage capacity of 8.9 million cubic meters, and was put into use in 2014. In addition, many of the original small waterworks were rectified and upgraded, and ultimately reconstructed into four water plants; i.e., Chengqiao Water Plant and Chenjiazhen Water



Source: [http://www.shabidding.com/chinese/cgal\\_view.asp?id=804](http://www.shabidding.com/chinese/cgal_view.asp?id=804).

Figure 4.14 The Dongfeng Xisha Reservoir and Pump of Water Intake and Delivery in Chongming Island

Plant built in 2011, Baozhen Water Plant and Chongxi Water Plant built in 2014. In addition, as the largest roundabout canal of Chongming Island, Nanheng irrigation channel has become the reserve water for the 4 large reservoirs. Thus, construction of the dual sources of Dongfeng Xisha reservoir and Nanheng irrigation channel has greatly enhanced the water supply security of Chongming Island.

### 3.3 Experience and Inspiration

(1) With a great deal of theoretical exploration and practice from the construction of green infrastructure of Ecological Chongming Island, the significance, contributions and achievements of constructing an ecological Chongming Island has gradually been well recognized by the government on all levels and the public, and has also won an international reputation in the field of ecological civilization for China. In 2014, UNEP completed ‘International Assessment Report of Ecological Chongming Island’, which noted that the core values of construction of ecological Chongming Island reflects UNEP’s concept of green economy and is an important reference for China and other developing countries in the world to explore ecological development pattern through regional transformation.

(2) In developing countries with urgent task of developing the national economy and raising the people’s living standards, is it practicable to follow an ecological

approach? The ecological construction practice of Chongming Island is a new attempt different from previous extensive development pattern driven by factor inputs and export demand. It is not only to solve the imbalance in regional development, from a long-term perspective, it is also a powerful exploration for sustainable development.

(3) There are 42 island countries similar to Chongming Island in the world. They are endowed with advantageous natural resources by the natural geographical conditions, but traffic bottlenecks due to geographical isolation have also led to underdeveloped regions, generally similar to Chongming Island. How to restructure the island's regional economic structure and how to improve the level of regional economic and social development is a major challenge facing island countries in the world. In this regard, UNEP take the construction of ecological Chongming Island's green infrastructure as a typical case and incorporate it in green economy textbooks for the world's 42 island countries as a reference.

#### 4. Malacca, Malaysia: Renewable Energy and the Smart Grid

##### 4.1 Case Overview

The Government of Malaysia has promised that carbon intensity per unit of GDP should have been reduced by 40% by 2020 compared to 2005. It will develop renewable energy and smart grids as key to ensure achieving emission reduction



Figure 4.15 A Glimpse at the Street of Malacca

targets. Under the framework of the renewable energy act, it has developed a feed-in-tariff policy, providing the most critical power to accelerate the construction of renewable energy projects. Malaysia's important port city of Melaka has become a pioneer of low-carbon urban construction in Malaysia through the implementation of pilot project 'smart grid city, carbon free city'. Melaka builds a low-carbon, intelligent power system with solar photovoltaic power generation, electric vehicle infrastructure, smart ammeters and other technology as the core to realize city energy transformation from the aspects of electricity supply and demand.

#### 4.2 Measures and Effects

**(1) Acquisition Policy of Renewable Energy.** In 2011 the Malaysian government released the RE Acts which introduced in the feed-in-tariff mechanism of renewable energy and raised funds for renewable energy by levying a 1.6% additional renewable electricity charge to end-users for renewable energy price subsidies. To better manage the feed-in-tariff, the Malaysian government set up the Sustainable Energy Development Authority Malaysia (SEDA) to be responsible for developing acquisition policies, reviewing the interconnection application, licensing and supervision.

Feed-in-tariff ensures that renewable energy projects with higher unit generation cost would enjoy feed-in-tariff more favorable than traditional conventional cost (such as natural gas fueled thermal power). With learning effect brought from renewable energy technological progress and increased cumulative installed capacity, renewable energy cost per kWh will gradually decline and constantly narrowing the differences from conventional fossil fueled power generation until renewable energy generation cost falls equal to or even lower than fossil fueled generation. Feed-in-tariff will undoubtedly encourage more private and business to invest. Any individuals and businesses qualified or propose to have the construction of renewable energy power generation projects can apply to SEDA. SEDA would determine the feed-in-tariff based on the types of renewable energy used, installed capacity, production time and other factors of the project. Grid enterprise at project area, such as Tenaga Nasional Berhad, TNB and other grid companies, must sign a contract with the project owner in accordance with the approval results of the SEDA for full acquisition of the renewable energy power. Acquisition period of solar photovoltaic power plants and small hydropower plants is 21 years, while that of biomass, biogas and other renewable energy projects is 16 years.

By the end of 2015, 354.67 MW of installed renewable energy capacity approved with feed-in-tariff had realized commercial operation, in which the solar



photovoltaic power plant is 238.83 MW, biomass power is 61.4 MW, landfill gas, biogas, waste incineration power generation, small hydropower and other installed renewable energy capacity is 54.44 MW. In addition, there are about 650 MW licensed projects under construction. Renewable energy acquisition policy is to the key support to ensure that renewable energy accounts for 7.8% of power generation in Malaysia by 2020.

**(2) World Solar Valley of Melaka.** As an important harbor city and tourist city in Malaysia, Melaka covers an administrative area of 1,650 square kilometers and a population of 840,000, with per capita GDP of USD 7,649 in 2013. The construction of a low-carbon city of Melaka is highly representative.

The Government of Malaysia developed the plan Melaka World Solar Valley in 2012 for the development and construction of 7,000 hectares of solar industry cluster area with solar energy as the main source of power in the Melaka Rembia Industrial Zone. The planning area incorporates solar photovoltaic equipment manufacturing enterprises, solar photovoltaic power plants, RDIC Center and other core facilities.

The Solar Photovoltaic Power Plant project of Sun Valley was put into operation in 2013, with a total installed capacity of 5 MW, and covering an area of 17 hectares. The total investment of the plant was 46 million ringgit (equivalent to about USD 15 million). The Power Plant signed a 21-year power purchase contract with Tenaga Nasional Berhad according to government feed-in-tariff policy and enjoys 0.98 ringgit per kWh electricity feed-in-tariff (USD 0.243 per kWh). All the electricity of the power plant was incorporated into the national grid with an annual income from electricity sales up to 6 million ringgit. Malaysia's first Building Integrated Photo-Voltaic Solar Community Project was built in Sun Valley. For houses with rooftop PV systems, homeowners only need to provide the roof, the cost of solar photovoltaic power generation equipment and grid interconnection facilities shall all be borne by the equipment supplier, where electricity is sold



Source: <http://www.melakagreentech.gov.my/index.php/go-green/peta-lokasi/2014-09-12-03-41-25/melaka-world-solar-valley>.

**Figure 4.16** Solar Energy Industry Cluster Area in Melaka



enterprises of real-time pricing according to power supply and demand, and users can have a good idea of the family's real-time electricity consumption and have a dynamic management of household appliances through smart meters. For example, set the washing machine to run during the electricity rate valley to save money on electricity. Most importantly, the smart grid realizes two-way feedback and circulation of the electricity and is helpful to large-scale interconnection of volatile and intermittent renewable energy.

Tenaga Nasional Berhad plans to install smart meters in all the country's 8.5 million households in 2025. Nationwide large-scale smart meter installation and replacement starts in 2016. Technical experience acquired in Melaka pilot project is the basis for the construction of smart power system in Malaysia.

### 4.3 Experience and Inspiration

(1) Developing countries always face more challenges than developed countries in construction of a low-carbon city. First, they must improve the relevant legal system and institution-building. It is best to develop special laws and regulations for renewable energy development and low-carbon urban planning, so that all plans and policies have a clear legal basis.

(2) Large-scale marketing of renewable energy technology must overcome the cost barriers to make it competitive on the market. Malaysia's renewable energy feed-in-tariff system and end-user-oriented renewable energy surcharges are two complementary policies to achieve cross-subsidies of fossil fueled power to renewable energy. The feed-in-tariff subsidies, on one hand, provide a stable earning expectation for investors of renewable energy projects; and on the other hand, contribute to a rapid increase in the installed capacity of renewable energy and exerting the technology learning effect, thus accelerating its cost reduction rate.

(3) Construction of low-carbon urban must also focus on energy supply and energy demand. For the energy supply, Melaka mainly depends on the Sun Valley to promote the development and application of photovoltaic technology. Such a multifunctional hybrid 'New low-carbon city' integrating production, research and development, commercial and civil functions are worth learning for developing countries in a rapid process of urbanization. Construction of the new urban area in developing countries should be planned and designed based on low-carbon concept, yielding multifunctional complementary benefits, to make it the first exploring areas for application of various types of renewable energy technologies.

(4) For the energy demand, smart grid construction in Malaysia is prominent

among the developing countries. Smart grid is the future direction of development for power system. It will not only improve the information level of electricity supply and demand, strengthen the stability of the power system, create conditions for large-scale renewable energy consumption, but also provide the basis for the real-time energy management to end-users, allowing users to directly benefit from energy-savings.

## 5. Toronto, Canada: A Resilient City

### 5.1 Case Overview

Toronto faces the challenges of population growth, climate change and a continually widening income gap. First of all, Toronto has an annual increase in population of 24,000 and the population is expected to reach 3 million by 2031, which will necessarily propose many new requirements for the renewal and enhancement of infrastructure and public service capacity of the city. Secondly, Toronto is highly vulnerable to such extreme weather conditions as flood, snow, and heat. In 2013, Toronto suffered the worst flooding in the history of the city, 4,579 houses were flooded and 750,000 people lost power supply. According to a research on Toronto's future climate conducted by the Toronto Environment Office, compared with the period of 2000–2009, it is expected that the period of 2040–2049 will witness hotter summers in Toronto, and more frequent occurrence of hazy weather which is to the detriment of people's health; this will lead to overload of electric power and heavy demand on electricity peaks, as well as blackouts or power outage; the amount of rainfall will increase by 80% in July and by 50% in August; although the times of heavy rain will be reduced, but the extent of heavy rainfall will increase, which will pose a threat to aging infrastructure in Toronto. Power supply capacity and reliability is worsening with the aging and degradation of power infrastructure. Thirdly, Toronto is also facing growing income gap among residents. According to relevant research report<sup>1</sup>, with the status quo, there will be 30% of rich people, 60% of poor people and only 10% of middle-income people in Toronto by 2025. Such urban reality certainly cannot meet the goal of sustainable urban development. To this end, the City of Toronto adopted a series of actions to adapt to changes in the economy, society and the environment to improve the resilience of the city.

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<sup>1</sup> David Hulchanski, *The Three Cities Within Toronto: Income Polarization Among Toronto's Neighbourhoods, 1970–2005*, Cities Centre, University of Toronto, <http://www.urbancentre.toronto.ca/pdfs/curp/tnrn/Three-Cities-Within-Toronto-2010-Final.pdf>.



Figure 4.18 Urban Scenery of Toronto

## 5.2 Measures and Effects

**(1) Developing Action Plans to Adapt to Climate Changes.** In 2007, Toronto began to implement climate change action plan. The city is committed to the reduction of environmentally harmful emissions, especially emission of greenhouse gases and gases causing haze. More frequent extreme weather would damage roads, bridges, power systems and other infrastructure, resulting in a lot of maintenance costs and undermining the daily operation of the system. So in July 2008, Toronto City Council adopted the Adaptive Suggestions for Climate Change. The record-setting floods and heavy rains on July 8, 2013 further showed the importance to predication. In December 2013 and July 2014, Toronto started to implement ‘Resilient City—Preparation for Extreme Weather Events’ and ‘Resilient City—Preparation for Changing Climate’ respectively, and proposed a series of actions to improve the city’s response to extreme weather events caused by climate change.

**(2) City Council Adapting Organizational Structure to Extreme Climate.** On the municipal meeting held in February 2013, City Council requested chief corporate officer to report the city’s response to climate change and set up a Resilient City Working Group (RCWG), whose members were from the City of Toronto’s departments, institutions and companies related to city public service.

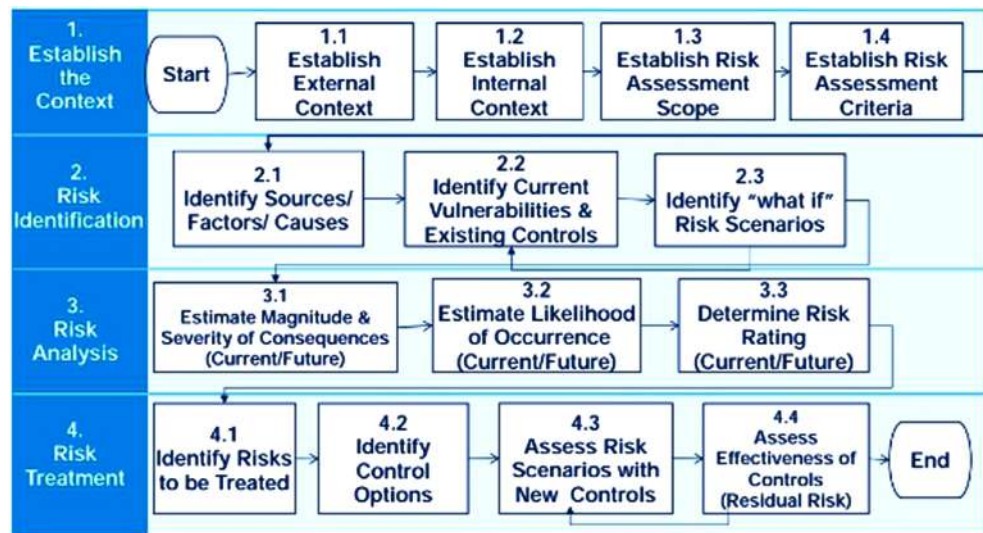
Tasks of the RCWG: (1) judge at a high-level whether the urban infrastructure and services are adequate to stand against future extreme weather in accordance with the actions already taken or being taken; (2) identify whether planned

actions can improve the city's infrastructure and services to adapt to future climate conditions; and (3) identify what further actions should be taken to ensure safety and reliability of infrastructure and services under future extreme weather conditions.

In December 2013, the City Council made the resolution 'Resilient City: Preparing for Extreme Weather Events'. City Council commanded the chief corporate officer to coordinate operations among the city's various departments, institutions and companies and to improve the actions of RCWG under the leadership of Environment and Energy Office as well as to report to the Park and the Environment Commission in April 2014. The chief cooperate officer shall also strategically observe the most critical interdependence between urban infrastructure and services and take limited actions to improve the flexibility of interdependent infrastructure and services in extreme weather.

**(3) Toronto's Toolkit for Climate Change Adaptation.** The objective of forming Toronto's Climate Change Adaptation Toolkit is to describe the internal risk of management systems to prepare for health and social impacts caused by predictable climate change. It is mainly concerned with improving internal processes, by which the City Council could make decisions and could ensure increased capacity to handle complex data in the protection and scenario analysis of extreme weather. In addition to publishing 'Toronto's Future Weather and Climate Driven Study', the toolkit includes Toronto climate change risk assessment tools, which are a system process that includes four steps, each including 3–4 small steps. The toolkit guides the definition of potential risks of extreme weather to assets, business processes and services and it also takes action and makes investment to mitigate risks in advance. The most important benefit of the tools is the provider of urban services and infrastructure could better identify and mitigate the risks associated with climate change and take actions to reduce the impact of bad weather on the infrastructure and essential services. This could avoid major losses and the collapse of services that would cause damage to Toronto residents, businesses operation and the natural environment. Climate change risk assessment has been introduced into two sectors of the city: Transportation Services and Shelter, Support and Housing Administration.

There are also the project risk vulnerability assessment tools. A detailed climate change risk assessment completed by conservation authorities in Toronto using Engineers Canada Protocols for two dams with flood control; climate change risk assessment formed by Toronto Water Services using Public Infrastructure



Source: <http://conf.tac-atc.ca/english/annualconference/tac2013/session24/capano.pdf>.

Figure 4.19 Toronto's Toolkit for Climate Change Adaptation

Vulnerability Committee Protocol; Toronto Public Health considers using new climate change vulnerability assessments of World Health Organization and the Pan American Health Organization to guide and apply in vulnerability assessments of Toronto. Other adaptive tools include adaptive co-management policy of extreme weather, extreme weather resilience index, exchange of resilience methods and processes through standard reporting forms, training of election officials and city planners.

**(4) Toronto's Dynamic Weather Partners.** 'Action Before the Storm—Toronto Climate Change adaptation Strategies' started to be implemented in the summer of 2008. The strategy suggested the formation of a strategic network of Toronto's climate and encouraged the Government, universities and non-governmental organizations to cooperate, exchange and study adaptability to climate change. In 2009, when the 'Infrastructure and Climate Change Adaptation Forum' was concluded, the forum believed it need to set up a working group of infrastructure and climate change adaptation. In 2011, the City of Toronto and Civic Action Organization called up more than 50 public sectors, private sectors and non-profit organizations covering the area to set up dynamic climate partnership, these institutions covered finance, insurance, transportation, telecommunications, energy, housing, legal, real estate and engineering. They worked together for better protection of residents, organizations, infrastructure and the environment in the region in extreme weather. The first concern of dynamic weather partners is to improve the resilience of electricity supply in Toronto area in extreme weather.

**(5) Cooperative Learning of the Insurance Industry and Urban Stakeholders Promotes Resilience of the City.** The resilience of a city is determined by the city's pace and scope of investment and behavior change in response to future risk. Private sectors could play a crucial and catalytic role in this process. In the construction of a resilient city, insurance can reduce losses, provide opportunities for innovation risk transfer and help decrease the risks posed by climate change. Through the establishment of public-private partnership of the city, the insurance sectors may have the ability to lead the construction of resilient city, thus protecting the safety of residents and property. Ceres Toronto, a nonprofit organization committed to establishing a network of investors, businesses and public interest organizations and building a prosperous, sustainable global economy, called together the stakeholders of insurance industry and the city so that the stakeholders had a systematic understanding of the partnership with mutual benefit, in order to reduce risks, improve performance, and have an assessment on the climate vulnerability of the region. This workshop proposed a market ecosystem based resilience enhancement method, including the four pillars of asset risk management, local risk management, developing regional resilience enhancement and exchange of resilience gains.

### 5.3 Experience and Inspiration

(1) Toronto's construction of resilient urban is to propose key sectors and key actions in response to climate change based on the prediction of future climate change in medium and long term and according to the trend of the future climate change and the potential effect on the city. Action based on long-term prediction would be more operational.

(2) Tackling climate change calls for multi-sectorial cooperation. As early as it began to perform the agenda 'Resilient City—Preparing for Extreme Weather Events', Toronto had established a Resilient City Working Group, of which the chief corporate officer reports directly to the City Council. Such an organization ensures cross-sectorial communication and coordination of the working group, thus guaranteeing smooth implementation of adaptation actions.

(3) Construction of resilient city should prepare a series of toolkits to adapt to the climate change, addressing the policies, capital and technology needed to improve the resilience of city through planning, implementation and evaluation. Toronto built a set of systematic, complete and dynamic evaluation mechanism for the construction of a resilient city.

(4) Construction of a resilient city needs public engagement and multi-



stakeholder cooperation. Toronto's Dynamic Weather Partners establish a partnership among public sectors, private sectors and non-profit organizations, to protect the residents, organizations, infrastructure and the environment in the region in extreme weather. Toronto has also given fully play of private sectors in the resilient city construction. The platform of workshop established by non-profit organizations helps form a mutual understanding between insurance companies and the stakeholders, enhancing the resilience of the city with a market-based approach.

## 6. Tokyo, Japan: Dealing with the NIMBY Dilemma of Refuse

### 6.1 Case Overview

In the 1950s and 1960s, health issues caused by environmental pollution become major social problems with the rapid rise of the Japanese economy. 'Waste incineration plants should be built, but please keep it away from my house', the 'NIMBY dilemma' also existed in Japan at the beginning of waste incineration plant establishment. Japan's waste was increasing rapidly with the rapid economic development. In the early days, waste was disposed by landfilling in Japan, but soon it is found that environment surrounding landfill was deteriorating. Local governments expected to establish incineration plants to cope with the rapid increase in municipal waste. Although residents agree with the incineration solution, they did not want those waste incineration plants to be constructed near their residential areas, and therefore continually obstructed the government to build waste incineration plants.



Source: [http://www.360doc.com/content/14/0513/11/15048269\\_377189299.shtml](http://www.360doc.com/content/14/0513/11/15048269_377189299.shtml).

Figure 4.20 The Waste Incineration Plants in Tokyo, Japan

In 1971, residents in Higashi Suginami, Tokyo of Japan opposed to the government's establishment of waste incineration plants in the local area, so wastes of Suginami had be shipped to Yumenoshima landfill in Koto-ku for processing, leading to up to three years of 'garbage war' between the residents and government of the two areas. People began to think about how the huge amount of waste was generated and how to manage and reduce it during this conflict. They also began to invest capital and technology in waste reduction, refuse treatment techniques, management and other fields. How could local governments work together with local population to manage and reduce municipal waste had become one of the major problems faced by the city planners.



Source: <http://www.panoramio.com/photo/23500414>.

Figure 4.21 The Waste Incineration Plants which is Located in the Urban Central Zone

Today, Japan possesses advanced waste incineration technology. The incineration plants have superior waste treatment capacity and unique appearance. In Japan, incineration plant are mostly built in the mixed commercial and residential areas, i.e., the central areas of the city, due to dense population.

There are 20 incinerators in Tokyo to carry out safe and stable incineration for combustible wastes, with daily processing capacity up to 7,580 tons. The entire waste incineration equipment can work 24 hours a day, with the service life up to 25–30 years. Incineration can effectively prevent bacteria, insects and odor and maintain environmental hygiene. Incineration cannot only reduce the volume to one-twentieth, the incinerated ash can also be used as raw material of cement for resource utilization. And molten slag can reduce the amount of landfill disposal.

Then, how did Tokyo solve the NIMBY issues in the construction of waste incineration plants and how did it implement an effective governance of the environment? Related measures and effects will be highlighted in the next section.

## 6.2 Measures and Effects

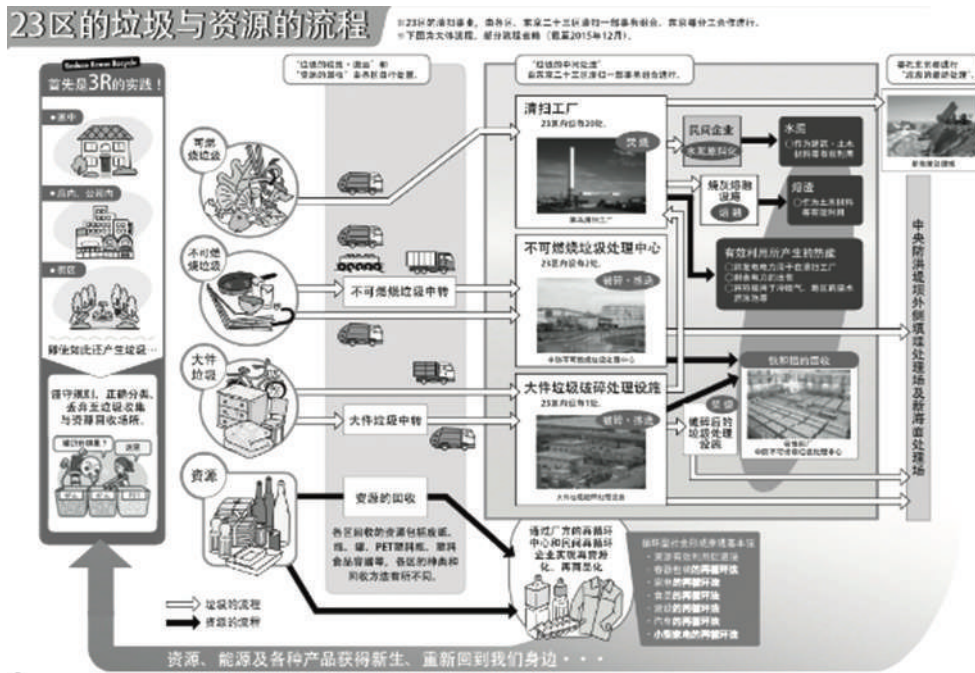
(1) **Improving the Purification Technology and Recycling Waste Heat from Waste Incineration.** The reason why the public is worried about establishment of waste incineration plants lies mainly in the odors and the emission of toxic

gases including dioxin from incineration. Therefore, Japan makes a lot of effort on improving waste incineration facilities and the technology. Tokyo's 23 wards of waste incineration needs a total of 14 related equipment to dispose ash, gas and sewage generated in incineration of wastes. First, waste collectors need to put the wastes into enclosed waste yard, and then use the crane to stir the garbage and then put it into the incinerator. High-temperature exhaust gas comes out from the incinerator after cooling at 150 degrees, preventing the re-synthesis of dioxin chemicals. After dust, dioxin chemicals, watermarks, hydrogen chloride and sulfur oxides in the exhaust gas dust are filtered by collector, exhaust scrubber and catalytic reaction tower, the remaining harmless gases would be vented through the chimney. Sewage treatment equipment is used for water treatment in order to meet sewer drainage standards. Driving and operation of each device is monitored by the central control room, from which the information is transmitted to a mainframe computer, to get a general knowledge of the operation of all incineration plants.

Use of waste heat for heating and power generation is a common practice to improve the energy efficiency of waste incineration. Electricity and hot water produced can be used for cleaning plant operations, reducing power and fuel costs. Remaining electricity is sold to power companies. In 2014, Tokyo's gross generation of incinerator plants was 1,126.63 million kilowatts, with electricity sales over 580 million kilowatts and revenue of 10.4 billion yen and revenue of heat energy also exceeded 180 million yen.

In addition to providing heating and hot water by using waste heat for the incineration plant itself, it is also able to provide warm water and heat energy to swimming pools and other facilities outside the plants. In Tokyo, many waste incineration plants are equipped with a heated swimming pool that is available for use by residents nearby.

**(2) Establishing 'Tokyo 23 Wards Cleaning Affair Section I' to Improve Waste Disposal Efficiency.** Waste disposal includes three steps: (1) waste collection, transportation, resource recovery; (2) intermediate waste disposal (incineration, crushing), manure treatment; and (3) final disposal (landfill). Waste recycling and handling is still implemented by the district in accordance with the type, collection date and areas based on the seasonal fluctuation in the amount of waste and specific circumstances. With regard to the cost, Tokyo's 23 wards do not charge fees on household's waste disposal, but on the bulky waste and enterprise wastes. Since some of the area has no intermediate waste disposal facility (including



Source: <http://www.union.tokyo23-seisou.lg.jp.c.de.hp.transer.com/kojo/index.html>.

Figure 4.22 The Process of Waste Disposal and Resources in Tokyo 23 Wards

incineration and shredding), the special local public organization ‘Tokyo 23 Wards Cleaning Affair Section I’ was established according to the Local Autonomy Law and pursuant to the common will of the 23 wards. The public organization manages 20 incinerators for incineration of combustible wastes, as well as shredding, recovery or landfill of non-combustible wastes and bulky wastes. Since Tokyo have landfill disposal plants and is responsible for management, so 23 wards and the 23 Wards Cleaning Affair Section I commission Tokyo for landfill disposal.

(3) **Establishing ‘Understanding, Participation and Cooperation’ Between the Government and the Public.** In its early battle against wastes, the Tokyo government and citizens gradually came to realize the fact that both of them would suffer from bitter results of the NIMBY campaign. Both sides came to recognize that the right way to deal with the problem is to understand, participate and cooperate.

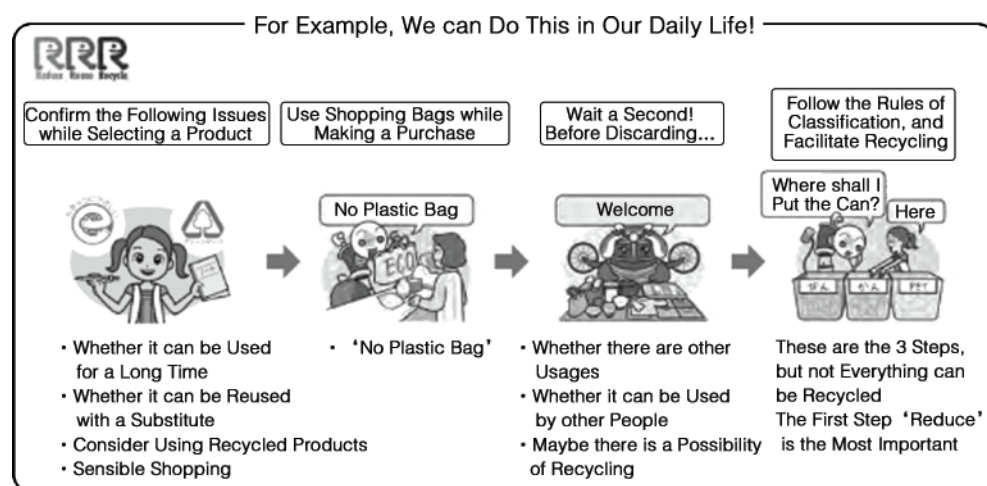
Firstly, the government created a series of policies and regulations on environmental protection and use advertising to establish environmental awareness among citizens. They add courses on environmental protection in the classroom so that the public would begin to learn the knowledge of waste sorting and classification, recycling and so on.

Waste incineration plants have become an important place of environmental

education. Every incineration plant in Tokyo would arrange public visits and education to popularize environmental protection knowledge. In principle, residents live, study or work in Tokyo's 23 wards can visit the incineration plants individually or in group, and overseas tourists can also apply to the International Cooperation Department for visits. Visit includes introduction of related knowledge and waste incineration plants by related staff, as well as visiting a variety of waste disposal equipment in the plant. In order to arouse children's interest in environmental knowledge, the incineration plants have specially set up a big screen to introduce environmental protection knowledge and some game consoles for popularization of science, etc. This process allows the public to learn about the basic principles and processes of waste incineration, thereby reducing their antagonism towards building of incineration plants.

Secondly, guide the public to conduct refuse classification and participate in refuse management. For individuals, they would reduce waste to one's best; sort for management of the waste generated instead of casual littering; and they could have a clear idea of what kind of wastes could be recycled. Today, Japanese citizens all have a strong consciousness of waste reduction and waste separation.

Thirdly, enhance the role of community and non-profit organizations in the waste control. Community should actively participate in the development of circular economy related policies as well as educate and promote the knowledge of waste classification and recycling among community residents. Non-profit organizations should provide the community an opportunity for education and learning of environmental protection, supervise behaviors of the government and the private



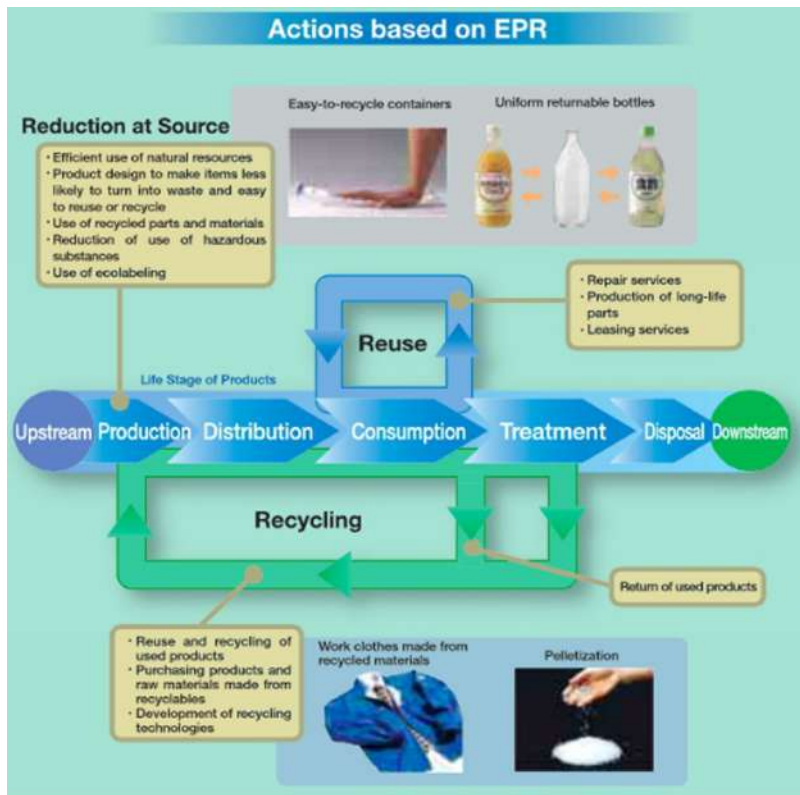
Source: <http://www.union.tokyo23-seisou.lg.jp/seiso/seiso/pamphlet/report/documents/2016gomirepochinese.pdf>.

Figure 4.23 Waste Sorting

sectors, submit recommendations related to environmental protection and organize environment-related seminars for the government and company planners.

**(4) Private Sectors must Follow the Rule of ‘Extended Producer Responsibility’.** The rule of Extended Producer Responsibility requires that companies be responsible for adverse environmental impacts due to the product life cycle, so companies tend to produce recyclable or reusable products when developing new products. This includes recycling used products, building an environmentally friendly waste management and providing product environmental information (such as environmental labeling, environmental reports, etc.) for consumers.

Since the producers should take the main responsibility for managing industrial waste, so the producers have to pay for waste management. Because of this, the producers began to actively recycle wastes or think about how to reduce the waste generated. Finally a win-win relationship is established between producers and recyclers of industrial wastes. Extended corporate responsibility in turn, encourages them to extend the search for more environmentally friendly technologies and waste-recycling technology, which further promotes the development of related



Source: <http://www.env.go.jp/recycle/3r/en/approach/02.pdf>.

Figure 4.24 The Action which is Based on Extended Producer Responsibility

technology sectors.

**(5) From Waste Control to Construction of a Recyclable Society.** In 2004, efforts were made by the Japanese government to build a fine society of material recycling and promote the 3R principle (reduce, reuse, recycle). This concept requires minimizing the consumption of resources in order to reduce the burden on the environment, so as to make sure coexistence of environmental protection and economic prosperity.

Promotion of the 3R principle is accomplished through five aspects: first, environmental consciousness. All shareholders of the society have come to recognize the importance of environmental protection and cooperation. Promote civic understanding of the 3R technology and policy through the media, advertising and other means. The second point is information sharing. From product design to product recycling or waste disposal, all the information should be shared with the public. This information sharing process is essential for promoting understanding and cooperation of both sides. Thirdly, incentives. Provide relevant information to environmental protection enterprises and establish a number of environmental protection priorities. For example, in Japan, there are eco-community projects aimed at using some typical projects with excellent and innovative concept of environmental protection as example to inspire other companies' interests in environmental protection for joint development of materially recyclable society. Incentives include both economic incentives and social incentives. Furthermore, establish partnership among the stakeholders. Finally, promote the science and technology development for environmental protection. Continually promote the development of circular economy related technologies in the field of production and consumption. The government providing relevant scientific information and establishing partnerships between local government and community, together with relevant universities or research institutions is an important way to promote technological development of circular economy.

### 6.3 Experience and Inspiration

(1) Sufficient government regulation, leading national environmental awareness, rigorous and detailed laws, meticulous enforcement, conversion from NIMBY to 'Yes in My Back Yard'.

(2) Advanced technology and knowledge popularization enable the public to have a basic knowledge of waste separation, recycling and waste incineration. In Japan, visiting the incineration plant is compulsory for every primary school student.

(3) Figuring out the basic relations between trust and cooperation is the key to

solving environmental NIMBY issues.

(4) Stakeholders have clear role assignment and extensive cooperation on environmental governance.

(5) Improved legal and regulatory system. Japan enacted the ‘Dioxin Special Measures Act’ in July 1999 and made a substantial increase in emission limits. Japanese laws had made strict regulations for siting and construction of incineration plants.

(6) Preventive measures instead of afterwards remedies, and committed to building a materially recyclable society.

## Suggestion for Decision-Making .....

### Pattern Selection, Approaches and Means of Improvement for Sustainable Urban Development

#### Strategy 1: Choosing Sustainable Urban Development Pattern Suitable for National Conditions

**Policy Option 1:** To develop from low ecological input and low human development to low ecological input and high human development, in the pursuit of leaping urban development within the ecological threshold

**Policy Option 2:** To improve resource productivity from both aspects of technology and management mechanism, improving laws and regulations by transformation to further promote enhancement of the city’s human development indicators

**Policy Option 3:** To transform and promote the dematerialization of secondary industry characterized with high consumption and high emissions

#### Strategy 2: Strengthening Protection of Ecological Environment and Upgrading of Industrial Structure through Technological Progress and Innovation Ability

**Policy Option 4:** To proceed from production process innovation, product innovation, product substitution and urban system structure improvement

**Policy Option 5:** To enhance sustainability of urban development through systematic integration of transportation, energy, construction, industry and infrastructure

**Policy Option 6:** Emphasis on system integration of technology and promoting appropriate low-carbon, green and emission reducing technology with low cost and high return

#### Strategy 3: Improving Sustainable Urban Governance Process through Technology, System and Practices Changes

**Policy Option 7:** Sustainable urban development management should include planning and decision-making, implementation and evaluation and information feedback

**Policy Option 8:** Fulfillment of effective planning and decision-making results in the government’s daily work and specific city operation areas through technology, system and capacity-building route

**Policy Option 9:** Broad participation of all sectors and all interest groups should be the basic idea and practice throughout all aspects of transformation management of sustainable urban development



## The Green Transformation of Sustainable Urban Development

### Strategy 1: Green Transformation needs to Distinguish Different Types of Cities

**Policy Option 1:** Green transformation is the urban development pattern to achieve moderate development of physical and spatial scale

**Policy Option 2:** Ecological optimization pattern should be used when urban development has exceeded the bearing capacity of natural ecosystems

**Policy Option 3:** Rational growth pattern should be used when urban development is still within the bearing capacity of resources and environment

### Strategy 2: Green Transformation needs to Develop Spatial Intensification and Realize System Innovation

**Policy Option 4:** To pay more attention to structural improvements of product substitution and systematic innovation

**Policy Option 5:** To establish public-private partnership to implement green management innovation, where government and businesses or businesses to businesses cooperation is possible to substitute product sales with service delivery

**Policy Option 6:** Sustainable urban development needs to be decoupled from space occupation and land consumption and to be turned from outward expanding cities into intensive compact ones

### Strategy 3: Green Urban Transformation should Develop the Service Economy Based on Material Goods and on Ecological Functions

**Policy Option 7:** To develop human labor-based service economy, where the services are provided by individuals or organizations with no or less physical product intervention

**Policy Option 8:** To develop the service economy based on material goods and services can also be realized or shared through lease, loaning, third-party payments or other means

**Policy Option 9:** Services provided by economic systems and by natural system should both be concerned about

## Low-Carbon City

### Strategy 1: To Develop a Comprehensive Low-Carbon Urban Development Planning

**Policy Option 1:** To introduce laws and regulations for low-carbon urban development as legal protection

**Policy Option 2:** To prepare urban greenhouse gas emissions inventory and develop a reasonable medium and long term greenhouse gas emission reduction target according to the development trend of urban population, economy and technology

**Policy Option 3:** Preparing a comprehensive low-carbon urban development planning and proposing a low-carbon development goal and approach for urban land use, energy, construction, transportation, water system, waste disposal and other areas aiming at emission reduction

### Strategy 2: To Provide Policy Support for Low-Carbon Energy, Construction and Transportation and Encourage Low-Carbon Technology Innovation

**Policy Option 4:** Introducing renewable energy feed-in tariff, renewable energy surcharge and renewable energy industry chain tax preference, providing economic incentives in the early stages of renewable energy development

**Policy Option 5:** To improve building energy efficiency standards, speed up energy-saving reconstruction of buildings and promote energy performance contracting and other energy saving benefits sharing mechanism

**Policy Option 6:** Adhering to urban transport development strategy with bus priority and establishing urban public transport network and intercity transport network with high accessibility

## Low-Carbon City

### Strategy 3: Exerting the Role of Market Mechanism and Strengthening Demand Side Management of Urban Energy, Transportation and Construction

**Policy Option 7:** Establishing carbon emissions trading, energy conservation trading and other market mechanism of energy saving and emission reduction, optimizing the allocation of urban energy and carbon resources

**Policy Option 8:** Implementing cascade electricity price, TOU, cascade water price and other resources, energy price policies to guide the energy saving behavior of end-users

**Policy Option 9:** Guiding lightweight, low-emission consumption for private cars, encouraging the consumption of electric vehicles and exploring new transportation mode of households' stock vehicle

## Resilient City

### Strategy 1: Establishing Development Strategy for Resilient City Construction

**Policy Option 1:** Development planning and decision-making in various fields and sectors should consider possible medium and long term risks due to climate change

**Policy Option 2:** Developing specific adaptation strategies for key areas and key groups

**Policy Option 3:** Promoting resilient city construction through various policy instruments and combination of instruments

### Strategy 2: Research and Development of Toolkit Suitable for Local Characteristics

**Policy Option 4:** Research, development and application of risk assessment tools adapted to local characteristics

**Policy Option 5:** Toolkits should be used in conjunction with Internet technology

**Policy Option 6:** Results of the risk assessment should be open to social institutions and the public in time

### Strategy 3: Promoting Public Participation and Strengthening Multi-Stakeholder Cooperation

**Policy Option 7:** Forming mutual understanding of common interest among various stakeholders affected by climate change

**Policy Option 8:** Establishing online and offline partnership among the government, businesses and NGOs

**Policy Option 9:** Achieving multi-stakeholder cooperation in key areas such as electricity, transportation and housing

## NIMBY Campaign and Environmental Management

### Strategy 1: Transparency of Information

**Policy Option 1:** Ensuring open and transparent information before, during and after project operation

**Policy Option 2:** Disclosure of potential environmental benefits and existing environmental risks of projects

**Policy Option 3:** Timely release of the environmental assessment report, and ensuring objectiveness and neutrality

## NIMBY Campaign and Environmental Management

### Strategy 2: Public Participation, Positive Advocacy and Closer Relationship

**Policy Option 4:** Giving chance for stakeholders to fully express interest demands and identifying the interest demands of different stakeholders

**Policy Option 5:** Allowing the public to enter the site for visit or supervision in the absence of physical security threats

**Policy Option 6:** Mobilizing experts and scholars to popularize scientific knowledge on relevant facilities and form an independent supervision group

### Strategy 3: Improving Legal and Tax Policies and Establishing Diversified Ecological Compensation Mechanism

**Policy Option 7:** Improving environmental regulatory laws, making full use of fiscal policy to guide corporate and individual behavior

**Policy Option 8:** Setting up environmental protection police, fighting against environmental rogue and establishing public dispute resolution

**Policy Option 9:** Using monetary and non-monetary ecological compensation to compensate for the damaged stakeholders

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# Chapter 5

## Cultural Heritage and Creative Cities



## To Foster an Open and Sharing Multicultural Society

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Cities should endeavor to protect tangible and intangible cultural heritage and encourage the development of multicultural Society. Like the ocean that embraces all rivers, cities should keep an open spirit and actively engage in intercultural exchanges and interactions. Cities should pursue cultural innovation based on respect for cultural traditions and the preservation of cultural diversity, so as to generate lasting momentum for urban and human development.

—Excerpted from *Shanghai Declaration*

## Introduction\*

Culture is the set of distinctive spiritual, material, intellectual and emotional features of society or a social group.<sup>1</sup> Aside from literature and arts, culture also represents lifestyles, forms of social conduct, value system, tradition, beliefs, etc. Culture determines the identity of a person and shapes personalities. It is a means of promoting mutual respect and tolerance, a channel for inclusion and understanding and a way to create job opportunities and better life. Respect for culture and cultural diversity contributes to the protection of human heritage, enhancement of creativity, promotion of cultural communication and advancement of social progress and the comprehensive development of human beings.

Culture is a value system, comprises a wide range of cultural aspects such as lifestyles, values, and forms of social conduct. Culture is a basic component of human development, a source of identity, innovation and creativity of individuals and communities, and a key factor for promoting social inclusion and alleviating poverty. In addition to respect for cultural diversity, intercultural dialogues should also be promoted. As pointed out by Secretary General of the United Nations Ban Ki-moon at the ‘Culture Forum’ of the *Jiefang Daily* Group on November 1<sup>st</sup>, 2010, ‘cultures are not insular constructs; they are themselves the products of exchanges and cross-pollination, sometimes over the course of centuries’. Encouraging cross-cultural communication and ‘cross-pollination’ contributes to the formulation of common ground, which would provide the opportunities to resolve differences and achieve integration. However, this integration is not intended to change the culture and lifestyle of a certain ethnicity but to advance the further integration of common goals and values. With mutual understanding and trust, social cohesion will be strengthened, and common value will be formed, this will found the base for shared responsibility in the face of great challenges.

Culture is key to sustainable development. In May 2013, UNESCO issued the *Hangzhou Declaration* in Hangzhou, China, at the international congress ‘Culture: Key to Sustainable Development’ and appealed to various countries in the world to place culture at the heart of their sustainable development policies; moreover, the two documents *Resolutions on Culture and Development* adopted by the General

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\* Chapter 5 is compiled by the team of Shanghai Library, authors: Wu Jianzhong, Chen Chao, Yang Rongbin, Zeng Yuan, Shi Wen, Hua Ziyi, Lu Ying.

<sup>1</sup> Universal Declaration on Cultural Diversity[EB/OL]. (2001-11-02) [2016-04-15]. [http://portal.unesco.org/en/ev.php-URL\\_ID=13179&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=13179&URL_DO=DO_TOPIC&URL_SECTION=201.html).

Assembly in December 2014 as well as *Transforming Our World: The 2030 Agenda for Sustainable Development*, adopted by the General Assembly at the United Nations summit in September 2015, pointed out that culture is both a driver and enabler of sustainable development. Cultural assets such as cultural heritage, the cultural and creative industries, cultural infrastructure are all sources of income and job creation, able to boost quality of life and promote economic growth, and also able to promote individual growths and widen their choices. In view of inclusive social development, which benefits all, culture is the starting point of fostering respect for cultural diversity and implementing cultural and natural conservation. As to the sustainable development of the environment, the knowledge system concerning environmental protection and resource management can be derived from traditional culture, which can provide insights into enhancing the sustainability of the ecosystem, the protection and sustainable utilization of biodiversity, and the mitigation of land degradation and climate change.<sup>1</sup>

## Problems and Challenges

### 1. More and More Cities are Facing Problems Arisen from Sustainable Development

Over the past decades, rapid urbanization and comprehensive globalization have brought about profound changes to the world. Population increase and economic growth in the world have mostly taken place in cities, which have become the centers of development. According to the *World Migration Report 2015* issued by the International Organization for Migration (IOM), in 2014, more than 54% of the world's population lives in cities; the urban population has reached 3.9 billion, and it is estimated that the reach about 6.4 billion by 2050.<sup>2</sup>

While cities have become the center of development opportunities, they've also become the focal point of contradictions and conflicts. Lack of land and water resource, overworn by excessive energy consumption, cities today are constantly under huge environmental and ecological challenges, for instance, poor air quality, insufficient natural vegetation coverage and rapidly decreasing biodiversity. To make it worse, urban planning has been strongly oriented towards

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<sup>1</sup> UN. The Resolution A/RES/70/214 on Culture and Sustainable Development [EB/OL]. (2016-02-26) [2016-04-15]. [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/RES/70/214](http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/214).

<sup>2</sup> International Organization for Migration. World Migration Report 2015: Migrant and Cities, New Partnerships to Manage Mobility [EB/OL]. (201510-18) [2016-05-15]. [http://publications.iom.int/system/files/wmr2015\\_en.pdf](http://publications.iom.int/system/files/wmr2015_en.pdf).



economic development, leaving most cities falling short of a touch of humanity. As a result, instead of being livable places, cities have become the carriers of economic development, losing their cultural characteristics along the way. Moreover, the urban economy has become more and more affected by that of the globe, consequently further increasing wealth gap and social divide. Many cities have become overcrowded, with the constraints of living space on one hand, and constantly subject to traffic congestion on the other. Therefore, cities around the world are facing huge governing challenges, for instance, infrastructure and public services are in short supply, international and internal migrations are rapidly increasing, the mobility of population is accelerating and new social media has prompted widespread information distribution, leading to the ever increasing power of civil mobilization.

The rapid development of cities (especially unplanned expansion), has not only increased the vulnerability of cities and aggravated the negative the impact we've inflicted upon the ecosystem, but has also dehumanized cities in terms of the diminished sense of belonging. The sprawl of urban infrastructures, uncontrolled industrial development and urban densification are all destructing cities' heritage, causing them to lose their unique identities. As the centers of migration, cities are experiencing ever increasing cultural diversity, yet meanwhile new challenges threatening social cohesion have also emerged. The wealth produced by urban growth has been unequally distributed, endangering the historical role taken by cities as melting pots and catalysts for the intercultural dialogues.

## 2. Culture as the New Approach to Urban Solutions

In the face of such urban development problems as population growth environmental degradation, frequent disasters, climate change and inequality, which have become increasingly evident, it is urgent for city managers to seek new ways and solutions so as to reflect the progress of mankind from a broader perspective, to emphasize harmony between people and nature, people and society, and among people, and to promote the equality, dignity and well-being of people and the sustainable development of cities.

Urban managers should regard culture as a key resource and asset of urban sustainable development. As a value system and resource, culture presents a new solution for urban development problems. As initiatives of people-orientation and adjusted measures to local conditions are included in urban development plans, culture has showed its important role in facilitating sustainable development in

its true sense. Development policies complying with the status quo of culture can produce better, more sustainable, inclusive and fair development achievements. Cultural heritage conservation, the development of the cultural and creative industry and multicultural inclusion are the core issues facing urban managers during the promotion of cultural development.

### 2.1 Cultural Inheritance and Heritage Conservation

Against the backdrop of globalization, global large-scale migration and urbanization, the inheritance and protection of cultural heritage is no longer confined to single protection (e.g. the protection of a certain building group); instead, it tends to include tangible and intangible cultural heritages, the environment of which they are a part, as well as the subjects of inheritance and protection, i.e. people and communities.

In 2011, *Recommendation on Historic Urban Landscape*, adopted by the General Conference at its 36<sup>th</sup> session (Paris), officially introduced the idea of ‘Historic Urban Landscape’, which could be applied to the aforesaid concept and will hereafter be adopted in this paper. As defined by the *Recommendation*, the historic urban landscape is the urban area understood as the result of a historic layering of cultural and natural values and attributes, extending beyond the notion of ‘historic centre’ or ‘ensemble’ to include the broader urban context and its geographical setting. This wider context includes notably the site’s topography, geomorphology, hydrology



Figure 5.1 World Heritage in Rome, Italy

and natural features, its built environment, both historic and contemporary, its infrastructures above and below ground, its open spaces and gardens, its land use patterns and spatial organization, perceptions and visual relationships, as well as all other elements of the urban structure. It also includes social and cultural practices and values, economic processes and the intangible dimensions of heritage as related to diversity and identity<sup>1</sup>.

The heritage conservation is with two historic layers of urban development, containing the existing environment (including historical sites and built environment) on one hand, and the necessary contemporary urban development (including infrastructures and land use) on the other, it is integrated with natural (e.g. biodiversity), social (e.g. multicultural), cultural (inherited lifestyle and values) and economic (necessary economic development) factors, hence force bringing forward ‘the basis for a comprehensive and integrated approach for the identification, assessment, conservation and management of historic urban landscapes within an overall sustainable development framework’ Heritage conservation<sup>2</sup>.

But the pressures from the external environment, ( for instance, the advancing of globalization, climate change and armed conflicts) brings the challenges to urban heritage conservation in contemporary context.

**(1) Conflicts between Urbanization and Heritage Conservation.** Rapid Urbanization, with excessive land use consequently, has encroached upon the space necessary for the preservation and conservation of urban heritage. It is predicted that, by 2050, the world’s urban population will increase from 50% to 70%, of which 90% will be in developing countries<sup>3</sup>. In order to provide the ever-increasing population with places for living, working, studying and leisure, it should be ensured that the planning and design of land use shall not be carried out at the expense of the historic character of the town or urban area, which could be expressed in its ‘urban patterns as defined by lots and streets’, ‘relationships between buildings and green open spaces’, ‘the formal appearance, interior and exterior, of buildings as defined by scale, size, style, construction, materials, colour and decoration’, ‘the relationship between the town or urban area and its surrounding settings, both natural and man-made’, and ‘the various functions that

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<sup>1</sup>2 UNESCO. Recommendation on the Historic Urban Landscape[EB/OL]. (2011-11-10) [2016-05-19]. [http://portal.unesco.org/en/ev.php-URL\\_ID=48857&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=48857&URL_DO=DO_TOPIC&URL_SECTION=201.html).

<sup>3</sup> UNESCO. Post-2015 Dialogues on Culture and Development[EB/OL]. (2015-03-25) [2016-04-08]. <http://unesdoc.unesco.org/images/0023/002322/232266e.pdf>.

the town or urban area has acquired over time<sup>1</sup>. These principles have raised great challenges for urban planning, land use as well for residential and commercial developments. Indeed, there can be seen all over the world projects that are not properly planned, restricted or supervised, resulting in either incompatibility, in appearance or function, between new projects and urban heritage, or irrevocable damage or demolition suffered by cultural heritage.

As there are still a large number of local inhabitants living in many historic urban areas, the demands for modern lifestyle and heritage conservation have come into conflict. On one hand, improving quality of life requires incremental modernization of infrastructures (e.g. heating and cooling, water supply and drainage, transportation, etc.). Yet, due to the conservation principles and lack of technical capacity, historic urban areas often fail to provide residents with basic necessities of modern life, leading to poor living conditions inaccessibility to public services. On the other hand, damage to historic urban areas caused by residents in daily life, such as that caused by motor vehicle emissions, domestic waste and improper wastewater treatment, accelerates internally the degradation and destruction of historic buildings, and the external installation of appliances (e.g. air conditioners, antennae) spoils the overall beauty of historic urban areas. What's more, it also reduces the authenticity of historic urban areas<sup>2</sup>.

The conflict between urbanization and heritage conservation is in need of cultural shift. Especially in some developing countries, many still regard that conservation is incompatible with development, which is seen as a representation of change and reform. People measure the cost and benefit of heritage conservation only from the economic perspective, while failing to assign due aesthetic, historical and cultural value and social benefits to heritage conservation. As a result, cultural heritage in historic urban areas, more often than not, has become the victims of urban and economic development.

**(2) Negative Influence of Heritage Tourism.** As more governments explore the economic potential of tourism, heritage tourism has received increasing attention throughout the world. However, despite of the income and job opportunities brought by a large influx of tourists to local areas, it has also exerted negative social and cultural impacts on the local heritage. These negative impacts

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<sup>1</sup> ICOMOS. Charter for the Conservation of Historic Towns and Urban Areas (Washington Charter 1987) [EB/OL]. (1987-12-15) [2016-05-20]. [http://www.icomos.org/charters/towns\\_e.pdf](http://www.icomos.org/charters/towns_e.pdf).

<sup>2</sup> Dallen J. Timothy. *Cultural Heritage and Tourism an Introduction*, Chinese Version Translated by Sun Yehong. Beijing: China Travel & Tourism Press, 2014.

can be summarized into conflicts between residents and tourists in addition to those between tourist destinations and the tourism industry, which are mostly reflected in the following five aspects<sup>1</sup>.

First, the conflicts brought by the sharing of social space between residents and tourists. When a large number of tourists surge into a historic urban area within a short period of time, such problems as traffic congestion, overcrowding and disordered queuing will arise. Moreover, the overcrowding might as well extend to public spaces such as restaurants, supermarkets, laundries and post offices, etc.

Second, cultural change. The long-term exposure of local residents to the values, behaviors and even social customs brought by tourists is likely to incur an insidious process of cultural assimilation, or ‘acculturation’, which, especially with respect to the youths, may well lead to the disruption of local cultural inheritance.

Third, culture commercialization. The consumer demand of tourists for tourism and cultural souvenirs impels local tourism industry to produce and cultural products that could express local heritage. However, cultural products nowadays are neither derived from social customs, nor crafted by experience local craftsmen. Instead, cheap, roughly-crafted and inferior handicrafts are mass-produced in order to meet the taste and expectations of tourists. Heritage tourism is no longer a cultural means of promoting local economy, but has become a tool to aim for profits, killing the uniqueness of urban culture and tradition along the way.

Fourth, culture theft. Cultural theft has two forms. One of them is the theft of cultural relics, then traded illegally in the black market. The other is the abuse of living culture, which means that a certain culture is misinterpreted and misused, so much so that the inheritors of the culture have essentially lost the ownership of the culture along with the autonomy to interpret it.

Fifth, forced displacement. There are generally two forms of forced displacement. First, in light of the need for tourism development, the government compels the local inhabitants to move away through its administrative authority. Second, the phenomenon of gentrification. As the government attaches importance to historic urban areas, followed by developers and investors who have recognized their potentials, the housing prices and living costs tend to rise accordingly, and continually. Consequently, the area is no longer affordable for the local inhabitants, while the wealthier are attracted to this area due to its prosperity and convenience. When the local inhabitants are forced to part with the living space they’ve inherited

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<sup>1</sup> Dallen J. Timothy. *Cultural Heritage and Tourism an Introduction*, Chinese Version Translated by Sun Yehong. Beijing: China Travel & Tourism Press, 2014.

for generations, the inheritance of the symbolic meaning embedded in the space, and of the cultural memory and identity rooted in the daily lives of ordinary people, will be disrupted or even drawn to an end. Thus, the so-called ‘heritage conservation’ will be reduced to the mere preservation of the outer forms of buildings and sites, void of their connotations of ‘culture’ and ‘inheritance’ along which they carry.

**(3) Physical and Emotional Strikes Under Armed Conflicts.** As regional and racial armed conflicts increased in recent years, cultural heritage tends to become targets for attack. Violent extremist groups aim at symbolic cultural heritage in particular and attempt to destroy the enemy’s cultural carriers and cut off its racial bond, making the support of its religious beliefs no longer in existence. Under the threat of armed conflicts, infringements of cultural heritage are mainly reflected in four aspects<sup>1</sup>. First, deliberate attacks on cultural heritage to destroy national morale and cultural bonds. Second, indirect damage to cultural heritage; for example, historic buildings are heavily damaged in a rain of bullets, hence some parts of the buildings are removed for other use. Third, the neglect of management and conservation due to wars and conflicts; this is probably because the heritage in question is located in military places of importance and are thus inaccessible, or that the government, exhausted by wars, has no manpower or resources to support conservation and restoration. Fourth, organized and premeditated plunder, illegal digging or trafficking.

The systematic and deliberate destruction of cultural heritage and cultural diversity is called ‘cultural cleansing’<sup>2</sup> by Ms. Bokova, Director-General of UNESCO. Cultural cleansing causes serious psychological trauma to the nation attacked, and if not stopped in time, or if reconstruction and restoration are not carried out promptly, the nation, whose people’s cultural identity and sense of belonging have undergone serious attack, might never be brought back to its former glory. If the situation is left unattended, the cultural diversity will be gradually lost and it will be more difficult for the refugees to return to their homeland and reconnect with their lost cultural roots.

Apart from the above challenges, insufficient funds, a shortage of comprehensive

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<sup>1</sup> UNESCO. Strategy for Reinforcing UNESCO’s Action for the Protection of Culture and the Promotion of Cultural Pluralism in the Event of Armed Conflict[EB/OL]. (2015-11-18) [2016-05-20]. [http://en.unesco.org/system/files/unesco\\_clt\\_strategy\\_en.pdf](http://en.unesco.org/system/files/unesco_clt_strategy_en.pdf).

<sup>2</sup> UNESCOPRESS. Irina Bokova, Director-general of UNESCO, Send Out a Flash appeal to Protect the Cultural Diversity in Iraq[EB/OL]. (2014.11.08) [2016-04-16]. [http://www.unesco.org/new/zh/unesco/about-us/who-we-are/director-general/singleview-dg/news/irina\\_bokova\\_calls\\_for\\_immediate\\_protection\\_of\\_the\\_cultural\\_diversity\\_of\\_iraq/#.V0QC\\_yHSnAQ](http://www.unesco.org/new/zh/unesco/about-us/who-we-are/director-general/singleview-dg/news/irina_bokova_calls_for_immediate_protection_of_the_cultural_diversity_of_iraq/#.V0QC_yHSnAQ).

management of heritage, and improper conservation strategies are also common issues faced by many countries.

## 2.2 Cultural Creativity and a City's Soft Power

**(1) Cultural Creativity as Important Approach to Realize Urban Sustainable Development.** On December 20<sup>th</sup>, 2013, the 3<sup>rd</sup> *UN Resolution on Culture and Sustainable Development* of UNESCO explicitly pointed out that ‘culture contributes to the development of an inclusive economy’. The emergence of such concepts as ‘cultural industry’, ‘content industry’, ‘copyright industry’ and ‘creative industry’, and the official definition of ‘cultural and creative industry’ in UNESCO’s *Creative Economy Report* published in 2013 indicate that culture continuously crosses borders, expanding and influencing all aspects of economic, technical and social development. Meanwhile, cultural creativity has become a key element of the internal innovation system of a city, and it plays an important role in urban sustainable development.

Cultural creativity is an important means of increasing job opportunities and improving people’s livelihood. Investment in vibrant cultural creativity sectors can not only alleviate poverty efficiently and create great economic value, but also contribute to the improvement of a city’s soft power as it constructs a good urban atmosphere.

- The Development of the Cultural and Creative Industry

The development of the cultural and creative industry is conducive to the building of a powerful and vital economic sector through income creation and decent employment. According to the *Cultural Times* issued by UNESCO, the global cultural and creative industry created a total income of USD 2.25 trillion in 2013, accounting for 3% of world GDP, and also created 29.5 million jobs<sup>1</sup>.

The informal economy of cultural and creative sectors, i.e. ‘the legal or illegal market-based provision of products and services excluded in the official GDP statistics’<sup>2</sup>, has also been an important source of job creation. In 2013, the informal cultural and creative industry in emerging countries created an income of USD 33 billion and provided jobs for 1.2 million people. Especially in the field of the performing arts, street performances, festivals and event performances and private shows offer many job opportunities.

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<sup>1</sup> Ernst and Young. *Cultural Times—The First Global Map of Cultural and Creative Industries*[EB/OL]. (2015-12-03) [2016-05-20]. [http://www.ey.com/Publication/vwLUAssets/ey-cultural-times-2015/\\$FILE/ey-cultural-times-2015.pdf](http://www.ey.com/Publication/vwLUAssets/ey-cultural-times-2015/$FILE/ey-cultural-times-2015.pdf).

<sup>2</sup> UNESCO. *Creative Economy Report 2013 special edition*[EB/OL]. (2013-05-15) [2016-04-05]. <http://www.unesco.org/culture/pdf/creative-economy-report-2013.pdf>.

The cultural and creative industry indirectly drives the sustainable development of tourism and even produces the concept of ‘creative tourism’<sup>1</sup> which changes the traditional pattern of tourism. As creative tourism attaches importance to cultural elements, it avoids the plunder of natural and cultural heritages to obtain immediate interests to certain extent.

- Creation of a Cultural and Creative Milieu

The cultural and creative industry is largely dependent on urban space and this is why it can give great impetus to the renewal and transformation of urban space. Various types of cultural creative space including cultural relics and such infrastructure as museums, creative industry parks and creative clusters are carriers of cultural creativity; they provide sites for citizens to communicate and interact, resolve violence, enhance community cohesion and produce positive effects on the quality.

Urban renewal projects based on culture, such as the Guggenheim Museum Bilbao in Spain, are similar to the development of a completely new ‘city brand’. These flagship projects usually greatly enhance cultural characteristics, image and reputation of a city.

Charles Landry calls the indefinable attraction of these spaces and infrastructure the ‘creative milieu’, including all the ‘soft’ and ‘hard’ facilities<sup>2</sup> that can stimulate continuous flows of creation. Being a creative milieu brings vitality and fun to a city, making it easier for that city to attract more and more talents of cultural and creative sectors. This fundamentally builds the soft power of a city.

## (2) To Promote Cultural Creativity from a Comprehensive Perspective.

Although governments at all levels realize the role of culture in a city’s economic, social and environmental sustainability, in many cases culture is still treated in ways based on fields or industries, while comprehensive development perspectives and measures are absent.

From a macroscopic perspective, the development of cultural creativity can not only bring economic benefits to a city, but also produce social benefits. All cultural practices and cultural participation can bring power to social groups (especially vulnerable groups on the margins of society), and help them integrate into local social life more naturally and even improve their well-being. The preparation of public

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<sup>1</sup> OECD. Tourism and the Creative Economy[EB/OL]. (2014-07-24) [2016-04-25]. [http://www.mlit.go.jp/kankocho/naratourismstatisticsweek/statistical/pdf/2014\\_Tourism\\_and\\_the\\_creative.pdf](http://www.mlit.go.jp/kankocho/naratourismstatisticsweek/statistical/pdf/2014_Tourism_and_the_creative.pdf).

<sup>2</sup> Landry C. *The Creative City: A Toolkit for Urban Innovators*. London: Earthscan, 2008.



policies from a cultural perspective is conducive to enhance the efficiency and effects of urban governance. However, in many places, cultural creativity is still regarded as an industry only, and the output value or amount of employment is used as the main indicator of the evaluation, of cultural and creative industry development, while ignoring the importance, exploration and excavation of its social value. Particularly, the creation of creative milieus has been neglected for a long time. A city should be regarded as a cultural ‘container’ and cultural creativity is like the air in the container which helps culture infiltrate into every aspects of economy, politics, culture, environment, and pluralistic society innovation.<sup>1</sup>

For cultural and creative industry, there are still controversies over the scope related to its industry definition and industry subdivisions. In April 2014, *A Manifesto for the Creative Economy* published by an independent creative foundation in the UK suggested that the UK Government should redefine the creative industry by simplifying the definition into ‘those sectors which specialize in the use of creative talent for commercial purposes’ and expanding classifications<sup>2</sup>. In fact, creative industry is experiencing trans-boundary expansion in developed countries. In 2013, the US Government proposed ‘to support the US manufacturing industry with industrial design.’<sup>3</sup> Almost at the same time, the European Commission issued the *Action Plan for Fashion and High-end Industries* in London, and proposed many measures to promote cooperation between the fashion and manufacturing industries.<sup>4</sup> With the rise of new industry revolution and technology revolution, the creative economy is increasingly influenced by powerful Internet and digital technology, and the business model is experiencing a profound revolution. This is the unavoidable challenge that urban managers have to face during the development of the cultural creative industry. In order to solve this problem, a trans-department, cross-cutting and interdisciplinary way of thinking must be adopted to formulate comprehensive policies to unite interested parties, thereby promoting the new development of the cultural creative industry in cities.

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<sup>1</sup> Landry C. *The Creative City: A Toolkit for Urban Innovators*. London: Earthscan, 2008.

<sup>2</sup> Bakhshi H, Hargreaves I, Mateos-Garcia J. *A Manifesto for the Creative Economy*[EB/OL]. (2013-04-01) [2016-05-19]. <http://www.nesta.org.uk/sites/default/files/a-manifesto-for-the-creative-economy-april13.pdf>.

<sup>3</sup> Kalil T, Slocum A. *Supporting American Manufacturing with Industrial Design*[EB/OL]. (2013-08-22) [2016-05-20]. <http://www.whitehouse.gov/blog/2013/08/22/supporting-american-manufacturing-industrial-design>.

<sup>4</sup> European Commission. *Action Plan for Fashion and High-end Industries*[EB/OL]. (2013-12-03) [2016-05-15]. [http://ec.europa.eu/growth/sectors/fashion/high-end-industries/eu-support/index\\_en.htm](http://ec.europa.eu/growth/sectors/fashion/high-end-industries/eu-support/index_en.htm). [http://europa.eu/rapid/press-release\\_MEMO-13-1079\\_en.pdf](http://europa.eu/rapid/press-release_MEMO-13-1079_en.pdf).

### **(3) To Highlight Characteristics of Cultural Creativity through Localization.**

Another problem in cultural creativity is homogenization. Like ‘creativity’ itself, cultural creativity does not have a single development mode universally applicable; instead, it should be multidimensional. Only when the cultural and creative industry is closely associated with native resources, can historic relics and local memories be sustainable. It has become a great challenge for the advancement of the cultural and creative industry to clarify urban cultural resources and find a path suitable for local development.

Lacking culture and creation characteristics, many cities take a development in the same key. Most urban managers generally refer to common industry patterns when formulating policies of creative economy, while ignoring the particularity of the cultural and creative industry. The most typical phenomenon is that different regions select almost the same key industry to develop, while ignoring local advantages and disadvantages. Many cities also ‘favor’ cultural and creative industry parks without considering local economic and social backgrounds. Meanwhile, creative operation business models are absent and the development of commercial real estate becomes a common choice. These ‘alienated’ creative industry parks destroy the local particularity.

### **(4) To Enhance Cultural and Creativity Skills in a Sustainable Manner.**

The development of cultural and creative industry has a special demand for skills which the existing business skills of many economic fields cannot satisfy. First, the demand for skills in the cultural and creative field is interdisciplinary and cross-cutting. Skills can be classified into two categories: The first is technical skills. This refers to artistic talents directly related to the development of cultural and creative industry. It is as broad as the cultural and creative industry, and difficult to define clearly. And the second category is business skills, i.e. entrepreneurship skills. This means one’s ability to solve the problems in cultural and creative industry in such aspects as financing, marketing, the building of relationship networks, and publicity. In fact, the cultural and creative field needs practitioners possessing both of the aforementioned skills, but those two categories of skills are sometimes contradictory, for example, some artists have prejudice and reservations about business operation skills.

The development of relevant skills in the cultural and creative field requires an attitude that keeps pace with the times. With the deepening of industry development, the intersection and integration of cultural creativity and the internet and new technologies are becoming increasingly prominent. Practitioners should

possess the ability to continuously learn in order to adapt to the constantly changing time.

The development of relevant skills in the cultural and creative field requires an attitude that keeps pace with the times. With the deepening of industry development, the intersection and integration of cultural creativity and the Internet and new technologies are becoming increasingly prominent. Practitioners should possess the ability to continuously learn in order to adapt to the constantly changing time. It is particularly true for many small and micro-enterprises and self-employed persons in cultural and creative industry. Great attention should be paid to their special skill set training modes. For example, in the design field, the old mode of apprenticeship should be retained and inherited.

### 2.3 Multiculturalism and Intercultural Dialogue

The convergence of cultures in cities has formed an urban landscape of multiculturalism and cultural diversity. Multiculturalism has created opportunities as well as carried with it certain risks. Different cultures collide with each other in relatively small urban spaces due to differences in their customs and cultural beliefs, hence conflicts have always been a potential risk. In most cases, the conflicts are reflected in the way people understand and manage cultural diversity.

**(1) The Immigration Wave and Multiculturalism.** According to the *World Migration Report 2015*, there are currently 232 million international immigrants and 740 million internal immigrants in the world<sup>1</sup>. In cities such as Sydney, London and New York, the number of immigrants exceeds one third of the total population. In Brussels and Dubai, the number of immigrants accounts for 62% and 83% of the total population respectively.

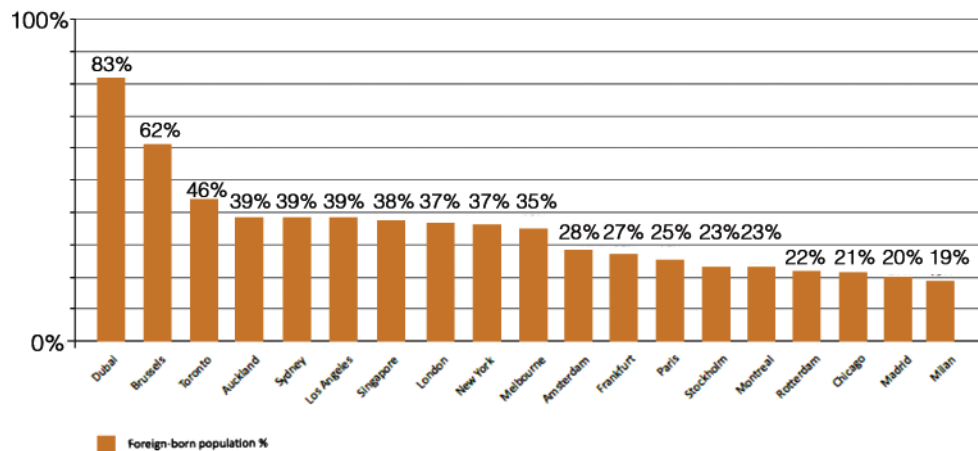
Urbanization and globalization have brought about an unprecedented immigration wave, which not only changes the population structure of cities but also exerts significant influence on urban culture, society, economy and security. As immigrants bring with them their own ethnicities, religions, communities, languages and identities, cities have now become converging centers of multiculturalism. However, as different cultures inevitably embody different traditional value systems, cultural norms and social codes, they are more often than not, even contradicting each other, the potential trigger of conflicts. Cities provide the ground for friction between cultures, inducing tense relations when it comes to identification.

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<sup>1</sup> International Organization for Migration. *World Migration Report 2015: Migrant and Cities, New Partnerships to Manage Mobility*[EB/OL]. (2015-10-18) [2016-05-15]. [http://publications.iom.int/system/files/wmr2015\\_en.pdf](http://publications.iom.int/system/files/wmr2015_en.pdf).

Multi-cultural conflicts are most distinct in developing countries. Many immigrants from less developed countries come to cities in order to seek more development opportunities. These immigrants have low incomes or are even unemployed. They live in slums, with scarce basic public services and poor sanitary conditions. Incidents of violence are frequent among this population. These factors combined have posed great challenges for city safety. Many incidents of violence caused by immigrants would in the end induce nativism and opposing actions from local residents, which in turn would intensify the conflicts among ethnicities and cultures. The incident of sexual assault on the New Year's Eve of 2016 in Cologne, Germany, attributed by many to an influx of immigrants, has led to a growing sense of nativism among the Germans.

Immigration and ethnic diversity have become a major feature of the urban landscape, yet, this phenomenon is also accompanied by inequality and segregation. There emerged in some cities of developed countries immigrant groups that are small in scale, less organized and legally differentiated, which are called 'super-diversity', who questions the validity of the existence of a sociocultural homogeneous 'majority society' as opposed to 'migrant others'.<sup>1</sup>



Source: International Organization for Migration (IOM), *World Migration Report 2015, Migrant and Cities: New partnerships: Manage Mobility*, 2015.

Figure 5.2 Proportion of Foreign-born Population in Major Cities

(2) **Globalization and Multiculturalism.** Globalization has not only promoted the convergence of urban immigrants and diversification of culture, but has also had profound influence on the evolution of urban multiculturalism *per se*.

Globalization has brought with it a process of cultural assimilation, including

<sup>1</sup> International Organization for Migration. World Migration Report 2015: Migrant and Cities, New Partnerships to Manage Mobility[EB/OL]. (2015-10-18) [2016-05-15]. [http://publications.iom.int/system/files/wmr2015\\_en.pdf](http://publications.iom.int/system/files/wmr2015_en.pdf).

cultural patterns, values, goals and lifestyles, a standardization of tastes as well as resemblance of cultural expressions. Due to the domination of western culture and consuming habits, which have been accepted by more and more people around the world, many traditional cultures have found it difficult to compete in an increasingly globalized environment, as a consequence, many traditional cultural patterns and expressions are either marginalized or on the verge of distinction. Therefore, cultural encroachment has become an issue of growing concern. In face of the impact of globalization, many regard their own ethnicity, religion, community, language, social identity and culture as some sort of ‘amulets’, and consider globalization and cultural change as threats to their lifestyle and standards of living<sup>1</sup>. Culture corrosion has become an issue worth urgent attention.

The impact globalization has made on multi-culture in cities is far reaching, the most direct impact of which is that it has stimulated the production and broadcasting of traditional cultural content. The flow of multiculturalism in cities and countries and the interactions and mutual influences among different cultures will produce new forms of cultural expressions and cultural diversity. The process of globalization has also greatly improved the cross-cultural skills of individuals and communities, enabling them to manage cultural diversity and monitor cultural evolution more efficiently. Therefore, globalization should be understood as a multi-dimensional cultural course which evolves synchronously in such fields as economy, society, science and technology, and culture.

**(3) Urbanization and Multiculturalism.** Urbanization is a microcosm of world development in recent decades. Rapid urbanization brings as many challenges as economic opportunities. The phenomenon of unplanned and uncontrolled expansion in many cities, does not only engender excessive energy consumption, but also result in constant damage to the ecological environment. Hence, cities have become increasingly vulnerable, susceptible to natural and manmade disasters. Cities are rife with modern buildings and skyscrapers, over-commercialized communities and streets, on the other hand, cultural facilities such as libraries, museums, and religious places are constantly being marginalized. Economy-oriented urban development focuses more on infrastructure-building while underestimating human social demands such as social and interpersonal communications. A lack of humanistic care of urban development makes cities no longer the spiritual homes of

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<sup>1</sup> UNESCO. UNESCO World Report: Investing in Cultural Diversity and Intercultural Dialogue[EB/OL]. (2009-10-31) [2016-04-15]. <http://unesdoc.unesco.org/images/0018/001847/184755e.pdf>.

humans.

In the drive of urbanization, a dilemma exists between the pursuit of traditional culture and that of modernization. The reconstruction of cities is an important means of urbanization. However, buildings and structures with histories and cultural memories have been pulled down and destroyed in the process of ‘modernized’ urbanization, during which process, many buildings and urban spaces, once full of ethnic features, formed by historical gathering of certain ethnic groups, have been turned into either homogeneous modern buildings and squares, or false historic buildings without any historical significance. The damage suffered by traditional cultural heritage has resulted in the loss and fragmentation of urban culture.

While transforming the rural areas, urbanization has also completely destroyed the foundation on which much of the traditional culture depends. For example, in Morocco, the irreversible course of urbanization in the Sahara Desert has resulted in the gradual disappearance of the nomadic lifestyle, disintegrating local handicrafts, poetry and other traditional nomadic cultures<sup>1</sup>.

**(4) The New Technological Revolution and Multiculturalism.** The rapid penetration of new technology into all aspects of society triggered by new technology revolution has not only affected the way cultures distribute and express themselves, but has also exerted great influence on multiculturalism and cultural diversity.

On one hand, the cultural forms that are technologically and discursively more advantageous—hence more dominant—are more likely to be accessed and accepted. Yet, for some minority groups, they are more likely to be suppressed and marginalized. In India, for example, the defenders of Kutiyattam art claim that they are not able to compete with mass media; in Jamaica, the traditional communication forms of drumming and Abeng (blowing a trumpet shell horn) have been almost replaced by mobile phones and email, which has also sabotaged the inheritance of traditional music; and Francophone African Cinema is trapped in crisis after enjoying 10 glorious years in the 1980s, the main reason of which is the popularity of satellite dish antennae and cheap movie discs<sup>2</sup>.

On the other hand, technology is able to break the constraints of time and space, enabling access to remote events, experiences and influences, which gives urban residents more opportunities to make contact with more cultural expressions, thus

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<sup>12</sup> UNESCO. UNESCO World Report: Investing in Cultural Diversity and Intercultural Dialogue[EB/OL]. (2009-10-31) [2016-04-15]. <http://unesdoc.unesco.org/images/0018/001847/184755e.pdf>.

strengthening the connections among cultural communities. At the same time, new technology has also generated new cultural forms and expressions. The digital culture, derived from the Internet technology and information and communication technology (ICT), has exercised considerable influence on cultural identity, forming among young people an ideology called ‘cosmopolitanism’. Moreover, technology has also empowered individuals and communities who were formerly socially marginalized due to their institutional and economic disadvantages. Yet, technology has helped them regain their discursive right and find a way and opportunity to publicly deliver their thoughts and attitudes.

## Vision and Action

Culture is a new way of resolving issues arisen from urban development. UNESCO, UN Habitat and UCLG have all advocated for a ‘Culturally sensitive approach’ to urban development. This approach points out that, culture, as an essential element during the process of urban planning, should be integrated with every aspect of sustainable development. The policies and measures regarding, say, a city’s image-building and brand-building, urban renewal, urban economic and industrial development, and social development, should all integrate within them cultural elements. The culturally sensitive development model requires urban planning to reflect the city’s multiculturalism. Social, cultural and ethnic diversity should be taken into consideration so as to form a development environment which is inclusive and suitable for different groups and communities and prevent urban planning from being predominated by mainstream culture. Meanwhile, efforts should be made to help cities to build more inclusive and cohesive communities through promoting social and cultural participation so as to realize re-humanizing and enhance the sense of belonging and cultural recognition of the cities.

### 1. Heritage Conservation with the Concept of Sustainable Development in Mind

In the face of the pressure brought by urbanization, and a lack of funding sources, professionals, a mechanism for cooperation and management ... along with such force majeure occurrences as natural disasters and armed conflicts, it is urgent to reach a balance under a common concept and framework for heritage conservation around the world in accordance with each nation’s particular conditions, culture,

resources so as to preserve and inherit their unique cultural memory for the citizens today and in the future.

Cultural heritage is not limited to historic centers, or building groups included in the heritage list, but an ensemble— ‘historical urban landscape’ —placed in the overall natural, social, cultural and economic context as well as the urban geographical space.

### 1.1 Cultural Heritage Conservation of Modern Cities

For heritage within the context of urbanism, here followed are some of the measures that could be taken under advisement<sup>1</sup>:

(1) Conduct a comprehensive assessment of the natural, cultural and humanistic resources of young city. Encourage the use of information and communication technology (ICT) to document, map and present the city’s natural and cultural features, the complex layering of urban areas and the status quo and evolution process in urban areas, so as to make evaluations of various proposals and improve the management process.

(2) Determine the goals and measures of cultural heritage conservation through participatory planning process and consultations with various stakeholders. Participatory planning process should include diverse stakeholders and empower them to form visions and goals that can reflect cultural diversity, thus helping to reach an agreement on the actions required by both heritage conservation and sustainable development.

(3) Assess the vulnerability of the urban heritages that you manage under the impact of social economic pressure and climate change. Take heritage assessment, social impact assessment and environmental impact assessment as the basis for your decision-making under the sustainable development framework.

(4) Include the value and vulnerability of urban heritage into the overall framework of urban development. The policies should give adequate considerations to the balance between short-term and long-term conservation and sustainable development. In particular, the contemporary approaches for conservation and intervention should be coordinated and integrated with the historical landscape and its texture.

(5) Establish partnerships. Strengthen international partnerships and participate

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<sup>1</sup> UNESCO World Heritage Centre. New Life for Historic Cities: the Historic Urban Landscape Approach Explained[EB/OL]. (2013-07-02) [2016-05-27]. <http://whc.unesco.org/uploads/news/documents/news-1026-1.pdf>. See also UNESCO. Recommendation on the Historic Urban Landscape[EB/OL]. (2011-11-10) [2016-05-19]. [http://portal.unesco.org/en/ev.php-URL\\_ID=48857&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201.html](http://portal.unesco.org/en/ev.php-URL_ID=48857&URL_DO=DO_TOPIC&URL_SECTION=201.html).

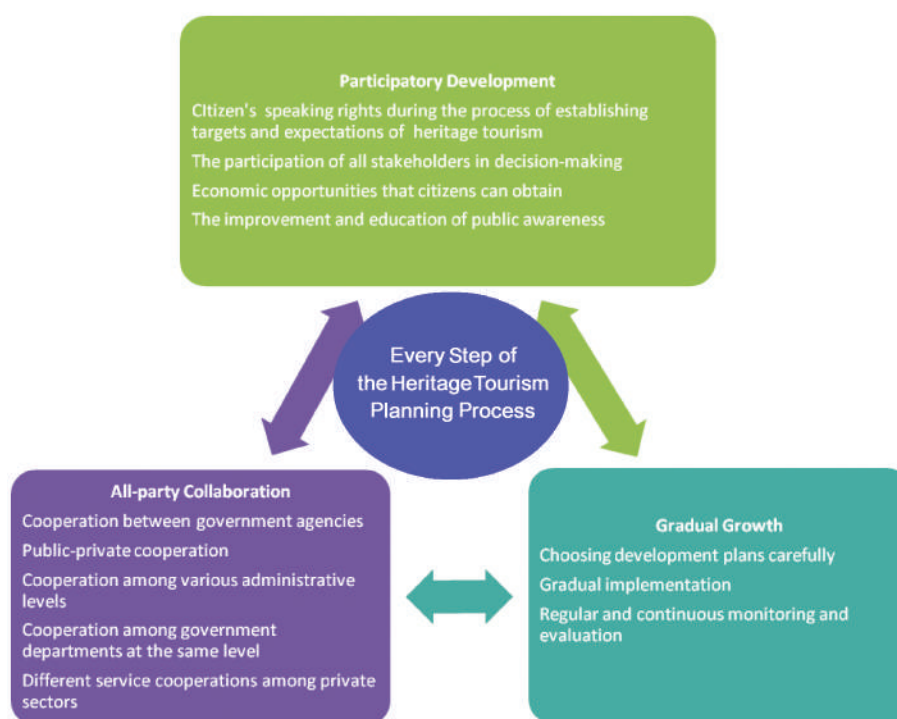


in the international network of knowledge sharing and capacity building; strengthen partnerships between and with government departments and agencies that are engaged in the work of heritage conservation, and build a coordination mechanism accordingly; strengthen public-private partnerships to include social resources and form a sustainable conservation mechanism.

(6) Financial tools should be employed to further support the capacity buildings of heritage conservation. Other than government funds and private investments, micro-credit and other flexible financing to support local enterprise, are all crucial to financially sustain the development of cultural heritage.

### 1.2 Balance the Economic Benefits with Social Benefits of Heritage Tourism

As for how to balance between economic benefits brought by heritage tourism and the preservation of local cultural ecology, Timothy's 'PIC Planning Model'<sup>1</sup> could be a good reference, and it is suggested that the three dimensions 'participatory', 'cooperation/collaboration' and 'incremental' should be into every step in the heritage tourism planning process.



Source: Singh, Shalini, Dallen J. Timothy, and Ross K. Dowling. *Tourism in Destination Communities*. First edition. Oxon, UK; Cambridge, MA: CABI, 2003.

Figure 5.3 PIC Planning Model

<sup>1</sup> Singh S, Timothy D J, Dowling R K. *Tourism in Destination Communities*. 1st ed. Oxon, UK: CABI, 2003.

The people-oriented participatory approach lies at the core of the sustaining and inheritance of cultural heritage conservation. Therefore, there are three aspects that we suggest to be taken in consideration when encouraging fuller participation in the course of heritage conservation: first, local residents and communities should be able to effectively participate in the development and planning process of heritage tourism, which should be based on the interests of, and be agreed upon by local residents and communities. Second, it should be understood that all residents, businessmen, local government representatives and civil organizations are all stakeholders when it comes to the development and planning for cultural heritage tourism (including such vulnerable groups as women, youths, and minorities). It is essential for all stakeholders to participate in the decision-making process. Third, the economic benefits associated with heritage tourism should benefit all communities as much as possible. Local residents should be encouraged to participate in the distribution of tourism revenue so as to enhance their awareness of and identification of cultural heritage.

The ‘incremental’ development emphasizes on phased goals, continuous monitoring and assessment as well as timely correction of errors. Traditional heritage tourism is planned by the government, who may lack sufficient knowledge of and adequate consideration for the physical environment. Once such planning is fully carried out, it is difficult to make any changes; hence it may cause an enormous waste of resources, or even destroy the cultural and ecological integrity, balance and effectiveness. Instead, the ‘incremental’ approach can reserve some room for unforeseen consequences or development projects that are not well-prepared (e.g. lacking cultural impact assessment, environmental impact assessment), or even allow the adjustment of the initial planning and modification of the goals if necessary.<sup>1</sup> Meanwhile, it is suggested that sufficient tourist management planning and project impact assessment be made before any development project receives approval to ensure that the heritage and the environment where it is located will have the capacity to accommodate a large influx of tourists.

As for collaboration, in addition to strengthening international and public-private partnerships mentioned above, in light of the fact that tourism involves government departments at various levels with various functions, cross-level and cross-functional government agencies and departments are bound to negotiate their

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<sup>1</sup> Dallen J. Timothy. *Cultural Heritage and Tourism an Introduction*, Chinese Version Translated by Sun Yehong. Beijing: China Travel & Tourism Press, 2014.

jurisdictions. Every city should think carefully concerning how to establish an effective management system and a coordination mechanism.

### 1.3 Heritage Conservation Threatened by Armed Conflicts

For cultural heritages threatened by armed conflicts, cities are advised to refer to the *Convention for the Protection of Cultural Property in the Event of Armed Conflict (The Hague Convention)* and the decisions adopted by the World Heritage Committee at its 39th session, which are selectively summarized as below:

In peace time, cultural heritage conservation should be focused on heritage inventory and emergency measures. Document and catalogue all heritages so as to prepare for the removal of movable cultural heritage, and determine the authority responsible for cultural heritage conservation. These measures are not only useful in the case of armed conflicts, but have also proved effective when facing natural disasters and they can even be an effective way to combat illegal trafficking of cultural heritages.

During armed conflicts, avoid the exposure of cultural heritage and their surroundings to any threat of damage and destruction, and make sure that military plans and training programs consider conservation and management requirements. Any hostile behaviors to the cultural heritage of the opposite side is strictly prohibited, including retaliation, any form of theft, looting, occupation or destruction, or illegal exporting, moving or transferring of cultural heritages.

After armed conflicts, first check and assess the damage that the cultural heritage has undertaken, document its status in detail and prioritize reconstruction and restoration based on analysis. The overseeing authorities should design a clear and detailed strategy for reconstruction and restoration, including anticipated costs, manpower and time. It should be noted that, for people who have undergone war trauma, the destruction of their cultural and spiritual symbols, civic engagement during the process of restoration is extremely important for rebuilding social cohesion, and to ‘renew their identity, regain a sense of dignity and normalcy’<sup>1</sup>.

## 2. Building a Creative City

In October 2004, UNESCO initiated and established the Creative City Network, and defined that a creative city should have two characteristics. First, it promotes social and economic development by developing cultural and creative industry; and

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<sup>1</sup> UNESCO. The Hangzhou Declaration: Placing Culture at the Heart of Sustainable Development Policies[EB/OL]. (2013-05-17) [2016-04-10]. <http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/CLT/images/FinalHangzhouDeclaration20130517.pdf>.

second, it creates a healthy city environment by connecting the different cultural communities in its society. The Network aims to achieve the common pursuit of cultural diversity and urban sustainable development through cooperation among creative cities. Looking back, two scholars triggered a global discussion on creative city: Richard Florida carried out an empirical study of the rise of America's creative class<sup>1</sup>, and Charles Landry expounded comprehensively the effects of culture on the creative development of cities<sup>2</sup>. To synthesize the ideas of the two, the manual maintains that for each city manager, building a creative city means gathering all the stakeholders in a more culturally sensitive manner to pay attention to their cultural pursuit and share their cultural creativity so as to make joint efforts to imbed cultural-led redevelopment into the texture of the city and blend cultural and creative atmosphere into city life so as to create decent jobs, narrow the gap between the rich and poor and inspire the vitality of the communities and improve the city's quality of life and culture image as a result.

### 2.1 A Policy Framework Based on Culture

City managers should formulate a relevant urban policy framework with culture as the driver, thus rendering cultural creativity the key element in the urban economic and social development plan. A policy framework based on culture means culture is the core of the sustainable development policy, which refers to formulating a trans-departmental and interdisciplinary driving mechanism, taking cultural creativity into consideration in all aspects of urban governance, economic development and social issues, and even making cultural creativity as a mainstream in local economic and social development plan.

Under such a policy framework, cultural creativity should match with the function of urban development. It is reflected on the spatial carrier of the city, and the city managers can set about from the 'visible' part to make the city a place in favor of breeding cultural creativity. For example, such cultural infrastructure as museums should first become the most basic 'cultural creative hot spots' for citizens; in such public spaces, dialogues between different cultures and knowledge-sharing can be realized, the flow of creativity promoted, a cultural atmosphere formed, and the cohesion of society strengthened.

The local government can plan the space as a whole to use and build a network to promote the collision of creativity and breed creativity. An industry cluster can be the superincumbent planned outcome that matches with and fits into the context of

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<sup>1</sup> Florida, R. *The Rise of the Creative Class*. New York: Basic Books. 2004.

<sup>2</sup> Landry, C. *The Creative City: A Toolkit for Urban Innovators*. London: Earthscan. 2008.

a city. In addition, in well-developed cities like New York, London and Shanghai, the emerging new types of incubators (e.g. ‘Maker Space’) and co-working spaces which offer entrepreneurs with offices and working equipment that can be rented for a short period; by gathering artists, creativity practitioners and technical research and development staffs, it is aimed at nudging the development of creative economy.

## 2.2 Identifying Local Cultural Resources

The key to cultural creativity development is to regard local culture as asset and respect the history, tradition and diversity of local culture.

Cultural assets have a wide coverage: people and practices, heritage and tradition, environment quality, commercial and tangible infrastructure, and local organizations and institutions.<sup>1</sup> On the basis of identifying these native cultural resources, different development strategies should be formulated according to different situations. For example, in some traditional cities, there are many cultural traditions that involve only ‘actions rather than saying’, including festivals, community customs and craftsmanship and many cultural legends that are passed down ‘from mouth to mouth’ instead of being recorded or officially published. We should first inherit them and explore actively the possibilities of the development of resources of the same kind.

Meanwhile, the cultural creative industry in most developing countries lacks statistical data, which results in the absence of grounds when development measures are made. Data collection for the cultural and creative industry is very difficult indeed. Adequate attention should be paid to the flexibility and diversity of informal cultural and creative industry. Cultural and creative resources lingering outside official monitoring and evaluation should be included into the analysis system. Directions should be made on this base to guide informal sectors to transform into informal economy.

## 2.3 Investment in Local Capacity Building

Capacity building concerning the cultural and creative field is reflected in three aspects. First, considerations should be given to special requirements for skills in the cultural and creative field. Efforts should be made to foster interdisciplinary technical talents in intercrossing and integrating fields. Attention should be paid to introducing training in information and communication technology and digital skills into culture and arts training. Second, the innovative entrepreneurial ability should be enhanced. Policy support should be provided for innovative enterprises, including incentive measures for

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<sup>1</sup> UNESCO. Creative Economy Report 2013 special edition[EB/OL]. (2013-05-15) [2016-04-05]. <http://www.unesco.org/culture/pdf/creative-economy-report-2013.pdf>.

investment, allowance for R & D, the incubation of middle and small-sized enterprises, copyright protection, etc. Especially in the long run, creative practitioners should be provided with key professional abilities of operation and marketing. For example, developing marketing strategies, negotiation abilities and cooperative relations. Third, it is necessary to build a network for decision makers to share knowledge so as to realize knowledge-sharing and cooperation among practitioners in relevant fields.<sup>1</sup>

### 3. Institutional Measures for Urban Multiculturalism

To maintain multiculturalism and cultural diversity is the footstone to build the world into a harmonious, diverse and plural place. City managers should adopt a more tolerant governance pattern so as to provide a beneficial environment for the contact between different cultures, to promote dialogues between different groups, turn the social challenges brought by multiculturalism into a driving force for democracy so as to enhance the cohesion of the city.

#### 3.1 Implementing City Planning Based on Multiculturalism

Cultural diversity has been a common characteristic of cities all over the world, and it is also a common challenge that city managers must face. Every city manager should acknowledge, accept and respect the multicultural characteristics of the city, regard multiculturalism as an important factor to influence city development, and introduce it into city planning and each policy. The Government of Frankfurt in Germany has taken multiculturalism as the developing concept of the city, and has issued the *Declaration of Frankfurt against Racism and Anti-Semitism* (2000), *Anti-discrimination Guidelines* (2003), *The Concept of Integration* (2011) and several other policies and guidelines that encourage tolerance in a multicultural society.<sup>2</sup>The Singaporean Government has made multi-ethnic harmony and cultural inclusion an important part of the city's value by issuing the *White Paper on Shared Values for Cities*.<sup>3</sup>

In city planning, we should accept and respect different languages, ways of living, family structures and social values in the city. Meanwhile, city planning should incorporate issues of concern to different cultures, ethnicities and groups. City planning based on multiculturalism should involve re-adjusting modes and standards

<sup>1</sup> UNESCO. Creative Economy Report 2013 special edition[EB/OL]. (2013-05-15) [2016-04-05]. <http://www.unesco.org/culture/pdf/creative-economy-report-2013.pdf>.

<sup>2</sup> Amt für multikulturelle Angelegenheiten. Integrations-und Diversitätsportal der Stadt Frankfurt am Main[EB/OL].[2016-04-25]. <http://www.vielfalt-bewegt-frankfurt.de/de>.

<sup>3</sup> R. Quinn Moore, 'Multiracialism and Meritocracy: Singapore's Approach to Race and Inequality', *Review of Social Economy*, 2000, Vol.58, No.3, pp.339-360.

of planning, with the reconsideration of how the planning principles will serve different groups.

City managers should also conduct regular investigations on status quo and existing problems of multiculturalism in the city, and regard them as the relevant policy decision-making basis of the promotion of multicultural development. The *Cultural for Development Indicators*<sup>1</sup> and the *2013 Creative Industry Report*<sup>2</sup> contain relevant indexes concerning the measuring of cultural diversity. The United Cities and Local Governments (UCLG) compiled an international guideline on sustainable development through a culturally sensitive approach, and how to intensify the global innovative city network. City managers can refer to these indexes when evaluating local multiculturalism.

### 3.2 The Government's Organizations and Decision-making should Consider the Composition background of Multiculturalism

The system of governance for culture in a city should be transparent, participatory and democratic, which aims to satisfy the cultural demands of the people. Therefore, decision-making process should manifest the rights and benefits of all members of society. Therefore, comprehensive considerations should be given to the composition of the multiculturalism, which is the premise of a completed democratic governance system.

City managers play multiple roles in the aspect of multiculturalism with such functions as maintaining the inclusion of multiculturalism and cultural diversity, enhancing dialogues and contact among different cultures, promoting various urban public policies involving multicultural concepts, encouraging cross-department cooperation, making sure that the government financial budget go to ethnic minorities and the protection of cultural spaces with ethnic features, organizing dialogues with different ethnic culture groups, folk organizations and associations, etc. The Frankfurt city government proposed that the multicultural integration policy shall be regarded as an important task of inter-departmental cooperation of the government, and established the Office for Multicultural Affairs (AMKA)<sup>3</sup> to maintain urban multiculturalism.

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<sup>1</sup> UNSECO. Culture for Development Indicators[EB/OL]. (2014-12-31) [2016-05-17]. [http://en.unesco.org/creativity/sites/creativity/files/cdis\\_methodology\\_manual\\_0.pdf](http://en.unesco.org/creativity/sites/creativity/files/cdis_methodology_manual_0.pdf). [http://en.unesco.org/creativity/sites/creativity/files/cdis\\_methodology\\_manual\\_0.pdf](http://en.unesco.org/creativity/sites/creativity/files/cdis_methodology_manual_0.pdf).

<sup>2</sup> UNSECO, Creative Economy Report 2013, <http://www.unesco.org/culture/pdf/creative-economy-report-2013.pdf>.

<sup>3</sup> Magistrat der Stadt Frankfurt am Main. Amt für multikulturelle Angelegenheiten[EB/OL].[2016-04-25]. [http://www.frankfurt.de/sixcms/detail.php?id=7017&\\_ffmpar\[\\_id\\_inhalt\]=102438](http://www.frankfurt.de/sixcms/detail.php?id=7017&_ffmpar[_id_inhalt]=102438).

Immigration plays a key role in city governance. It is one of the important tasks of city managers to ensure that immigrants are to become the contributors to urban inclusive growth and sustainable development, not the destroyers of urban social stability. City managers should not only help immigrants to settle down in the city and provide various jobs so that they can constantly improve their economic status through work, but also let them enjoy urban public services. In 2012, the Municipal Government of Seoul, Korea, made medical aid available to the immigrated worker groups without work visas or health insurance and their spouses and children.<sup>1</sup>The Frankfurt Government not only provides proper subsidies to immigrated poor groups, but also offers language courses, education and vocational trainings for different groups, and provides special subsidies or quotas for the children of immigrants to enter kindergartens and schools.<sup>2</sup>

### 3.3 To Protect Urban Ethnic Spaces and Rich Cultural Expressions of Ethnic Groups

Urban cultural relics and buildings and urban spaces with rich ethnic features are important embodiments of urban cultural richness and diversity and the carriers of urban residents' spiritual home. During the process of the development and renewal of a city, its managers should adopt development policies which integrate cultural concepts and respect cultural diversity, pay attention to the protection of urban cultural relics and ethnic spaces, play an active role in the inheritance of traditional culture and inter-cultural communication and understanding, and provide space carriers and creation sources for urban tourism and the cultural and creative industry.

In the meantime, city managers should also pay attention to the safeguarding of the intangible cultural heritage. In Particular, they should prevent the homogenizing tendency of cultural expression forms during globalization and urbanization, reduce the impact on urban multiculturalism and cultural diversity, and create more demonstration spaces and opportunities for ethnic minorities and non-mainstream culture.

Language is an important embodiment of multiculturalism and cultural diversity. Using multiple languages should be allowed to promote, protect and maintain linguistic diversity and cultural diversity. Meanwhile, we should try our best to maintain the environment for the use of multiple languages in the cities so as to

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<sup>1</sup> International Organization for Migration. World Migration Report 2015: Migrant and Cities, New Partnerships to Manage Mobility[EB/OL]. (2015-10-18) [2016-05-15]. [http://publications.iom.int/system/files/wmr2015\\_en.pdf](http://publications.iom.int/system/files/wmr2015_en.pdf).

<sup>2</sup> Magistrat der Stadt Frankfurt am Main, Dezernat für Integration, Amt für multikulturelle Angelegenheiten. Frankfurter Integrations-und Diversitätsmonitoring 2012[EB/OL]. (2012-08-23) [2016-04-25]. <http://www.frankfurt.de/sixcms/media.php/738/Frankfurter%20Integrations-%20und%20Diversit%C3%A4tsmonitoring%20%202012.pdf.pdf>.



facilitate the understanding among ethnic groups. For example, the Singaporean Government enforced bilingual education in schools.<sup>1</sup>In 2008, the mayor of New York City issued an executive order requiring every city agencies to provide language assistance in six foreign languages (other than English).<sup>2</sup>

### 3.4 To Construct Communication Platform for Dialogues Among Cultures

Intercultural dialogue is the basis and premise of boosting understanding among different cultures and promoting the harmonious coexistence of different cultures. City managers should take various measures to construct communication platform for dialogues among different ethnic groups and cultures.

Cultural facilities such as museums and galleries are important civic spaces to promote intercultural dialogue and social integration. City managers should place emphasis on the construction of civic spaces during the urban renewal and updating process, the organic combination of the functions and culture of buildings so as to create more opportunities for different ethnic groups to better understand each other. In addition, city managers should understand adequately the roles of such cultural expression forms as music, film and opera in facilitating ethnic minorities. City managers should also take full advantage of the important function of festivals in expressing traditional culture. Since 2003, Frankfurt has hosted the Frankfurt Multicultural Parade every year, providing every ethnic group living in the city with the opportunity to show their own cultural features. Singapore has listed the key festivals of every ethnic group and their religions as national holidays, which has shown respect to the cultural customs of different ethnic groups while deepening the understanding of different cultures among the citizens.

Emerging technologies have played an important role in boosting the dissemination of culture. City managers should actively make use of technology changes to create new demonstration platforms and opportunities for urban multi-culture while attaching importance to the influence of new cultural styles driven by emerging technologies on multi-culture and cultural diversity. For instance, such social media emerging in recent years allow various urban cultures to show themselves to the world, while at the same time giving rise to people's new culture patterns in the digital virtual word.

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<sup>1</sup> Lian, Kwen Fee(ed.). *Multiculturalism, Migration, and the Politics of Identity in Singapore*. Singapore: Springer, 2015.

<sup>2</sup> International Organization for Migration. *World Migration Report 2015: Migrant and Cities, New Partnerships to Manage Mobility*[EB/OL]. (2015-10-18) [2016-05-15]. [http://publications.iom.int/system/files/wmr2015\\_en.pdf](http://publications.iom.int/system/files/wmr2015_en.pdf).

## Reference Cases

### 1. Oaxaca, Mexico: Cultural Heritage Conservation in the Context of Urbanization

#### 1.1 Case Overview

Located in the south of Mexico, Oaxaca is a city which has seen convergence of many ethnicities and cultures. The architectural style and urban layout left from the Spanish colonial period of the 15<sup>th</sup> to the 16<sup>th</sup> centuries have endowed the city with unique historical value. Nowadays, the historic center of Oaxaca, as the local economic center, has also preserved its civic functions as well as its unique culture heritage. Meanwhile, the city also attracts large numbers of tourists, domestic and overseas, with its rich culinary culture and handicrafts. In 1987, the historic center of Oaxaca was included in the ‘World Heritage List’.

#### 1.2 Problems and Initiatives<sup>1</sup>

With the natural growth of urban population and immigration, plus the rapid development of commerce in the historic center, the development demand has inevitably come into conflict with heritage conservation in the historic center.

In order to dissolve the conflicts between heritage conservation and economic development, the government of Oaxaca has taken some effective measures, which have also earned the support from the public. First, the conservation of the historic center and its land use have been included in the municipal planning, thereby having obtained guarantee in terms of policies. In 1998, the city government of Oaxaca published *the Special Plan for the Conservation of the Historic center (Plan Parcial de Conservación del Centro Histórico de la Ciudad de Oaxaca)* which provided detailed planning and classification for the land use of the historic center, including residential use, commercial use, transit, offices and banks, public services, and other use. Because the *Special Plan* has guaranteed that the prevalent land use of the historic center is still residential (accounting for 44%), and 70% of the commercial land is mixed-use areas, which accommodate both commercial and residential use, plus with the support of facilities for education, medicine and health, culture and leisure, religion, and public spaces such as squares and parks, the

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<sup>1</sup> Quartesan A, Romis M. The Sustainability of Urban Heritage Preservation, the Case of Oaxaca de Juarez[EB/OL]. (2010-08-01) [2016-06-01]. <http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=35303038>. See also: Brulotte R L, Di Giovine M A. *Edible Identities: Food as Cultural Heritage*. Farnham, UK: Ashgate Publishing Group, 2014. Onda L. Brulotte and Michael A. Di Giovine. New edition Burlington, VT: Ashgate Pub Co, 2014.

historic center is able to maintain its dynamic and vibrant status by virtue of preserving its various civic functions. Based on the land use, the Plan also analyzed current issues concerning cultural heritage conservation and provided solutions.

Another big move of the government was to make direct investments in heritage conservation and the improvement of infrastructure and public spaces. The specific reconstruction and restoration projects that were covered by the investment include street pavements, sidewalks, underground pipelines (such as water pipelines, sewerage systems, cables and electrical conduits), and new streetlights and so on. Given that the built environment should match in style with the original settings, the new paving used hydraulic concrete cobblestones which look quite similar to the traditional stone paving. The rehabilitation programs were mainly carried out by the State Secretariat of Public Works along with the National Institute of Anthropology and History and the city government.

The long-term planning and direct investment by the government has initiated the rehabilitation and improvement of infrastructure in the historic center. More importantly, these actions showed the public the long-term commitment of the city government in heritage conservation. While setting priorities and basic rules for residents and potential investors, the government also provided the framework, confidence and guarantee for the private participation in the work of conservation. In 1994, only 30% of the 1,597 buildings on the preservation list in the historic center were deemed well preserved,



Figure 5.4 Santo Domingo of Oaxaca

while in 2010, the list extended to 8,676 buildings and those that were deemed well preserved reached 97.6%. The improvement has to be attributed to the increase of public and private funds during the last decade.

Apart from the conservation and rehabilitation of its tangible heritage, Oaxaca also has a rich and diverse culinary culture, which was included by the UNESCO ‘List of the Intangible Cultural Heritage of Humanity’ in 2010, and is a major attraction for both domestic and overseas visitors. Since tourism has been one of the three pillars of Oaxaca’s economy, the local government has made great efforts to promote its culinary culture and heritage tourism. In 2012, taking advantages of being included in the Intangible Cultural Heritage of Humanity List, the Mexico Ministry of Tourism (SECTUR) (belonging to the Federal Government) planned 18 culinary tourism routes in Mexico, and named the route in Oaxaca ‘Thousands Of Flavors Of Black Mole’ (Los mil sabores del mole). As for the state level, the State Ministry of Economy Development and Tourism (SEDETUR) also promoted local culinary culture by hosting gourmet festivals in various communities. In 2013, the federal government and the state government partnered with a local foundation in Oaxaca, and together raised thirty million pesos (more than 2 million dollars) to build a ‘Gourmet Center’ in the city of Oaxaca to promote the sustainable development of local tourism.

The historic center has preserved the necessary civic functions, and careful consideration has been given to balance the need of tourism development and that of the local residents and commerce. Central squares and public areas like Zócalo have provided a multi-functional place for religious gatherings, political activities, as well as for socialization and leisure.

### 1.3 Experience and Inspiration

The case study of Oaxaca has demonstrated that the key to cultural heritage conservation is to preserve the living space for and meet the living needs of the local inhabitants so as to provide a solid foundation for the city’s sustainable development both in economy and culture. In addition, the government’s clear policy orientation and direct investment have played a critical role in attracting private investments, which, by participating in the process of conservation and rehabilitation, have proved crucial in the financial sustainability of heritage conservation as well as tourism development.

## 2. Timbuktu, Mali: Cultural Restoration under Desertification and War

### 2.1 Case Overview

Located in the middle part of Mali, Timbuktu is both the local spiritual and cultural capital and a centre for the propagation of Islam throughout Africa in the

15th and 16th centuries. Its heritage listed in the ‘World Cultural Heritage List’ include Djingareyber Mosque, Sankore Mosque and Sidi Yahia Mosque, as well as mausoleums and cemeteries located in the suburbs. These mosques, mausoleums and objects, treasured and inherited for generations, have stood for local people as the religious and cultural symbols, witnessed Timbuktu’s scientific, political, diplomatic and economic development through the centuries, what’s more, they are also a channel for cultural expression.

## 2.2 Problems and Initiatives<sup>1</sup>

The mosques, due to their earthen structure, have been subject to continuous sand encroachment, so the local community has to renew the walls by a coating of earth every three to four years. Moreover, occasional torrential rains for days on end exert great pressures on both mosques, mausoleums and buildings of earthen structure and their rainwater drainage systems.



Figure 5.5 A Mosque in Timbuktu

Faced with continuous sand encroachment and desertification, in 2006, the Mali authorities, in collaboration with the Aga Khan Trust for Culture (India) initiated a conservation project for the Djingareyber Mosque. The main purpose of the project is to mitigate the damage caused by the sand encroachment and at the meantime

<sup>1</sup> UNESCO. All Mali News[EB/OL]. (2016-02-04) [2016-05-24]. <http://www.unesco.org/new/en/unesco/resources/unescos-action-in-mali/all-mali-news>. See also: State Party of Mali. State of Conservation (SOC 2015) Timbuktu (Mali). (2015-02-01) [2016-06-02]. <http://whc.unesco.org/en/list/119/documents>. See also: UNESCO. Final Report and Action Plan for the Rehabilitation of Cultural Heritage and the Safeguarding of Ancient Manuscripts in Mali[EB/OL]. (2013-02-18) [2016-04-06]. <http://whc.unesco.org/uploads/news/documents/news-987-1.pdf>.

to train local craftsmen on the construction technology of traditional earthen architecture and new approaches of restoration. Thanks to this project, the interior drainage system of the Djingareyber mosque was updated. As to the exterior, the eroded wall surfaces were renovated, new streets paved, and innovative restoring techniques were applied to the roofs. Apart from the mosque itself, this project has also helped local craftsmen to acquire construction techniques which can be applied to future projects. It is also worth mentioning that all the restoration work of Djingareyber Mosque has been well documented, and the World Heritage Center was duly involved in the whole process to give advice and approval.

Mali, located in Western Africa, has suffered a great deal from armed conflicts. In April 2012, Timbuktu was occupied for almost ten months. During this time and the following instable period, not only were the three mosques severely damaged due to a lack of protection, but precious manuscripts were either damaged, confiscated or illegally traded. In addition, 14 of the 16 mausoleums listed as world heritage sites were destroyed, causing the local community immense material and spiritual losses.

In time of armed conflicts, the Mali government and the UNESCO has appealed on several occasions to the troops on both sides to protect cultural heritage. They also tried to assess the damage during conflicts, but the heritage was inaccessible due to the war. In February 2013, the UNESCO and the government of Mali held an international meeting of experts in Paris, which the *Final Report and Action Plan for the Rehabilitation of Cultural Heritage and the Safeguarding of Ancient Manuscripts in Mali* was determined. The *Action Plan* specified a detailed plan, covering such aspects as expected results, activities expected to be taken, key performance indicators, estimated costs, partners, the degree of urgency and time expectance. The plan has since become the guiding document for all later restoration.

In March 2014, the first stage of rehabilitation work was started. It was concentrated mainly on the mausoleums adjacent to the west side of the Djingareyber Mosque, which were razed to the ground by armed rebel groups in July 2012. The reconstruction was carried out along the remnants of the original foundations, and the same local materials were used as in the original construction of destroyed mausoleums. The reconstruction were mainly carried out by local masons and laborious, directed by chief masons and the Imam of the Djingareyber Mosque, under the technical supervision of national and international experts

appointed by Mali's Ministry of Culture and UNESCO. To date, the first stage of the rehabilitation work has been completed, and a detailed report containing an analytical study is currently under preparation so as to provide references and guidance for future reconstruction.<sup>1</sup>



Source: <http://whc.unesco.org/en/list/119/gallery>.

**Figure 5.6** Manuel Pour la Conservation de Tombouctou

On the other hand, the mausoleums and libraries are being rehabilitated with the aim that Timbuktu's precious manuscripts can return to their homeland in the near future. During the occupation, at least 4,200 manuscripts were burned, fortunately, about 90% of which, thanks to the local people who, responsible for protecting these manuscripts, risked their lives transferring these manuscripts to a safe zone in the capital Bamako, were rescued in time. However, these precious manuscripts were still at risk of being traded illegally. Therefore, at the international meeting of experts in Paris, Mr. Janis Karklins, UNESCO Assistant Director-General for Communication and Information, suggested that, in order to sustainably safeguard Mali's invaluable manuscripts collections, all measures should be based on six objectives: (1) undertaking an inventory of the situation (since the manuscripts are conserved in public and private libraries as well as in Bamako); (2) conservation of the manuscripts; (3) establishing a partnership with private libraries and collections to ensure long-term conservation of manuscripts; (4) digitalizing manuscripts to ensure the largest access possible; (5)

<sup>1</sup> UNESCO. The First Stage in the Rehabilitation of Cultural Heritage of Timbuktu (Mali) is Complete[EB/OL]. (2014-04-14) [2016-07-27]. <http://www.unesco.org/new/en/media-services/in-focus-articles/the-first-stage-in-the-rehabilitation-of-cultural-heritage-of-timbuktu-mali-is-complete/>.

training librarians and archivists; (6) mobilizing the network of specialized partners including the National Library in France and IFLA.<sup>1</sup>

### 2.3 Experience and Inspiration

In view of the backward economic development and resources scarcity in Mali, the conservation work in Timbuktu, before or after the war, has relied heavily on the economic and technical assistance of UNESCO and international friends. Besides the help from the Indian Aga Khan Trust for Culture before the unrest, and the suggestions from the international experts mobilized by UNESCO afterwards, there are two other documents *About the Study of Mausoleums in Timbuktu (Etude sur les mausolées de Tombouctou)* and *Manual for the Conservation in Timbuktu (Manuel pour la conservation de Tombouctou)*, compiled on the basis of Italian experts' study and research before the unrest, that were issued in 2014 by the World Heritage Center. Both of these two documents have given operation guidance and specific advice for the reconstruction and restoration work.

For cities in developing countries, or even less developed countries, who suffer from insufficient financial and local resources, the platform that UNESCO could provide is able to give them access to an international network that has connections with governments, international institutions, and non-profit organizations and so on. Therefore, it is advised that these countries make the best use of UNESCO's platform and network, respect their professional advice on conservation and restoration (e.g. discuss with them the feasibility and impact of new proposals), and give timely feedback on their state of conservation.

Public engagement is also crucial in the process of restoration. Before the unrest, the building techniques of local craftsmen were improved while the Mosques were restored. During the unrest, people risked their lives rescuing the manuscripts. After the unrest, it was the local masons and labors who were actively engaged in the reconstruction work. After all, cultural heritage is inextricably linked to its inheritors. Sustainable heritage conservation is not just a matter of building bricks and paving stones, but a process of reconnecting the communities, during which time the normalcy of cultural expressions are recovered, and the cultural way of life returned. What is at stake here is, in a pluralistic and tolerant environment, to rebuild social cohesion, rediscover the cultural roots through the relics and regain the cultural identity with the community.

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<sup>1</sup> UNESCO. Final Report and Action Plan for the Rehabilitation of Cultural Heritage and the Safeguarding of Ancient Manuscripts in Mali[EB/OL]. (2013-02-18) [2016-04-06]. <http://whc.unesco.org/uploads/news/documents/news-987-1.pdf>.



## 3. Helsinki, Finland: the World Design Capital

### 3.1 Case Overview

Helsinki, the capital of Finland, is a city which aims to embed design and innovation into daily life. It advocates that good design should be everywhere and can be enjoyed by everyone. The *City of Helsinki Strategy Programme 2013—2016*<sup>1</sup> clearly points out that, as a major design city, Helsinki will utilize design in the renewal of the City and in the development of public services. The concept of design is expanded in this city. It is extended from tangible object design to intangible design thinking used in public services and government governance. Helsinki has formed and ever stuck to the strategy to become a design-driven city.

### 3.2 Main Initiatives

Design thinking is embedded into Helsinki's public services. In 2013, Helsinki launched the Design Driven City project which aimed to promote the application of design in the public services of the city. In this project, three City Designers are employed to assist the Government by providing public services conforming to the practical needs of the citizens. The projects participated by City Designers involve multiple fields, from the reconstruction of such public spaces as art galleries to the improvement of housing for low-income families. All the projects consist of seven phases including problem, observation, ideas, plan, testing, execution and lessons so as to balance functionality and the cultural and creative atmosphere. A set of detailed and promotable mode has thus been formed. This practice has not only changed the working style of the government officials, but also practically introduced the concepts and relevant tools of design into the core of urban governance.

Six hundred in-service civil servants from different government departments were appointed to constitute a 'Design Agents Network' in Helsinki. These selected civil servants become Design Agents who are responsible for regular communication and sharing different cases and experience of public service design, and facilitating the cooperation between departments as many social problems are complex and interdisciplinary.

Meanwhile, a service hotline was also issued so as to provide professional consultations about design for all government departments. The department that

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<sup>1</sup> Helsinki City Council. *City of Helsinki Strategy Programme 2013–2016*[EB/OL]. (2013-04-24) [2016-05-05]. [http://www.hel.fi/static/taske/julkaisut/2013/Strategy\\_Programme\\_2013-2016.pdf](http://www.hel.fi/static/taske/julkaisut/2013/Strategy_Programme_2013-2016.pdf).



Figure 5.7 The World Design Capital, Helsinki

gets through the hotline will receive free services of a professional designer for a whole workday. The designer will help them understand the feasibility of certain original ideas, how to set up the implementation, cost accounting and so on.

Public and cultural services in Helsinki regard the citizens as customers, and will take the advice of the public into account as much as possible when designing the service. For example, in Helsinki's City Museum, there is a special customer commission composed of citizens, which is allowed to participate in the operation of the museum; and the local public library will seek advice from the citizens when purchasing collections, various foreign literary works for example, in order to meet the needs of multi-culture.

Design thinking is blended into the texture of the city. The Helsinki Design District established in 2005, mainly created by Design Forum Finland, a National Official Design Association. The original intention was to gather together handicrafts and innovation practitioners in Helsinki to form an industry alliance. In light of the fact that the office of this association is based in the current Helsinki Design District, more design institutions choose to select, anchor and gather here because of the alliance. Now this district covers 25 streets and more than 200 stores and places relevant to design such as art studios, shops, art galleries, museums, restaurants and design hotels with each store bearing the uniform logo of the Design District. In 2015, the District became completely independent of Design Forum Finland, and established its own working committee to coordinate designers and alliance enterprises in the District to conduct collective marketing, organize

cultural activities and make in-depth cooperation. The District held regular design industry seminars oriented to professionals. Such activities as Late Night Shopping and Design District Market on weekends are designed for citizens and tourists. The annual Helsinki Design Week also takes place here, maintaining people's high attention to this district, leading the citizens and tourists to understand the development of local cultural and creative industry and broadcasting new concepts and ideas. Helsinki Design Week started in 2005 and it has since become the biggest design activity in the Nordic countries. In 2005, 100 institutes held 200 activities in this week, nearly 40 international media issued 196,000 pages of reports, and 52.5 thousand people participated. This scale effect has turned the Helsinki Design District into a cultural landmark of the city. Local tour guides specially customize guided tour routes called Design Walks for tourists, so that visitors can easily appreciate the atmosphere of design and innovation advocated by the whole city. The Design District develops the cultural industry while driving the tourist industry at the same time.

Helsinki takes advantage of its own natural endowment to form and promote its design strategy. First, design is always regarded as one of the important national resources of Finland. In 2008, design was written into the definition of 'innovation' in the *National Innovation Strategy*, becoming an essential component of the national innovation system. Naturally, Helsinki makes design as the key of its city development strategy. Secondly, Helsinki has a good cultural and artistic education basis. In 2012, the number of undergraduates majoring in culture related specialties in Helsinki accounted for 49.5% of Finland undergraduates. There is a complete cultural and artistic education system in the city, including vocational schools, comprehensive universities, and even artistic education for children and youths. Based on the above factors, the cultural industry of Helsinki is developing stably. In 2012, the total turnover of the industry was 5.34 billion Euros, accounting for 6.9% of all industries and 38.7% of Finland's cultural industries. The number of total employment in the cultural industry in Helsinki reached 25,700, accounting for 10.1% of local employment and 40.0% of employment in Finland's cultural industry.<sup>1</sup>In 2012, Helsinki was named World Design Capital by the International Council of Societies of Industrial Design. In 2014, Helsinki won the title of City of Design in the global Creative Cities Network awarded by the UNESCO.

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<sup>1</sup> City of Helsinki. Arts and Culture in Helsinki[EB/OL]. (2014-12-03) [2016-05-10]. [http://www.hel.fi/hel2/tietokeskus/julkaisut/pdf/14\\_12\\_03\\_Arts\\_and\\_Culture\\_in\\_Helsinki.pdf](http://www.hel.fi/hel2/tietokeskus/julkaisut/pdf/14_12_03_Arts_and_Culture_in_Helsinki.pdf).

### 3.3 Experience and Inspiration

There are three aspects worth considering and referring in Helsinki's experience. First, design is not only a form of art. It can also be regarded a way of thinking or a strategic tool to solve social problems. Second, if we want to raise awareness of innovative ideas and ways of thinking about cultural innovation of the public, we may try to start from local governments and civil servants as this is likely to improve the formulation and execution efficiency of supportive public policies related to cultural innovation. Third, industry cluster like the Helsinki Design District not only form a close relationship network between design enterprises and designers, and generate many possibilities for cooperation, but also create a window to display the cultural soft power of the city and let the world 'see' it. Fourth, after Helsinki was named World Design Capital, it didn't stop there; instead, the city continues to think about subsequent methods and ideas for sustainable development. Even the *Design Finland Programme (2013–2020)*, recently issued by the Finnish Government was made with this as a starting point. This shows that the Government intends to continuously incorporate design ideas in order to promote local development, and hopes to popularize Helsinki experience nationwide.



Source: <http://designdistrict.fi/en/kurapankki/>.

Figure 5.8 Streetscape in Helsinki

## 4. Memphis, USA: The Music Magnet Plan

### 4.1 Case Overview

Memphis is the second largest city in the state of Tennessee. It has a population of 656,800. According to the Census Bureau, Memphis has a higher poverty rate than national the average. However, Memphis was well known as the 'City of Music' in the 1960s and 1970s, and was the world's fourth largest music recording



Figure 5.9 Stax Museum of American Soul Music

center with a musical industry scale ranking in third place worldwide. The glory of those years was attributed to Soulsville, a neighborhood in the southeast of Memphis which is the origin of American soul music and also the home of the famous Stax Recording Studio. Many musicians making records in the company thus settled down in the Soulsville neighborhood, which in turn facilitated more artistic cooperation. In the mid-1970s, Stax Recording Studio declared bankruptcy, leading the neighborhood and even the whole city into decline.

In 2003, the Stax Museum of American Soul Music was rebuilt at the former address of the record company and opened to the public, gradually bringing musical elements back to the city. This reestablishment was led by a local Soulsville foundation which consisted of a group of the former staff of the recording company, as well as local business elites and philanthropists who set up the Stax Museum of American Soul Music and the Stax Music Academy at the same time. These initiatives have not only brought musical elements back to Memphis, but also created the embryo of the Music Magnet Plan.

#### 4.2 Major Initiatives

In 2008, the Music Magnet Plan was jointly sponsored by the City of Memphis Division of Housing and Community Development, the University of Memphis Division of City and Regional Planning and related local foundations and enterprises, aiming to reform and reuse the vacant tenement buildings in the

region, especially housing estates related to music, and to reopen them to local residents, artists and the public at large to let music attract the creative class into the community like a magnet, thereby reviving the region.

The Music Magnet Plan was mainly implemented through the following measures:

Establish cooperative partnerships with stakeholders: Community LIFT is an intermediary organization for community development set up in 2010 which has established long-term cooperative partnerships with the government and other stakeholders in the region including schools, non-profit organizations, charitable institutions, banks, enterprises and so on. Community LIFT was responsible for raising funds in the primary stage of the Music Magnet Plan, and selecting suitable contractors for the implementation of the project. According to the annual report, the Music Magnet Plan jointly applied by the Memphis Symphony Orchestra and Community LIFT, earned grants from the Art Place in 2012 with an initial amount of USD 678,200, which was the startup capital of the Plan. ArtPlace is a national non-profit organization based in Chicago and consists of 11 national and local level foundations, 6 national large banks and 8 U.S. Federal Government departments including the National Endowment for the Arts (NEA) who aims to support the implementation of various projects related to cultural innovation in America. However, the general budget of the Plan was relatively low, only about USD 1.6 million, meaning that more social funds were required. Ultimately, the plan was jointly promoted by 18 agencies or institutions: the City of Memphis Division of Housing and Community Development and the Office of Planning and Development (both government departments), two universities including Memphis University, one bank, several foundations and so on.

Construct music spaces in the region: aside from the Stax Museum of Music, other public spaces related to music have been built in the Soulsville neighborhood. One case is Memphis Slim's Collaboratory, which was transformed from the former residence of Memphis Slim, a legendary figure of the blues. The Collaboratory was reopened to the public as a music studio in 2014 for artistic creation and music training, as well as encouraging exchange and cooperation among artists. The studio carries out a membership system in which each performing group or individual pays USD 75 per year as a membership fee so that they can rent the studio for 8 hours every month and be provided with an audio specialist. By 2016, the studio is expected to have recruited 50 member groups. In addition, there is a free music performance by the performing groups in the open space outside the studio for local residents. The second case is the reconstruction of a vacant building

into a multi-functional performing venue for the Memphis Symphony Orchestra and other performing groups to hold concerts and various cultural activities. This building belongs to a Memphis real estate development company which is also one of the cooperative partners of the Music Magnet Plan.

Housing project for artists: repurchase vacant houses in the Soulsville neighborhood to offer them to selected musicians, artists and other people working in various cultural creative industries at a relatively low price, thereby attracting more creative talents to choose and stay in Memphis.

Enrich community cultural activities: a cooperative partnership with the Memphis Symphony Orchestra has been established which covers a one-year site project, including performing in the community, providing the teenagers of nearby schools with musical training, organizing family music activities and so on. In order to attract more performing groups to enter the community, the Music Magnet Plan has also specially set up a small grants fund.

The research report issued by the International Federation of the Phonographic Industry (IFPI) in 2016 indicates that Memphis is on the way back to be the City of Music. It attracts over 10 million tourists every year who contribute USD 3.1 billion in tourist consumption for the city<sup>1</sup>. There is no direct evidence that these changes are direct results of the Music Magnet Plan, but it is undeniable that the city is remodeling its characteristics in space, society and even industry by effectively applying the charm of art.

### 4.3 Experience and Inspiration

The Music Magnet Plan aims to achieve comprehensive revitalization by transforming an economically backward region into an art community. There are three aspects in this case worth learning from. First, it took the full use of local historical heritages related to music, including rebuilding the former residences of famous musicians and applying intangible cultural legends. Second, all measures including improving the community environment and enhancing the ambience of literature and art were taken to retain local residents and attract talents, as well as to promote cultural exchange and interaction among the people, bringing the old community a new charm. Music not only gives people a sense of belonging to the community, but also lays the foundation for the revival of local music industries. Third, this is a project jointly promoted by art groups, non-profit organizations, educational institutions, government departments and local enterprises which

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<sup>1</sup> International Federation of the Phonographic Industry. The Mastering of a Music City[EB/OL]. (2015-06-05) [2016-05-10]. <http://www.ifpi.org/downloads/The-Mastering-of-a-Music-City.pdf>.



Source: <http://www.communitylift.org/slide/slim-collaboratory-opens>.

**Figure 5.10** The Reopened Memphis Slim's Collaboratory, Transformed from the Former Residence of a Famous Local Musician

contributed to building an intangible cultural resource network for Memphis. All these initiatives have attracted a group of community development organizations from outside the project, including, the Memphis Regional Design Centre, the Mayor's Innovation Delivery Group, UrbanArt Commission and so on. They all consider Soulsville neighborhood as an appropriate object of social innovation, and have promoted or are promoting new innovation projects, which provides yet more opportunities for the comprehensive development of Memphis.

## 5. Frankfurt, Germany: Coexistence of Multiculturalism

### 5.1 Case Overview

Frankfurt contains a sizable immigrant population from 170 countries who speak over 200 languages. The multicultural background of Frankfurt created by these immigrants has become an important characteristic of the City's culture. About 40% of the residents, or 70% of those below the age of six, come from an immigrant background. As the center of European trade and finance, Frankfurt's prosperity is closely connected with its immigrants and multiculturalism.



## 5.2 Problems and Initiatives

When trying to integrate into cities, immigrants always encounter numerous tangible or intangible difficulties. Many local citizens form a barrier against immigrants living in Germany and fitting in with the politics of Germany because they worry that their original nationality will be diluted. As a result, some immigrants are still treated as a marginalized class in the respect of society, economy and politics even though they are permanent residents of Frankfurt.

In order to help immigrants and multiculturalism to be accepted by the City and form an important element in its culture, Frankfurt has taken various measures. With respect to the system and mechanism, Frankfurt established the Office for Multicultural Affairs (AMKA) to promote the harmonious coexistence of different nationalities and the prosperity and development of multiculturalism in the city. Meanwhile, the Municipal Government has successively issued several policies encouraging multicultural inclusion, including the *Declaration of Frankfurt against Racism and Anti-Semitism* (2000), *Anti-Discrimination Guidelines* (2003), *The Concept of Integration Concept* (2011), *Frankfurt Integration and Diversity Monitoring* (2012) and so on. Among these policies, *The Concept of Integration* proposes to ‘take the multicultural integration policy as a major task of the government’s cross-department cooperation in order to promote mutual understanding through language and communication, help immigrants fit into the city through education, and improve their living conditions by creating jobs and improving economic capability, thereby actively facilitating the development of multiculturalism and art’.



Figure 5.11 Streetscape of Frankfurt

In terms of specific measures, first, develop a channel of cooperation for immigrants, for example, holding public hearings to give expression to their aspirations, setting up a municipal advisory committee for immigrants and conducting a registration system for all immigrant organizations in Frankfurt. Second, provide special services for immigrants; for example, offering convenient and available information services, holding regular conversation exchanges between immigrants and government agencies, simplifying the procedures of overseas qualification accreditation and encouraging immigrants to participate in politics. Third, provide immigrants with various subsidies and support; for example, providing impoverished immigrants with proper subsidies, launching language courses, educational and vocational trainings and so on for different nationalities. Frankfurt University launched the ‘Academic Welcoming Program’ in October 2015, which offers access to schooling for 30 refugees with a fine education background, and the Frankfurt University of Applied Sciences will provide special opportunities to admit refugee students from the summer term of 2016. Fourth, hold multicultural dialogues; for example, Frankfurt has been holding a multicultural parade every year since 2003, giving all ethnic groups living in Frankfurt opportunities to demonstrate their own cultural characteristics; for another example, the Frankfurt Museum in cooperation with the Bible Museum, DITIB Masjid and Jewish Museum jointly launched the Intercultural Dialogue project in 2013. The AMKA specially held seminars in February 2016 to discuss the feasibility of the idea of launching multiple language education in kindergartens and primary schools so as to facilitate the linguistic diversity of Frankfurt.

Driven by the aforementioned series of measures, the situation of immigrants fitting into Frankfurt has been remarkably improved. The number of language learners participating at all levels and stages has been steadily increasing. According to *Frankfurt Integration and Diversity Monitoring* issued in 2012, the number of preschoolers above the age of five willing to participate in learning German in 2011 increased by 65% over that of 2004. The percentage of children with an immigrant background entering kindergartens is increasing; the percentage of boys aged from 3 to 6 with an immigrant background entering kindergartens rose to 63.0% in 2010 from 59.2% in 2006, and the percentage of girls rose to 61.5% in 2010 from 58.7% in 2006. The employment rate of immigrants keeps rising, among which the employment rate of males grew to 70.6% in 2010 from 66.8% in 2005 and the rate of females grew to 55.0% in 2010 from 49.9% in 2005, while the unemployment rate of immigrants decreased to 14.0% in 2010 from 17.9% in 2005.

Immigrants participate in local political elections more actively than before.

### 5.3 Experience and Inspiration

The case of Frankfurt indicates that the local government can play an important role in promoting multicultural inclusiveness and exchange. First, the government should clearly take multi-culture as an organic component of city culture and a critical embodiment of city attributes. Second, multi-culture should be treated as one of the core issues of public policies set by the government and the major content in cross-department cooperation to facilitate the transformation of governance patterns. Third, the government should closely cooperate with civil society organizations and develop diverse communication channels for immigrants to reflect their aspirations. Fourth, the government should take practical measures to facilitate immigrants to integrate with the local environment.

Frankfurt is still facing severe challenges brought by multi-culture in the future. On one hand, as the immigrant population increases, the influence that they have on the daily lives of local residents also increases, and incidents due to cultural conflicts as well as criminal cases related to immigrants are growing, which makes the cultural inclusion policy difficult to promote. On the other hand, the degree of education of immigrant children is relatively lower than that of local families, which makes it even harder for immigrants to move upwards in society; there is a great gap of wealth between immigrants and local residents, and the former live in smaller and more cramped spaces. In particular, the influx of refugees from West Asia in recent years puts more pressure on the implementation of Frankfurt's multicultural integration measures.

## Suggestion for Decision-Making .....

### Strategy 1: Heritage Conservation within the Framework of Sustainable Development

**Policy Option 1:** Cultural heritage conservation should be integrated in the overall urban spatial planning and management framework. Efforts should be made to properly document and assess the heritage, and the social impact assessment and environmental impact assessment should be taken as the basis for any decision-making for development projects to ensure the integrity and authenticity of the heritage

**Policy Option 2:** Cultural heritage tourism should be promoted and cultural elements and local features emphasized. All shareholders should be included during the whole process of tourism development, —from concept design in the beginning to the distribution of economic benefits at the end. Their will and interests should be respected and they should be entitled to enjoy the economic benefits brought by tourism as much as possible.

**Policy Option 3:** Cultural heritage tourism proposals should be carefully weighted and selected. Short-term objectives, qualitative and quantitative indicators and standards should be set to facilitate monitoring and assessment. City-level, large-scale tourism projects should be left sufficient room for modification in case of unforeseeable problems such as regarding time and budget

**Policy Option 4:** For regions suffered from armed conflicts, it is suggested that they make a full inventory and assessment of the heritage as soon as opportunity arises, and the setting of priorities and strategies for restoration should be based on these earlier investigations

**Policy Option 5:** Cultural heritage conservation and management should adopt a bottom-up approach partnered with civic engagement; empower the local people, especially indigenous people, youths, children, women, etc., to conserve and manage their own heritage; and engage them during the whole process

**Policy Option 6:** Public awareness, for instance among communities, heritage managers, decision makers, should be raised so that people could realize the key role that cultural heritage plays in promoting general social wellbeing; capacity building should involve main stakeholders, including local officials, conservation professionals, civic groups, etc.; it could take the form of educational courses aimed at raising public awareness, training courses for improving restoration techniques and workshops for practice and knowledge exchange

**Policy Option 7:** Partnerships and cooperation mechanisms among and with all shareholders should be strengthened to expand the network of knowledge sharing and capacity building, as well as to expand the pool of financial sources for heritage conservation; actively explore the possibility of public-private partnership, especially within cultural departments

## Strategy 2: Develop the Cultural and Creative Industries, Cultivate an Atmosphere of Cultural Creativity, and Establish a Creative City with Strong Soft Power from a Comprehensive Perspective

**Policy Option 8:** Local resources should be identified and categorized, key success factors should be pinpointed for local cultural and creative industries, and overall visions, strategies and approaches with a local distinctiveness should be determined

**Policy Option 9:** Through the facilitation of cultural and creative industries, events and institutions, stakeholders in public and private sector should be joined together to improve the quality of public spaces, thereby stimulating further urban renewal

**Policy Option 10:** Citizens and communities should be provided with sufficient opportunities and means so as to be able to make their own creations as well as fully participate in cultural and creative life, thereby building in the city an atmosphere of culture and creativity

**Policy Option 11:** Investment should be made in local capacity building so as to strengthen the competencies and abilities of cultural and creative workers, cultural and creative entrepreneurs, non-profit organizations and government officials, in term of both professional and business skills. New technology trends (e.g. the internet) should also be taken into account

## Strategy 3: Establish a Culturally Sensitive Development Model, Promote Multiculturalism and Protect Cultural Diversity

**Policy Option 12:** Multiculturalism, taken as an important factor during the course of urban development, should be integrated in policymaking. City planning should bear cultural diversity in mind and ensure that each ethnicity shall participate in the decision-making process of city planning

**Policy Option 13:** City management should play manifold roles in managing their cultural pluralism in a given context. The government's organizational structure and decision-making model should take into consideration the specific composition of its diverse cultures. Active measures should be taken to promote the integration of immigrants into the society

**Policy Option 14:** Active measures should be taken to preserve the spaces and cultural expressions with an ethnic feature; prevent the tendency of cultural homogenization during the course of globalization and urbanization; and create more presenting spaces and opportunities for ethnic minorities and non-mainstream cultures

**Policy Option 15:** A communication channel and mechanism should be built for intercultural dialogue. Special attention should be given to the role played by creating urban spaces during the course of urban regeneration and urban renewal. Civic organizations and technological changes should be capitalized on in order to promote multicultural development

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# Chapter 6

## Public Services and Livable Cities



## To Build Friendly and Livable Communities

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Cities should promote harmonious and friendly social environment, and build civil, safe and livable urban neighborhoods through rational planning. They should provide high-quality public services in employment, healthcare, education, housing, social welfare and other areas. They should encourage public participation in urban and governance, take into consideration the practical and psychological needs of migrants to the cities, and eliminate social and conflicts.

—Excerpted from *Shanghai Declaration*

## Introduction\*

Building a livable city is a universal target that every city in the world claims to pursue at United Nations Conference on Human Settlements or in the process of urban development. The core topics we are going to discuss in this chapter include: how to succeed in providing adequate, excellent and secured public services that satisfy the residents' needs and conveniences in life in stead of providing infrastructure, transportation means, basic housing and other primary facilities; how to provide the service which reflects the respect and humanistic care to citizens with people-oriented spirit all along so as to realize a harmonious livable city. This chapter explores on the three aspects including tangible and intangible infrastructure, and humanistic heartware development<sup>1</sup>. During the development and construction of a livable city, the government should create a harmonious community with people-oriented planning, design and superior construction as the fundamental and primary illustration of external conditions. On this base, a humanized city, and diversified and enriched services are the main representation of livability, while humanistic heartware and sense of happiness are continuous visions of a livable city. What makes a city truly livable, and makes tangible and intangible infrastructure effective is the city's 'heartware', which is the ultimate intangible infrastructure.

Case studies: The five cases in the chapter are as follows: Dhaka in Bangladesh, Kenya's Iko Toilet, Western Harbor in Sweden's Malmö, housing renovation in Chile's Iquique, and UK's London Underground. The cases included have their focuses respectively on the three aspects of tangible and intangible infrastructure, and humanistic heartware development, with emphasis both on the supply of public services and on how to enhance these services.

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<sup>1</sup> Heartware Building was first proposed by the Government of Singapore, as a term to describe the construction of intangible and tangible and heartware in a city. Ministry of National Development of Singapore, Huang Xuncui proposed that the key of urban construction is transforming from the tangible construction to intangible and heartware construction. The 6<sup>th</sup> President of Singapore, Sellapan Rama Nathan proposed that 'what really makes a city livable and the tangible and intangible infrastructure give their play' is the 'heartware' of the city. It is an ultimate software, that make us strong in the inner side and creates a common object of building a better city. 'Today (1991–2016) : Looking ahead to becoming an inclusive, global city', *The Straits Times*[Singapore] 10 Jan 2016. 'Staying ahead of the future', *The Business Times* [Singapore] 11 May 2015.

This chapter aims to explain to city managers that the relationship between public services and livability in a livable city should be considered from three aspects: (1) Government innovation, supervision and coordination in the city. City government, especially leaders, can play three roles in public services—supplier of new concepts and ideas, supervisor of public services, and coordinator between government and enterprises, and between city and enterprises. (2) Efficient and equitable public services in the city. Emphasis should be placed on both tangible and intangible infrastructure, and adequacy and availability should be considered. (3) Identity and legitimacy of the livable city. Public participation in urban development should be encouraged and respected, while humanistic care and material satisfaction are equally important.

## Problems and Challenges

With the rapid development of developing country such as China and India, the global time for cities has begun. There is a change from attaching importance on quantity of urbanization to the quality of urbanization which means the importance of living standard and quality of life of the city's residents replace the importance of urbanization level. Therefore both harmony and livability have been the theme for different cities in 21st century.

'Livable' is a popular term and livable city is usually the common goal of cities. However, there hasn't been a universally accepted definition of 'livable' in the world, and the predominant opinion defines it as life quality. In terms of the criteria of 'livable' when investigations are conducted, lifestyle results from the interactions among nature, society, economy, technology and other factors commonly included, as well as material and spiritual expression of various lifestyles. When the concept of a livable city was proposed originally, it mainly referred to how to improve living environment of cities. Since World War II, pursuit for comfortable and pleasant urban environment has gradually replaced the original ideas of improving a single living environment, establishing its status in urban development.

In the earlier half of the 20th century, economic development mainly depended on industrialization. Resources and environment suffered serious devastation, and many problems erupted during urbanization, hence limited urban development. Deeply mired social problems continued to be exposed, forcing cities to start reconstruction. During the cities' re-planning and reconstruction, people paid more attention to urban environment and pursued of comfortable life. After World War

II, David L. Smith indicated in his book *Amenity and Urban Planning*, that a city's amenities should be analyzed from the perspectives of comfortable life, beautiful environment and public health. According to him, livability comprises of three aspects: first, livability from the perspective of public health, pollution management etc.; second, livability through comfortable life and attractive living environment; third, livability through historic buildings and a beautiful natural environment<sup>1</sup>. Canada is in leading position with respect to livable city development. The *Long-term Plan for Greater Vancouver* outlines that livable cities should meet the needs of all residents physically, psychologically and socially. They should also be conducive to development of urban residents. A livable city should be able to meet and reflect high-level spiritual needs of urban residents in terms of culture and other aspects<sup>2</sup>. The rural residential area developed by Hampstead in London's suburbs has achieved various effects such as 'a solemn city, comfortable blocks, healthy outskirts, sanitary families, beautiful houses' and so on in its design. In the 1970s, urban development meant a return to humanism. Experts and scholars in sociology, ecology, geography, planning, etc. conducted research on how to improve and upgrade quality of life of urban residents from different perspectives<sup>3</sup>. In the 1990s, sustainable development as a concept became increasingly popular. People made greater efforts to pursue living quality and sustainable environment development while accelerating urbanization. Salzano proposed that a livable city should link the past and future and respect the history and future generations. He elaborated on attributes of livable city from perspective of sustainability. A livable city should be sustainable and it should meet the needs of urban residents but not at the expense of reduced resources and environmental capacity for future generations<sup>4</sup>. D.Hahlweg maintained that a livable city should encourage healthy living and offer convenient transportation options. For children and the elderly, a livable city should have sufficient safety, easy access to green space and shared public facilities<sup>5</sup>.

European countries were the first to launch the livable cities program. In 1993, the European Union passed the Fifth Environmental Action Program, also known

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<sup>1</sup> Asami, Y. *Residential Environment: Methods and Theory for Evaluation*. University of Tokyo Press, 2001.

<sup>2</sup> Cities Plus. *A Sustainable Urban System: The Long-term Plan for Greater Vancouver*. Vancouver, Canada: Cities Plus, 2003.

<sup>3</sup> Knox, P.L. 'Urban Social Geography'. *London Scientific and Technical*, 1995.

<sup>4</sup> Salzano, E. *Seven Axioms for the Livable City*. California: Gondolier Press, 1997.

<sup>5</sup> Hahlweg, D. 'The City as a Family', In Lennard, S.H., Svon Ungem-Sternberg, H, L.Lennard, eds. *Making Cities Livable*. International Making Cities Livable Conferenees, California: Gondolier Press, 1997.

as ‘new strategy for environmental and sustainable development’ program. With sustainable development as the guiding ideology, the strategy aims to promote the transformation of European Union’s model of economic development. The Council of the European Union subsidized a ‘livable city program’ under a ‘community framework for cooperation to promote sustainable urban development’. It aims to encourage and support cities to improve quality of life in urban areas while developing local management plans for sustainable cities. It also aims to achieve sustainable urban development by providing a clear set of guidelines and excellent examples of planning and studies on the topic. Most European countries live by the logic that ‘livability’ is equivalent to ‘quality of life’, which in turn is equivalent to ‘sustainable development’ at the same time. Therefore, ‘livability’ is described as ‘sustainability’ to a large extent. The ‘livable city program’ established its objectives in terms of health, vitality and attractiveness, and its investigation and management objects in practice included 47 items including health and sanitation, crisis, community, economy, transportation and resources.

China’s concept of a livable city reflects the ‘spirits of harmony’ as represented by Confucianism in traditional Chinese culture. It explores how harmony could be achieved based on recognizing and preserving diversities in the world, providing a philosophical basis for coordinating intricate urban relationships and reconciling complicated urban contradictions. Corresponding to this new age development process, city and life have become research priorities in various disciplines, with international organizations focusing on them due to their comprehensiveness, complexity, intensity and contemporary nature.

The United Nations is committed to combining urban livability with public services. In September 2014, the UN Secretary-General Ban Ki-moon pointed out that as the international community was committed to developing post-2015 global development agenda, the role of urbanization in promoting sustainable development was increasing day by day. The *Universal Declaration of Human Rights* clearly states that the right of access to adequate housing is a fundamental human right, and urban development should respect human rights of urban residents and provide good housing to residents. *Agenda 21* proposes to improve social, economic and environmental quality of human settlements, especially living and working conditions of urban and rural poor. With regard to program design, it proposes housing provision, settlement management, land-use program, infrastructure, energy and transportation, settlement planning, etc. Based on the United Nations Conference on Human Environment proposal, especially

United Nations' General Assembly resolution No.3128, the first United Nations Conference on Human Settlements (Habitat I) was convened in Vancouver, Canada in 1976, where the human settlements' concept was formally accepted and *Vancouver Declaration on Human Settlements* was issued. And then, the United Nations Commission on Human Settlements was established in 1977 with the Nairobi-headquartered United Nations Center for Human Settlements (referred to as 'UNCHS' ) as the executive body. Extensive research works related to human settlements were conducted and philosophy of livable city was also proposed. The *Vancouver Declaration on Human Settlements* clearly stated that improving quality of human life is the primary goal of every human settlement policy. This primarily means meeting people's basic demands for food, housing, clean water, health, education, training, social security, etc. The second International Conference on Human Settlements (Habitat II) held in Istanbul in 1996 proposed the philosophy that a city should be a livable human settlement. This came on the footsteps of the United Nations Conference on Environment and Development held in Rio de Janeiro in 1992, which discussed two topics of global significance, namely 'adequate shelter for all' and 'sustainable human settlements in an urbanized world'. The United Nations Human Settlements Program (UN-Habitat) was officially founded on January 1<sup>st</sup>, 2002, replacing the original United Nations Commission on Human Settlements. Since then, through United Nations' unmitigated efforts, improving human settlement environment has now reached general awareness of world leaders. There has emerged a global program of discussions within the professional scope of academic circles and engineering technology fields. The slogan proposed by the United Nations Human Settlements Program (UN-Habitat) was 'Let us join hands to build a home full of peace, harmony, hope, dignity, health and happiness'. There was a more detailed explanation of harmonious city based on three aspects—spatial harmony, social harmony and environmental harmony, in the *World's Cities 2008/2009 Status Report*. In United Nations' Post-2030 Agenda for Sustainable Development, Goal 11 emphasized the construction of inclusive, safe, resilient and sustainable cities and human settlements. It emphasized that all people should have access to adequate, safe and affordable housing and basic services by 2030. All people should be provided with safe, accessible, affordable and sustainable transportation systems. Road safety should be improved, public transportation should be more accessible and special attention should be paid to the needs of vulnerable people such as women, children, the disabled and elderly. Urbanization should be inclusive and sustainable, and this goes for all countries. Planning and

**Table 6.1 Views about Livable City in Relevant United Nations' Documents**

Document Name	Views about Livable City
<i>The Universal Declaration of Human Rights</i> in 1948	Fundamental human right to housing
<i>Agenda 21</i> in 1992	Topic: Promote sustainable development of human settlements
<i>Global Strategy for Shelter to the Year 2000</i> in 1987	Defines adequate housing principles
<i>The Universal Declaration of Human Rights</i> of Habitat I in 1976	Proposes that improving quality of life should be primary goal of habitats
<i>Development Program</i> in 1997	Adheres to concept of sustainable human settlements
<i>The Habitat Agenda and Istanbul Declaration on Human Settlements</i> of Habitat II in 1996	Indicates that people and their welfare should be given priority for sustainable cities
<i>Habitat Agenda</i> in 1996	Emphasizes inclusiveness of cities
United Nations' Post-2030 Agenda for Sustainable Development	Emphasizes construction of inclusive, safe, resilient and sustainable cities and human settlements

management of participatory, comprehensive and sustainable human settlements should be strengthened, and there should be universal access to safe, inclusive, accessible and green public space, especially for women, children, the elderly and disabled. Habitat III in 2016 also included urban housing and basic services into their list of important issues.

Furthermore, it is described in this chapter that a livable city faces the following challenges in tangible and intangible infrastructure, and heartware development (humanistic care):

Challenges faced tangible infrastructure development for a livable city: first most often, cities, especially those in developing countries, have weak transportation infrastructure that features low capacity, single form, which bring multiple problems such as weak vitality and hindered development of the entire city. As a mass transportation system for low-income people in cities, the experience of livability is weak. Second, traffic safety is also an important issue for many cities. Failure of planning leads to chaotic traffic. Often, routes for pedestrians, bicycles, motorcycles, buses, etc., are highly overlapped and unclear traffic signals, which



leads to congestions and frequent accidents on many complex roads. Many of them usually occur at the urban traffic junctions.

Intangible infrastructure development challenges for a livable city: In cities in emerging countries, rapid economic development has indeed led to a plethora of materials and high-rise buildings, railways, water supply and other facilities. However, experience of livability is not as good as expected. While their urbanization progress is slow, public service is seriously insufficient and relevant knowledge and experience is in short in terms of top-level design. When it comes to basic public services, i.e. the intangible infrastructure construction, problems are as follows: (1) Safety problem of drinking water. This is a major challenge for many developing countries during their urbanization drive. In the case of Dhaka, water safety management and treatment play an important role in urbanization and livable city construction. Meanwhile, even some developed countries are confronted with this challenge. For example, the city Flint in Michigan once faced the problem of water safety. These old urban public service facilities need replacing and upgrading continuously. (2) Employment, health care and education and other issues are challenges faced with rapidly urbanized areas whose public services cannot keep up with urban population growth. (3) Corresponding public service issues also exist in subsequent operations and infrastructure maintenance. Apart from construction, operation and maintenance of infrastructure is also important. However, in some cities, especially in developing countries, there is almost not sufficient infrastructure maintenance after construction. Thus, facilities are often not well maintained and have high depreciation rate, high maintenance costs, long earnings cycles, or even incur serious losses. Also, due to unilateral infrastructure construction of the government, facilities and their affiliated services usually cannot keep pace with constantly changing spiritual needs of the citizens. This makes it difficult to offer public services above the material level, so livable experience is relatively poor.

Challenges faced heartware (humanistic care) development for a livable city: Many cities are not prepared for public participation during renovation and transformation. The awareness of public participation is universally weak. People lack a correct knowledge of the connotation, values, mechanism and executive force regarding public participation. Local residents and community organization, as the shareholders of urban renewal and renovation are not treated equally as partners, sometimes even excluded. Urban renewal involves multiple stakeholders—mainly the government, market and public, whose pursuits are different from each other

or sometimes contradictory as the thoughts of the city managers are far away from the requirements for fast economic development of a livable city. Second, in order to solve some remaining problems at one time, it is common to apply overall removal and reconstruction during urban construction, especially in the renovation of the old towns and the residential dwellings for poor people, which leads to massive deconstruction of old towns and original communities. Many cities, with the guide of wrong value that economic benefits are the most important, carry out the renewal and reconstruction based on differential effect. As a result, a lot of residential lands in the old towns are converted to office buildings and commercial property, which breaks many communities, traditional community circles of residence, life and culture. Public groups who have moved away lose rights to their access to convenient transportation, perfect health care, good education, job opportunities and other resources in the original towns. Third, overall construction plans tend to deviate from fundamental values and criteria from time to time during urban development and even emerged vanity projects. And the result is that the government builds and uses worthless landmark buildings while labor, money and resources were invested in vain. Moreover this kind of building is neither ideal for public access, nor useful to the population. And at the same time, social problems in the city including insufficient public facilities, crowded and chaotic traffic and poorly maintained communities are often ignored. Therefore, city managers have to rise up to the challenge to balance the resource and proposal restrictions in urban construction with the humanity and livability involved in the rights of original residence.

## Vision and Action

With the development and progress of human society, we need to also upgrade the services gradually. A livable city promoted by public services aligned with modern philosophy should focus on three aspects. First, for a livable life, we need fresh air, clean water, quiet living environment where humans can be a part of the natural environment. Second, a livable city should have a sound social order, complete public services including disaster prevention and pre-warning systems, safe facilities for daily life, safe and convenient transportation and travel environment and so on. Furthermore, public services should stress on social fairness and justice. They should strive to reduce social poverty, create ample employment opportunities and ensure that everyone has access to adequate housing. Third, a livable city needs to have distinct local characteristics, encourage

public participation in urban public services, development and construction, and enhance residents' love and recognition for their homeland, so that they can have a strong sense of identity and belonging. The above three aspects are also the reason why Chile case has been included in this chapter. In the case, the government encourages house reconstruction and self-built by families by means of 'half a good house', which enhances the public participation of social construction while improving housing condition. The positive role of public participation can also be seen in the case of Malmö.

To ensure future development of a livable city, we need to regard 'people' as the core of city and continue to deepen our understanding of the concept of urban development. On one hand, urban renewal should shift from large-scale and violent developer-led knock-down and reconstruction projects, to small-scale, phased and cautious gradual improvement methods organized by communities themselves. On the other hand, we must remember that urban renewal is not just about improvement of physical, environmental and economic growth, but rather, it should render coordinated, long-term and sustainable improvement and enhancement in terms of society, economy, physical environment, culture and other aspects. 'People-oriented' is a core value in this transformation process. The ultimate goal of urban renewal is to meet human needs and fulfill their dreams. Thus, urban renewal should include social care, maintain rather than eradicate community ties; it should help rather than hinder community development and self-renewal. To achieve this goal, it is important to establish a mechanism to encourage community self-building and multi-role/organization participation, and create a fair and democratic decision-making environment, to ensure that public members actively participate in urban renewal and become important stakeholders in this process. Visions and measures of a livable city should not be limited to a single perspective, and should combine tangible and intangible infrastructure and humanistic heartware as it is not suitable any more to judge if the improvement of one single factor (housing, usually) proves the improvement of livability condition. Only the coordinated and synchronized development of 'tangible and intangible infrastructure and humanistic building' can meet the ultimate goal of livable city.

Tangible infrastructure mainly involves transportation, housing, energy facilities and development of other similar infrastructure. It emphasizes on increasing 'quantity', including infrastructure supply and subsequent operation. The most direct aspect of infrastructure supply is public transportation, as otherwise urban construction simply cannot be achieved. Through the Malmö, London, Dhaka, and

other case studies, this chapter shows that transportation solutions aligned with local conditions are required during urban construction. When it comes to transportation means and planning, a city's livability is measured based on the distance traveled by citizens and all distances traveled collectively. City managers and builders need to promote green transportation concept during the planning and management stage in the foreseeable future. They should vigorously advocate public transportation, encourage and guide public to participate in the construction and use of public transportation, and explore environmental charge objectives, principles, standards and measures related to motor vehicles. They need to adopt policies to encourage purchase of low-emission vehicles and impose appropriate traffic restrictions to improve traffic pre-warning standard, provide real-time services, prevent disasters and enhance the capacity of transportation system to address climate changes. At the same time, the development of transportation is indispensable with the overall development of the city. The extension of transportation brings the extension of the cities. The construction of livable cities is necessarily achieved through the development of transportation.

Regarding the intangible infrastructure, the livability of a city should be reflected on such basic material bases as transportation, infrastructure and housing, and considerations should also be given to the quality and efficiency of public service. Communication and interpersonal exchanges bring about public services. If housing, transportation and other physical infrastructure elements are prerequisites for livable cities, then public services are just as necessary conditions. Without good public services, a city will just be an empty shell without soul. David L. Smith lists three aspects of livability in his book, the first of which is that 'public health, pollution, and other aspects of livability'. The improvement and treatment of water safety in Dhaka is regarded as a quite good case. When it comes to employment, health care and education, it is not just a problem of the cities' own public service design. But a problem of national industrial structure and financing arrangements. Various integrated measures should be implemented to address severe shortage of medical and educational resources, to guarantee equal development of population. Livability is reflected in the building of a livable city where employment issues are solved through the supply of services, and young people, the homeless, the weak, women and children are offered with suitable jobs and income by proper distribution of operation right of public facilities. The intangible infrastructure of a livable city should go deep into every citizen's mind to achieve a universal and non-discriminative livability experience. In terms of the subsequent operation

and maintenance, it takes a long operational period for infrastructure to reach sustainable status. In a livable city, everyone gets to experience as well as provides public services. In the city's daily operations, every resident is not only a member, but also the owner. The United Nations Conference on Environment and Development held in Rio de Janeiro in 1992 advocated a few selection criteria such as 'adequate shelter for all' and 'sustainable human settlements in an urbanizing world'. The Malmö and Chile cases studies have made some new attempts in designing space and functions from the perspective of transforming space or changes in spatial structure.

In terms of humanistic heartware development for livable cities, there is a need for 'people-oriented' values, apart from infrastructure and other quality/quantity based public services. First, cultural heritage protection and people's participation play an important role during urban development and transformation, meanwhile, having an efficient channel to listen people's voice will be the first step in building 'people-oriented' values. Therefore, the construction of a public participation mechanism is becoming an important manner humanistic heartware. Before establishing such a mechanism, it is necessary to understand public demands. Solving urban development problems with 'creative thinking' is a new opportunity for city managers. Based on the original global development plan, carefully thinking about construction and service details, finding out demands and arranging priorities can help city managers provide organized services. Second, humanistic care is also reflected in tolerance and protection of cultural diversity. Regardless of religious, cultural, ethnic and geographic differences, existence of diversity should be reflected in society's humanistic development. London's Underground Culture exactly depicts the interactions between culture and a livable city. In the case of Dhaka, conflicts between the dominant religion and mixed residences of multiple ethnic groups pose a severe challenge to managers. Third, the application of PPP mode and BOT mode has prominent advantages and successful experience in project implementation and moreover, humanistic heartware building can also learn from it and form an interest sharing community of 'government-public-project'. The former mode refers to a partnership cooperation relationship between the government and private organizations based on concession agreements for cooperation in construction of urban infrastructure projects or supplying of public goods and services. Rights and obligations of both parties are outlined in a contract to ensure a successful cooperation. And at last, all the parties of the program are enabled to yield more beneficial results than solo engagement. The above two

modes have been applied in different manners in Kenya and Chile cases.

## Reference Cases

### 1. Dhaka, Bangladesh: Change the Title of Most Unlivable City<sup>1</sup>

We used to see that the process of emergence and deterioration of a problem was fierce and rapid in urbanization drive while it usually took a long time to treat and return to ideal status. However, Dhaka managed to change the title of ‘most unlivable city’ within three years, showing an amazing speed and effect.

#### 1.1 Case Overview

Dhaka is the capital of Bangladesh. Located in the alluvial plain at the lower reaches of Ganges and Brahmaputra, it is one of the world’s most populous cities with approximately 15 million urban population and 17 million covered by Greater Dhaka area. Dhaka has a long history of civilization. As the erstwhile economic center of the Mughal Empire, it contributed 50% to the Mughal Empire’s GDP. It is often referred to as Venice of the East. Since 1793, railway and jute trade developed rapidly in Dhaka under the British East India Company’s rule. There was a rise in education and cultural industries, injecting new vitality to the city of Dhaka. After India’s partition in 1947, Dhaka was the capital of East Pakistan, and its administrative functions were further improved. After Bangladesh gained independence in 1971, Dhaka became a comprehensive city integrating politics, economics and culture, and its population expanded rapidly.

Bangladesh is one of the world’s most underdeveloped countries. There were sharp contradictions between the low-grade backward infrastructure and rapid modernization, as well as the massive influx of population in its capital Dhaka. As a result, the lagging of urban management became prominent. Since the 21<sup>st</sup> century, in particular, air pollution, water pollution and traffic congestion have become three stubborn problems troubling Dhaka’s urban management. In 2012, the Economist Intelligence Unit (EIU) named Dhaka ‘the city most unfit for human habitation in the world’ in the assessment of livability index of 140 major cities<sup>2</sup>.

Dhaka’s primary problems are as follows: The first is air pollution. Industrial emissions, vehicle emissions and unsorted treatment of domestic garbage are main

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<sup>1</sup> [http://www.dhakasouthcity.gov.bd/roll\\_of\\_honer/index.html](http://www.dhakasouthcity.gov.bd/roll_of_honer/index.html).

<sup>2</sup> [https://www.eiu.com/public/topical\\_report.aspx?campaignid=Liveability2012](https://www.eiu.com/public/topical_report.aspx?campaignid=Liveability2012).

sources of pollution. Specifically, industrial emissions mainly come from brick kilns, fertilizer factories, jute and textile mills, cement plants, metal workshops and so on in Dhaka's rural-urban fringe zones. It had become normal for these factories to discharge their emissions without treatment, producing a lot of smoke, dust, as well as harmful chemicals such as hydrogen sulfide, ammonia and chlorine, which were Dhaka's main sources of air pollution. Dhaka's residents were very discontented with this.

The second is water pollution. Taking Sonargaon near Dhaka as an example, it was discovered that average arsenic content in the township's well water was over 2mg per liter, 40 times higher than the standards of Bangladesh Ministry of Health and 200 times higher than World Health Organization standards<sup>1</sup>. Long-term consumption of water with excessive arsenic can easily lead to cancers of the bladder, lungs and other internal organs, all of which are of high mortality rate.

And the third is traffic congestion. Bad traffic conditions in Dhaka resulted in people stuck in traffic for unbearably long time. Traffic chaos hampered people's mood to travel and their work efficiency, and also endangered public safety with 80% of traffic accidents caused by vehicles knocking down pedestrians<sup>2</sup>.



Figure 6.1 Dhaka Street in Congestion

<sup>1</sup> <http://www.wenkuxiazai.com/doc/831ab21ac5da50e2524d7f54-3.html>.

<sup>2</sup> [https://en.wikipedia.org/wiki/Transport\\_in\\_Bangladesh](https://en.wikipedia.org/wiki/Transport_in_Bangladesh).

As one of the most underdeveloped countries, the inlivability of Dhaka the Capital put the mangers in an awkward position. With restricted domestic finance, city managers turned their eyes to foreign countries and actively sought financial and technical assistance from United Nations, Asian Development Bank and other international organizations. They actively implemented changes and were cooperative, thereby shedding the title of ‘most unlivable city’. Their success on the path of exploring sustainable development is worth learning.

## 1.2 Specific Measures

**(1) Dividing Dhaka into Two Administrative Areas—Northern and Southern with Specified Functions.** Since coming into power in 2009, Prime Minister Sheikh Hasina has been determined to eradicate management related chaos in Dhaka. One of the important measures that Mr. Hasina took under big pressure is to divide Dhaka into two independent and paralleled administrative areas, namely South Dhaka and North Dhaka. South Dhaka is the former Dhaka in traditional sense with University of Dhaka, traditional business centers and major national government agencies here. Economic conditions were good but infrastructure was aging. Many projects needed renovation and upgrading, and air quality was very poor.

Experts at the United Nations Environment Program (UNEP)’s Office in Dhaka<sup>1</sup>, offered viable suggestions, based on which the government of South Dhaka established three offices: the Office of Public Health, which administered Food Hygiene and Mosquito Control Departments; Office of Environmental Health, which administered Garbage Collection, Garbage Transportation and Equipment Purchase Departments; and lastly Office of City Appearance Planning, which administered Building Appearance Approval and Landscaping Promotion Departments<sup>2</sup>. The government established specific functional organizations to remedy South Dhaka’s dirty, disorderly and poor situation. The government also allocated special funds to compensate for losses of local private owners when their brick factories and jute mills were shut down, and to repair urban roads and drainage system. They also implemented traffic restrictions for trunk roads during rush hours, widened roads by demolishing old buildings and removed a large number of illegitimate billboards on streets and high-rise buildings to enhance the horizon of space. South Dhaka’s appearance was thus significantly improved. Changes could be observed especially during major festivals, such as Mother Language Day (February 21<sup>st</sup>), etc., As South

<sup>1</sup> [http://www.unep.org/roap/Activities/EnvironmentalGovernance/Poverty Environment Initiative/Bangladesh/tabid/6786/Default.aspx](http://www.unep.org/roap/Activities/EnvironmentalGovernance/Poverty%20Environment%20Initiative/Bangladesh/tabid/6786/Default.aspx).

<sup>2</sup> [http://www.dhakasouthcity.gov.bd/roll\\_of\\_honer/index.html](http://www.dhakasouthcity.gov.bd/roll_of_honer/index.html).



Dhaka's air quality and traffic conditions has improved remarkably, the general public participating in the activities praised the changes unanimously.

North Dhaka is the home of the Prime Minister's Office, Embassy Row (Gulshan), business center (Banani), airport and military stations. Annis-ul-Huq, Mayor of North Dhaka was ambitious. Being determined to convert North Dhaka into an economic and financial hub, so he undertook more strict measures in urban planning and design, traffic dispersion, pollution and emission control, and other aspects<sup>1</sup>. Against all odds, Mayor Annis-ul-Huq made land requisitions to broaden highways directly connecting to the airport, and built many viaducts in the city to 'replace congestion by dispersion'. The local people supported the improvement in the living environment, while the United Nations' Office in Dhaka and other international organizations also praised these efforts.

## (2) Controlling Water Pollution with the Aid of the United Nations and Other Foreign Organizations.

- The government adopted UNEP's suggestion to deal with a large number of ubiquitous open-air garbage dumps in Dhaka. With the help of the UNEP, the Dhaka government made a general plan for solid waste management and at the same time conducted systematic training for relevant practitioners in the government.<sup>2</sup>In addition, Dhaka authorized JICA and other foreign organizations to assist it specifically in the following aspects: collecting and analyzing information and data about surface water and groundwater pollution, making field investigation of solid waste treatment and water pollution status in Dhaka, assessing current situation and listing specific issues, establishing an initial planning framework, basic strategies and work plans, designing an overall plan, which should include cost and benefit analysis, establishment of organizations, financing programs, etc.; and proposing priority projects.<sup>3</sup>Dhaka hoped that with the help of foreign aid agencies, solid waste treatment would become a comprehensive, sustainable and cost controllable urban task and drive improvements in various aspects including society, companies, organizations and individuals, and bring forth improvements in technology and engineering. The projects include the following four items: first, participatory solid waste management; second, building capacity for collection and transportation; third, improvement of final disposal sites and finally, establishment

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<sup>1</sup> <http://dncc.gov.bd/projects/309-information-regarding-the-dhaka-integrated-urban-development-and-smart-city-management-mission-from-sept-13-17,-2015.html>.

<sup>2</sup> <http://www.unep.org/gpwm/InformationPlatform/CountryNeedsAssessmentAnalysis/Bangladesh/tabid/106525/Default.aspx>.

<sup>3</sup> [http://www.jica.go.jp/bangladesh/english/activities/01\\_4\\_1.html](http://www.jica.go.jp/bangladesh/english/activities/01_4_1.html).



Figure 6.2 Well Mouth with Red Sign Affixed

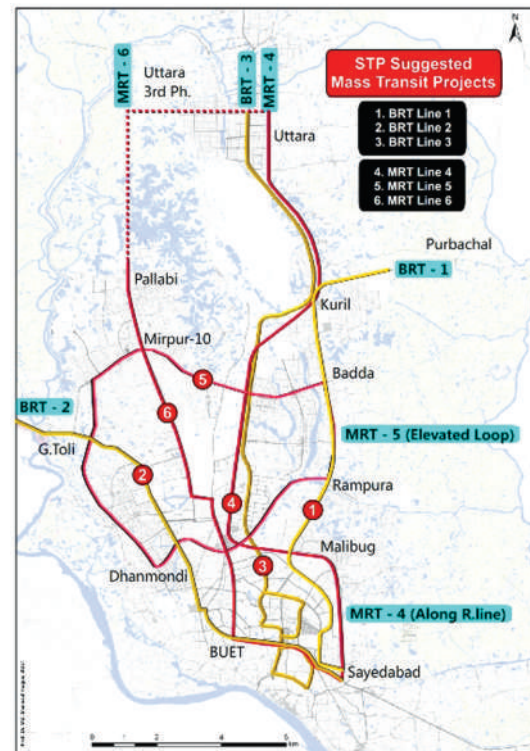
and operation of solid waste treatment supervision and management agencies.

- Eradicating groundwater pollution. Improving drinking water quality is one of the priority projects of United Nations Development Program (UNDP)'s Office in Dhaka<sup>1</sup>. With the help of UNDP, Dhaka carried

out large-scale sampling analysis of groundwater in deep tube wells. Inspection of deep soil in Dhaka revealed that content of natural arsenic was still too high. Dhaka government affixed a red sign plate on the mouth of wells with excessive arsenic, and a green sign plate on those with safe water, to inform residents about water quality. Dhaka government provided price subsidies for poor residents who lived far from safe water, so they could buy safe drinking water, thereby minimizing arsenic pollution hazards to their health.

**(3) Building Mass Rapid Transit (MRT) and Bus Rapid Transit (BRT) in the City with International Assistance<sup>2</sup>.** The number of motor vehicles in Dhaka is constantly increasing, as government cannot curb this rapid growth even by significantly raising vehicle purchase tax, making it increasingly difficult to control Dhaka's traffic congestion. Dhaka's annual economic loss caused by traffic congestion is estimated to be about USD 2.5 billion, accounting for about 1.5% of GDP or 7% of tax revenue. People who cannot afford private cars generally choose auto rickshaws or cycle rickshaws. Dhaka is even called the 'Rickshaw Capital' because of its 600,000 rickshaws plying in the city.

With Asian Development Bank's assistance, North Dhaka prepares to build a 20-kilometer BRT line between



Source: <http://www.dtc.gov.bd/Files/MapImages/7.MRT%20and%20BRT%20alignment/MRT%20and%20BRT%20alignment.jpg>.

Figure 6.3 Planning Map of MRT and BRT in Dhaka

<sup>1</sup> [http://www.bd.undp.org/content/bangladesh/en/home/operations/about\\_undp.html](http://www.bd.undp.org/content/bangladesh/en/home/operations/about_undp.html).

<sup>2</sup> <https://sustainabledevelopment.un.org/partnership/?p=2266>.

Gazipur, an industrial area and the airport<sup>1</sup>. With direct assistance of foreign countries Official Development Assistance (ODA), South Dhaka and North Dhaka will cooperate in the construction of the first light rail (Line 6) in Dhaka<sup>2</sup>. Line 6 will be able to carry 500,000 passengers per day and shorten the travel time from Uttara in North Dhaka to Motijheel in South Dhaka from 110 minutes to 36 minutes. BRT and MRT construction will dramatically change Dhaka residents' travel habits and bring greater travel convenience.

**(4) Making Efforts to Reduce Urban Crime.** Religious conflict in Dhaka is the root of many social problems. Drug abuse, robbery, theft, and religious extremism and violent activities were major headaches for Dhaka's city managers.

Dhaka government has immediately strengthened public security on the streets by implementing a series of temporary or normalized measures. First, the police selectively examine motor vehicle (including motorcycle) drivers' documents during daytime. They further question those with forged documents or those who are unable to show valid documents. Second, military guards disclose some important districts after 10 p.m. and conducted selective examination of motor vehicles at major intersections in the city to check if they are loaded with explosives and other prohibited materials. Third, the Rapid Action Battalion under the Ministry of Home Affairs makes armed patrols on the streets of the city, day and night, to deter those attempting to commit a crime and student unions in universities advocate speeches of positive energy, such as staying away from drugs, and eliminating theft and robbery. After over 6 months of control, there are no more reports on vicious events. The public security environment has enabled residents to regain their confidence.

### 1.3 Management Effects

As a result of Dhaka government's unrelenting efforts, air pollution, water pollution and traffic congestion are well under control and corresponding health care, hotel and other supplementary tourism investments are also encouraged. The latest assessment by the World Health Organization in 2015 showed that Dhaka has successfully shrugged off the tag of 'city most unfit for human habitation' and is striding forward towards becoming an environmentally friendly city<sup>3</sup>.

### 1.4 Experience and Inspiration

As a large city in South Asia, Dhaka's urban management has distinctive

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<sup>1</sup> <https://sustainabledevelopment.un.org/partnership/?p=2266>.

<sup>2</sup> <http://www.jica.go.jp/bangladesh/english/office/topics/speech160327.html>.

<sup>3</sup> [https://www.eiu.com/public/topical\\_report.aspx?campaignid=Liveability2015](https://www.eiu.com/public/topical_report.aspx?campaignid=Liveability2015).

characteristics, and there is much to learn from for city managers in many developing countries.

**(1) Rights and Responsibilities of City Administration Departments must be Clearly Defined.** Administration departments should give priority to professional skills when creating job openings, as it is better to allot specific responsibilities to a specific person to avoid ‘each department acting on its own’, passing the buck, multiple management and low efficiency.

**(2) City Managers should Actively Seek Technical and Financial Support from International Organizations.** Urban development in developing countries is highly unbalanced and urban construction relatively lags behind. However, due to language barriers, it is difficult for administration departments in some cities to obtain assistance on projects from international organizations. But they can hire experienced people to work as consultants. These consultants can actively contact and communicate with the international community, and push for technical and financial assistance from the United Nations and foreign organizations, through project reporting and active cooperation during the assessment.

**(3) Urban Light Rail is a Good Choice for Rainy Southern Cities to Improve Traffic Conditions.** Subway construction in humid and rainy cities usually requires more power for ventilation and drainage, increasing operating costs. Therefore, urban light rail becomes a more competitive and feasible option. Apart from light rail, elevated expressways can also effectively relieve ground traffic congestion.

**(4) Drinking Water Safety is a Potential Risk that City Managers must Pay Attention to.** Up to 40% of Dhaka’s population faces threat of arsenic poisoning, and this obviously makes residents uneasy. Many cities in developing countries have water pollution problems resulting from industrialization and urbanization. As a result, city managers should place particular emphasis on the situation that whether sewage discharge from factories around the city meets standards. They should block rent-seeking motivation of approval departments by running dynamic assessment, accountability tests, etc. in order to provide city residents with safe drinking water.

## 2. Kenya: Iko Toilet Project—Improving Urban Living Environment<sup>1</sup>

Kenya’s Iko Toilet case cleverly combines initial and sustainable aspects of livable construction. It also takes into account the sustainability of life-ecology cycle and

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<sup>1</sup> Dubai Award 2010, [http://mirror.unhabitat.org/bp/bp.list.details.aspx?bp\\_id=1129](http://mirror.unhabitat.org/bp/bp.list.details.aspx?bp_id=1129).

employment, while ensuring that sanitation and health, basic needs for survival are met.

## 2.1 Case Overview

Kenya experienced rapid population increase since the middle 20<sup>th</sup> century, from 6.07 million to 41.07 million in 2011. 65% of its capital Nairobi's population resided in slums, occupying barely 5% of the city's area. Despite rapid population increase, public service resources were comparatively scarce, especially those for construction of basic public service facilities. Government investment in Nairobi for public sanitation facilities was almost absent in the past 30 years. Thus, public toilets are overcrowded, with poor facilities, dimly lighted, inaccessible and in unhygienic conditions. The more serious issue is the general lack of privacy and security. These problems weren't addressed by local governments or non-governmental organizations. Thus, a large number of residents chose open defecation, which was a common phenomenon in slums such as Mathare. Furthermore, waste collection services in the area were deplorable, thus land and water contamination posed a bigger threat to public health. Diarrhea accounted for 19% of under-five mortality (over 30,000 deaths / year) in Kenya, 11 times the number of deaths caused by AIDS. City managers, social service providers and partners began seeing this as a serious challenge. To address this issue, Kenya launched the 'Iko Toilet' project in 2007.

As an architect, David Kurina<sup>1</sup>'s goal is to change Kenyan people's perception towards toilets, thus changing their lifestyle. The term 'Iko Toilet' was coined by David, which literally means 'there is a toilet'. David has engaged in research, evaluation and technology development related to urban environment and community environment for nearly 10 years. Before creating the 'Iko Toilet' concept, he was seriously concerned about the dangerous conditions of public toilets in Kenya. Drug trade, robbery, vandalism and other incidents often took place in public toilets.



Source: <http://www.forbes.com/sites/ashoka/2013/01/28/why-the-sanitatio-business-is-good-business/#577310754954>.

Figure 6.4 The Iko Toilet in Kenya

<sup>1</sup> Ashoka, <https://www.ashoka.org/fellow/david-kurina>.

To avoid risks, people often defecated outdoors or used plastic bags to hold excrement and threw them away wherever they could. Keeping this in mind, an idea to design a beautiful and safe toilet that can change people's attitudes towards using public toilets came to David's mind. Thus the 'Iko Toilet' that we see now was born. This idea found resonance with Ecotact, a social enterprise dedicated to addressing health issues in Africa. Ecotact the organization officially released the 'Iko Toilet' product in 2007 and David's idea was also put into practice.

## 2.2 Specific Measures

The 'Iko Toilet' is an innovative solution to Africa's growing environmental sanitation problem.<sup>1</sup>The project was led by Ecotact, a social enterprise and completed through cooperation with the government. Its goal was to establish good health service facilities in cities, especially in low-income residential areas. The 'Iko Toilet' was originally designed to establish an ecological sanitation system. The 'Iko Toilet' saves water in men's toilet, featuring waterless urinals and a complete set of facilities such as rainwater harvesting system for unexpected needs. It is also equipped with an ultraviolet water purification device so that nearby residents can have access to purified drinking water. 'Iko Toilet' tries to minimize pollution and recycles human waste through cooperation programs between the local government and international universities. Existing recycling and other technologies have improved local waste collection situation. The 'Iko Toilet' has minimal costs, ensuring its usage everywhere, it has also specially designed children's facilities, making the 'Iko Toilet' more user-friendly.

'Iko Toilet' also complements numerous business services. It creatively launched the concept of a 'toilet-mall', thereby optimizing public health facilities, and also providing business services that bring substantial income. Some of the business services in the 'Iko Toilet' provide electronic money transfer service, shoeshine, haircut, convenience stores, etc. With all these services, 'Iko Toilet' is like a small 'mall'. These commercial activities create income and increase employment, while also providing more public space for citizens. Activities such as beauty pageants and performances by top comedians and musicians, or political and religious speeches by leaders at the 'Iko Toilet' have helped it develop into a landmark. It has become a gathering spot on urban streets, enriching local residents' lives, while more importantly influencing and transforming local people's perception towards toilets, thereby promoting an upgrade in public health facilities. It also

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<sup>1</sup> Hydratelife, <http://www.hydratelife.org/?p=250>.

offers possibilities for the project to promote sustainable transition of urban health intervention measures and subsequent operation.



Source: <http://www.hydratelife.org/wp-content/uploads/2012/04/photo-courtesy-of-sustainable-Sanitation-Rafael-Ziegler-and-Christian-Dietsche/.jpg>.

Figure 6.5 Iko Toilet Mall



Source: <http://one-org.s3.amazonaws.com/us/wp-content/uploads/2015/11/19095420/blog-ikotoilet669-600x450.jpg>.

Figure 6.6 Full View of Iko Toilet Mall

The 'Iko Toilet' is operated on a Build-Operate-Transfer (BOT) basis<sup>1</sup>. This means that Ecotact bears all construction costs, and it then contacts and engages municipal governments across Kenya to provide land for these facilities. Ecotact runs the facilities during the first 5 years, ensuring investment recovery. Once this term is completed, facilities are taken over at no cost by the local government. To ensure better project implementation, a water and sanitation (WATSAN) committee is set up, the members of which include several sectors of the community, including elders, women and youth groups as well as some municipal staff. This committee's role is to verify proposed sites for Iko Toilet construction, oversee contracting, and ensure safety of building materials. The Committee recruits two male and two female youth workers who are trained to be in charge of cleaning the facilities. WATSAN is also responsible for selling prepaid cards of 'Iko Toilet' to the families. The whole family can share one card and disabled people can use Iko Toilets for free.

During early negotiations, the Committee and the public jointly established the overall plan of 'Iko Toilet' project to acquire licenses and approvals for the equipment or facilities used by the project. The project has made use of unconventional resources both in terms of technical and economic aspects. To make this project popular on a large scale, a market-oriented franchise system for local youth has been developed, allowing local youth to manage these facilities. The management right should meet conditions of public health facilities and the youth should also build relationship between enterprises and customers. The main

<sup>1</sup> IWA Water Wiki, <http://www.iwawaterwiki.org/xwiki/bin/view/Articles/Ikotoilets+-+Kenya>.

functions of Municipal Affairs involve offering public convenience and public utilities investment and management; hence negotiations and credit confirmation will be required when the project is converted into private operation. Public toilets were regarded as dirty, messy and unsafe places, so it took quite some amount of social marketing to change this public mindset. More investment, leadership, project contracting and overall management from local government are required to build such infrastructure in Nairobi's slums. After consultations, the local government asked young people to implement effective, long-term and sustainable maintenance by supporting registered communities and self-help groups.

As for the source of funding, the initiator of Kenya's Iko Toilet, Ecotact is primarily responsible for funding the project. During implementation, the project is also funded by Acumen Fund, Global Water Challenge and World Bank. Income will also be generated in the operation of 'Iko Toilet'. The primary source of income is the charge of USD 0.06/time, followed by the income from advertisements in Iko Toilet, and that from rent of small shops with the 'Iko Toilet'.

### 2.3 Case Effects

The project began in 2007. During the first month of operation, approximately 200 families registered and used the Iko Toilets, based on which, it would be about 2,000 users per day. As of 2011, 34 Iko Toilets were distributed in 12 cities in Kenya, including 2 in slums. They were used over 4 million times in 2009 and 10 million times in 2012. Surveys assessing customer satisfaction indicated that 67% of people using Iko Toilets were satisfied with the service<sup>1</sup>. 1% of the users were unsatisfied with the service, as the USD 0.06 fee seemed a lot of money for them. They also felt that the facilities were far from their residence, making it inconvenient for them to use. The promotion of the project was reflected directly on the great deduction of outdoor defecation. And in fact some excreta were reused, which played a model role.

Iko Toilets project has not only represented the application of green technologies in sanitation field, and but also created a cleaner environment and reduced the exposure to waterborne diseases. Before this project was publicized, residents often went into bushes, slopes and so on for open defecation. This has now been greatly reduced, and people have gradually accepted the indoor toilet concept. Operation and maintenance of Iko Toilets have created job opportunities for a number of youth groups, and this is further enhanced by micro-businesses set up in the same toilet complexes offering other services. Furthermore, the area surrounding the toilet facilities is used by the

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<sup>1</sup> IWA Water Wiki, <http://www.iwaterwiki.org/xwiki/bin/view/Articles/Ikotoilets+-+Kenya>.



residents in the community as public space for recreational activities. People often gather here for games and sports activities due to its location.

The project is sustainable. With the recycling system within the Iko Toilets where human waste is collected and used to produce fertilizer, while the rainwater collecting system greatly reduces wastage of clean water. And regarding personnel management, the WATSAN committee creates possible opportunities for community participation, and equal representation of men and women within this committee reflects equal opportunities. This bottom-up spontaneous management model has greatly reduced operation costs. The project contracting model is also sustainable. With the Iko Toilets' 'build-operate-transfer' model, the local government will continue operating the Iko Toilets after Ecotacts' 5-year operation period ends. This is not just transfer of property, but also the inheritance of management experience. It also provides excellent management and technical experience for youth groups through several training programs that will help them achieve their career goals.

## 2.4 Experience and Inspiration

### (1) Role of City Managers and Tangible Infrastructure Construction.

- Emphasizing role of social enterprises in public services and infrastructure. Social enterprises play a significant role in the entire project (i.e., transfer of public service functions to private operation), and there is great potential for sectors to undergo transformational development. During the implementation of the project, local and overall cooperation should focus on enterprises' sense of social responsibility, whereas assessment of authority and social credit is critical to organize efficient and timely social services for the public.

- Actively promoting cooperation between public sector and private sector. The two sectors can make joint efforts in providing public services and environmental protection, achieving a win-win situation. Iko Toilet is a perfect example of the cooperation and complementing each others advantages between public and private sector. Private sector has leveraged its advantages in funding, design and management during project implementation, while public sector has played a role in overall planning, personnel transfer and so on.

- Mobilizing human resources in a wider range. Youth-oriented franchise systems and self-help groups have greatly improved public participation, All social forces have been mobilized to participate in public services. At the same time, personnel arrangements by social groups, fairness, justice and needs of various groups should be considered, and special training opportunities and development

space should be provided to youth groups.

## **(2) Establishment the Concept of Livable City and Cultural Intangible Infrastructure Construction.**

- Establishing the importance of sanitation and creating awareness among residents. The greatest success of Ecotact lies in how it reshaped the concept of public toilets, as a result of which, most Kenyan residents have abandoned their habits of open defecation. One of the most important reasons is that using these new toilets has brought them a measure of self-esteem and identity.

- Publicity of public services. Growing social media effect has helped a lot in building buzz about the innovative part of entire project. Media elements added to various landmarks, public service facilities and so on have propelled social changes.

- Creating a community culture. The building of Iko Toilet is not only an improvement and supplement to infrastructure, but also a creation of similar platforms. Thanks to their unique location and convenience, extension effect is easier to generate, among which, the extension of public space is most obvious. Iko Toilet and its extended services act as a link between social groups for both recreational and sports activities, as well as some political publicities and mobilization activities.

## **(3) Improvement of Humanistic Heartware and Enhancement of Comprehensive Social Benefits.**

- It takes time for infrastructure to show effect just as people need time to get to know and accept new things, people always need a lot of time and patience to form habits from experience, from pilot program to large-scale promotion. As time goes by, these projects will gain wider support and incentives for green infrastructure from the government and communities.

- Supply of public services should be sustainable. Iko Toilet's major highlight is its unique business model. Management rights can be transferred from public sector to private sector. It is easy to copy and inherit management experience, thereby ensuring sustainable service supply.

- Awareness of the comprehensiveness of social problems. Open defecation results from the concerns about toilet security, in turn causing environmental pollution and spreading diseases. We realise that any single social problem can lead to a series of problems. Similarly, the treatment of a single problem can bring additional benefits. Therefore, the treatment of any social problem should be forward-looking and comprehensive, both in terms of method and perspective.

### 3. Western Harbor in Malmö, Sweden: From Industrial City to Eco City<sup>1</sup>

Malmö represents another type of livable city development—development transformation in developed countries. With global economic integration, and differentiation of urban functions, more and more cities in developed countries have shifted their development focus from industrial city construction towards de-industrialization, making livability a core of urban construction. This case provides references for transformation of other cities in developed countries, on how to create a livable environment reflecting local cultural characteristics and natural resources, based on industrial and old urban development sites.

#### 3.1 Case Overview

Located in Skania Province in southern Sweden, Malmö is Sweden's 3<sup>rd</sup> largest city. In the 1960s, steel girders and chimneys were common features in Malmö, and mounted cranes and large machinery were seen everywhere. Malmö's Western Harbor is a hub for shipbuilding and automobile manufacturing industries. Kockums Shipyard is one of the world's largest shipyards, and is a local pillar enterprise. Several generations of many families have worked here. However, when the focus of manufacturing shifted from Europe to Asia, Malmö's economy gradually declined. Factories closed one after the other, and many companies and employees moved away from Western Harbor, where abandoned wharves were soon overgrown with weeds.

At the end of 1994 when Malmö had begun to take on the look of 'a desperate city', Ilmar Reepalu was appointed its mayor. The newly appointed mayor understood that urban transformation had to be top priority. His first job was to decide whether to develop tourism, or industry or new industry. The *United Nations Framework Convention on Climate Change* helped him make this big decision within a month: to build an eco-friendly city.

In 1995, taking advantage of the opportunity of the competition with other European cities to host 2001 'European Urban Housing Fair', Malmö proposed the idea to transform abandoned old wharves into energy-saving and eco-friendly new residential areas. The first phase of renovation project 'Bo01' (means 'living in 2001' in Swedish) was launched, and Western Harbor became a 'large experiment lab' for green city construction.

Western Harbor started construction in 2001, and its original design involved

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<sup>1</sup> 'Case Introduction of Low Carbon City: Malmö', *Urban Planning Newsreport*, Issue 7, 2011.



Figure 6.7 Malmö, the Third Largest City in Sweden

land reclamation from the sea using industrial waste. Based on abandoned industrial wharves condition and sites with industrial pollution to some degree, the municipal government set a high construction goal from the very beginning. It aimed to transform the area into an experimental area of eco-sustainable technologies, making it a new growth point for social economy of Malmö, as well as converting it into an attractive new urban area in the 21<sup>st</sup> century. The project's first phase, Bo01 residential area, was completed in 2008.

Bo01 community covers an area of 30 hm<sup>2</sup> with a gross floor area of 175,000 m<sup>2</sup>, including 80,000 m<sup>2</sup> for residential area, 40,000 m<sup>2</sup> for office space and 55,000 m<sup>2</sup> for other purposes with a plot ratio of 0.58 and 800 units of dwelling. The community has a good mix of detached houses, apartments, office and small residential units for people between the ages of 25 to 55. For the landscape system planning of the community, there was a common treaty that every building should be directly exposed to water and nature, so as to achieve environmental quality and fairness at maximum level.

### 3.2 Specific Measures<sup>1</sup>

(1) **Design of Sustainable Water System.** There are numerous lakes and

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<sup>1</sup> Han Xili, Peter Sjostrom. 'Landscape Architecture in Sustainable Development of New Districts'. *Landscape Architecture*, Issue 4, 2011.

abundant fresh water bodies in Sweden. Therefore, it makes more sense to pay attention to ecological regulation and recreational functions of water systems in water use. In addition, self-purification capacity of water body is improved through plans and designs so as to maintain ecological health.



Figure 6.8 Impression of Sweden with Many Lakes

First, community water system planning. At the initial stage of Bo01 planning, the Malmö Planning Office defined three goals for water system planning: first, to connect the community and central area of the old city through a water system; second, to make each building have direct contact with water and nature; third, to collect rainwater and make sustainable use of the water with plants. Under the guidance of this goal, Chief Architect Klas Than developed overall planning based on towns and blocks layout in Mediaeval Time. By taking into consideration the local sea wind characteristics and the changes among layers in open space, he designed a slow street system woven from different angles and a lively and changeable neighboring layout along with many wind shelters. The whole community consists of three areas—residential area, European-style village and green space. Water is taken as a basic element in all these areas, and each building is constructed near the water with the help of an artificial canal running across the residential area and European-style village. The bank of the canal forms a belt-shaped green space in Bo01 community. With the water-harvesting pool in the center of the site as a source, the canal crosses the residential area and European-style villages in forms of lakes, small waterfalls, creeks and wetlands, and finally joins the sea in the

north and the artificial marinas in the south. The designers have cleverly introduced different water features into this new urban area, maximally optimizing the living environment.

Second, water-featured design aims to deliver landscape appreciation experience. The outdoor environment in the community, employed water as basic element, offering many opportunities for citizens to interact with water landscape. The features include abundant and various water landscape for residents' appreciation, shallow water square, stepped recreational piers, waterfront promenades, waterside sundecks, diving platforms, water spiders, small waterfalls, creeks, wetlands and so on. Although the community is located near the sea, with abundant water resource, the water landscape still features small and eco-friendly design, offering pleasant living environment by proper using of water elements and rich water landscape designs.

## (2) Water-based Planning and Design for Community Green Space System.

First, connected open space system in community green area. Urban open space systems are often segregated by busy motorized vehicle lanes, so it is difficult to achieve a real sense of continuity. However, Bo01 community has designed a continuous open space system. The community separates motorized vehicles



Figure 6.9 Water System Design in Malmö

from non-motorized vehicles. This layout clearly divides the community open space into two levels, a water-based central open green space, continuous and fully open to Malmö residents, and a courtyard-style semi-private neighborhood open space enclosed by buildings. With canals, harbors, marinas and other water as the framework, the open and continuous central green space connects Bo01 community with two city-level parks in Malmö, namely Slottsparken and Kungsparken in the south, and finally with the moat in Malmö's old town to form a linked circular water system and a continuous open space in the city.

Second, community green area design that creates a semi-natural environment. In Bo01 community habitat-oriented green design is reflected in environment protection and creation. For protection, although Western Harbor was a contaminated and abandoned industrial zone, the planners included protection of existing species in the plan. Local environmental protection and scientific research institutions conducted thorough research on species and soil, and conducted hydrological testing in the residential demonstration zone, with the aim to properly relocate and protect species that existed there before the project begins. They would be transplanted back during landscape design in the final stage of the project. And for the aspect of creation, the designers created a small 'eco-island', a semi-natural habitat by making use of rainfall runoff and tidal processes, which served as the main idea behind greening design.

To start with, the designer set up a platform on the seashore flooded by tides and scoured by rainfall, creating a habitat for algae, where they would thrive under the interaction of salt water and fresh water. Then, a number of roof greening and gardens were used to collect and purify the rainfall, in order to reduce rainfall runoff in the community, in addition, sloping roofs added aesthetic appeal. Residents can enjoy the rich riparian wetland habitat both outdoors and indoors, created by the canal's natural gentle sloping embankment. These wetlands are connected with private gardens and riparian public promenades, making it a popular green space for residents. Finally, a large number of small wetland habitats were created by combining many of the rainwater tanks spread across the community to form a semi-private open neighborhood space that is pleasant and relaxing, strengthening the belonging of the community.

**(3) Promoting Walking and Cycling.** The construction of Western Harbor aims to create a safe and comfortable new pedestrian area. The community transport system design is walking and cycling oriented, separating motorized vehicles from

non-motorized vehicles. Three measures were adopted in the plan, first, to control the main flow of motorized vehicles in the community on its east periphery and make full and comprehensive use of underground parking lots, second, as there were only three parking zones inside the community, they were extended with the help of streets, but all these zones were paved with bricks. With speed limit of 30 km/h, motorized vehicles can use these zones only on few special occasions, creating a good environment for walking and cycling. Finally, there are free to use electric vehicles for the public, which help minimize motorized vehicles in the community, creating a large area of safe and comfortable zones for walking and cycling. Urban trunk roads on the east periphery of the community connect to the old towns, while punctual and convenient bus services and bicycle lanes connecting old towns have greatly reduced the use of motorized vehicles. As a result, this bicycle and public transport-based travel model in the new urban area has greatly helped in maintaining urban environment safety.

### 3.3 Case Effects

In 2009, Malmö was named the Best Growth City of Sweden, and it won the UN Habitat Scroll of Honor Award. As a result, Reepalu was also nominated for the ‘2010 World Mayor Prize’. For the future, Malmö proposed that by 2010, the whole city will realize 100% zero carbon emissions and by 2030, the city will use 100% renewable energy<sup>1</sup>.

### 3.4 Experience and Inspiration

Many countries are undergoing rapid urbanization and urban construction. In the big context of abnormal climate with increasingly serious crises of man-land relationship, city managers, planners and designers are required to start from nearby small-scale projects, to contribute to resolving large-scale environmental problems. Construction of landscape gardens in Malmö’s Western Harbor has given a lot of valuable experience to learn from, which can be summarized as follows.

#### (1) Role of City Managers and Physical Infrastructure Construction.

- Significance of new thinking for city managers. The role of city managers in urban development is self-evident. While they need to fully leverage good management experience of other cities in the world, they also need to look beyond existing experiences, propose new thinking on sustainable development and consider for long term perspective. In the short term, transformation and

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<sup>1</sup> Sustainable City Development, <http://malmo.se/English/Sustainable-City-Development-2016/Sustainable-City-Development.html>.



upgrade will encounter obstacles. For example, there could be economic slowdown, withdrawal of companies and other such events. However, companies will revive after transformation, and other high-quality companies will also be attracted to the city.

- City managers should maximize nature's bounties to reduce artificial maintenance costs. There is space for species to propagate, if traditional urban greening concept is changed, and more semi-natural habitats based on the city's native biological ecosystems are built. With the organization and design capabilities of the nature itself, more urban open green spaces can be established. They should establish a universal landscape component system, achieve standardized production and use of landscape materials, saving material to a maximum extent and promote recycling use of materials.

**(2) Livable City and Intangible Infrastructure Development.** Urban transformation is a comprehensive reform, creating harmony between humans and nature. It is necessary to reconstruct physical infrastructure in old city neighborhoods, as it helps improve residents' lives. This is a visible component, however, the invisible element, i.e., intangible infrastructure, should also be considered during urban transformation.

**(3) Improvement of Humanistic Heartware and Social Participation.**

- Urban transformation and upgrade require participation of the society, cutting across all sectors. Corporate involvement, residents' cooperation and change of consciousness have positive significance for urban transformation and development. From creating awareness about problems, to construction in urban transformation, the government is a direct participant, as the government has its advantages in unified and comprehensive consideration. However, transforming old towns also requires residents to participate. After all, a city's development is ultimately the development of most 'people' in the city. Thus, urban development can only be more active with public understanding. During urban renewal and transformation, 'people's rights' should be emphasized and protected to avoid interference in normal life, or at least such that long-term interference's impact is reduced. Particularly, during demolition, settlement and transition of residents should be guaranteed. A sound mechanism for public participation should be established. Local residents should be allowed to actively participate and play a role in planning, construction and evaluation process. In addition, information should be transparent to avoid conflicts in urban renewal.

- During development of a new urban area, a safe, continuous and comfortable traffic environment should be created for bicycle users and pedestrians, and

public should be encouraged to travel using non-motorized means to achieve developments goals of a new low-carbon city in the true sense.

#### 4. Chile: Buildings for Households below Poverty Line<sup>1</sup>

Chile's case study appears to be a very specific renovation project, but the innovations applied and reproducible models have extensive applications. In previous urban developments, goals were planned and implemented in a top-down manner. A variety of innovative models have been adopted for Chile, such as separating management from construction, establishing demands internally by beneficiary groups, and combining cooperation among professional and autonomous self-willed resources. It is worth noticing that apart from applying such models in urban transformation and construction in Chile, they have also been used in the United States, Mexico and other developed and developing countries with prominent reference value.

##### 4.1 Case Overview

The 2016 Pritzker Architecture Prize was awarded to Chile program offering solutions to housing problem of poor people. The jury commented on this program during the announcement, 'In this collaborative practice, the designer initiated designs and created powerful works of architecture, while also addressing key challenges of the 21<sup>st</sup> century. His buildings give economic opportunity to the less privileged, mitigate effects of natural disasters, reduce energy consumption, and provide comfortable public space. Innovative and inspiring, the designer shows how architecture at its best can improve people's lives.'

As early as 2003, the Government of Chile wanted to design houses for poor families in downtown Iquique in northern Chile. For over 30 years, these families have been living in their self-built messy slums. After a period of renovation, the government finally decided to build standardized houses for these families, to improve living conditions of this region.

The challenge of the project was to accommodate 100 households who have lived in a 30-year-old slum with a grant of only USD 7,500 per household. This meant that the planners could only afford to construct a 36 m<sup>2</sup> house, even under the most ideal conditions. What's more, its cost was 3 times higher than the affordable level of social housing under normal circumstances. The project aimed to enable these families to locate near the city's center rather than move them to the

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<sup>1</sup> Pritzker Architecture Prize, the Hyatt Foundation, [www.pritzkerprize.cn](http://www.pritzkerprize.cn), 2016.



Source: <http://www.chinaasc.org/news/zonghexiaoxi/20160114/110767.html>.

Figure 6.10 Before the Building of ‘Half Good House’ (Left), After the Building of ‘Half Good House’ (Right)

city’s periphery, so that they could maintain their social and economic relevance. The project designer hoped that the families living in these houses could achieve middle-class standard of living, rather than live in social security housing forever.

Alejandro Aravena, the architect for this project, is known as a ‘cold-blooded humanitarian’ architect<sup>1</sup>. He represents the new generation of architects who have a thorough understanding of architectural environment. He has clearly demonstrated his ability to integrate social responsibility, economic needs, living environment and urban design. Thanks to his efforts, architectural practices have been raised to artistic pursuit, and rising up to the social and economic challenges today at the same time. In a speech delivered at TED in 2014, Aravena noted that global urbanization nowadays faced the threat of 3S, namely scale, speed and resource scarcity. The world’s urban population is 3 billion, including 1 billion below poverty line. In the next 15 years, there’s a difficult task ahead to build a city that can accommodate 1 million people per week with only USD 10,000 investment from each family. Aravena said, ‘If we do not take advantage of people’s building ability, we will be unable to complete this huge urban plan that accommodates 1 million people per week.’

#### 4.2 Specific Measures

Each family had only a grant of USD 7,500 from the government for land

<sup>1</sup> Archilovers, <http://www.archilovers.com/alejandro-aravena/>.



Source: <http://www.pritzkerprize.cn/2016/works>.

**Figure 6.11** Internal and External Structure of Security Housing

purchase, infrastructure and housing construction. The ‘user-involved’ design process allowed these poor families to participate in the design process so they were aware of the restrictions they faced.

All families went on hunger strike to protest against the program of ‘a small and narrow high-rise apartment’ that could accommodate 100 families under a limited budget. And then, the ‘half house’ program was adopted so that the 100 families would no longer be limited to small houses of only 40 m<sup>2</sup>, and they could instead live in single-family houses with expandable area. Working within the scope of the grant provided by the government, the architect had to complete a ‘half good house’ for each household, and the families would complete the expansion and subsequent improvement of the remaining half vacant space by themselves. In the space built with government grant, the material and design are chosen in accordance with practical, environmental and simple principles, trying to satisfy the basic demands and functions of home dwelling to the maximum extent.

As a storied building, the ‘half good house’ structure can make efficient use of land, and as a house, it allows for further expansion. One year after the completion, real estate prices have doubled, but all these families voluntarily remained in their original locations, and continue to improve their own homes.

The model of ‘half good house’ may sound unreliable, but it has successfully solved the housing problem in Iquique, transforming Chile’s slums. A group of new houses have been built in Mexico based on this model, which has also been applied to emergency housing in New Orleans after Hurricane Katrina.

### 4.3 Case Effects

The Pritzker Architecture Prize award ceremony was held at United Nations Headquarters in New York City, on April 4<sup>th</sup>, 2016. In his acceptance speech, Alejandro Aravena concluded, ‘What we architects model is not bricks or stones or steel or wood, but life itself. Architecture gives a family a name to the place they live. It is more complicated than life and yet it is simpler.’ Alejandro Aravena is also the chief curator of the 15<sup>th</sup> Venice Architecture Biennale 2016. He proposed based on ‘Reporting from the Front’, the theme of the Biennale, ‘We should realize what is available under limited conditions, rather than complain about what we have lost. The theme “Reporting from the Front” is not just a chronicle of conversations among people. We want to balance hope and seriousness for the future. Fighting for a better living environment will not be a relaxing and romantic process; therefore this exhibition will neither condemn, nor hold a lively discussion, and it does not encourage conversations in the locker room.’ Aravena hoped that the exhibition



Figure 6.12 Brand New Detached Houses



would be public oriented and reflect on how to fight for resources and improve quality of life in a harsh environment<sup>1</sup>.

In 2005, the first project based on the model of ‘half good house’, namely the Quinta Monroy housing project<sup>2</sup>, was successfully completed in Iquique. So far, over 2,500 low-cost social housing units have been built under this model, a new housing project has been completed in Mexico, and emergency housing has been built in New Orleans after Hurricane Katrina.

#### 4.4 Experience and Inspiration

(1) Urban renewal is not just renovation of old buildings and old facilities, it is a technical means of urban construction or a real estate development-oriented economic activity. It also has profound social and cultural connotations. If the renewal ignores the interests of the community, lacks basic humanistic care and social contexts consideration, it is not renewal in the true sense. A housing renovation model completed by ‘the government, architects and families’ not only solves government funding restrictions, but also enables poor families to remain in the same place, retaining their right to live in the city center. This means that their opportunities and rights concerning convenient transportation, comprehensive health care, quality education and original work and social interaction are also kept.

(2) When there are limited resources while building or creating the most livable environment, planners/architects should consider both functional structure of the building itself, and construction model that is required to achieve these goals. Limited resources are objective conditions or restrictions. During creation of a livable environment, most basic and important needs, especially where external collaboration occurs, should be met first and settled. Basic living needs of a family are met through the built ‘half house’, and the family can build the remaining half according to their wishes. After the other half is completed, the family can have a living environment that couldn’t be provided if they had to reconstruct completely through their own efforts.

(3) A livable community environment should include safe, convenient and practical basic tangible and intangible infrastructure, as well as meticulous humanistic heartware. In terms of humanistic heartware, Chile case is a good demonstration of success. In the initial stage of renovation, there was intense communication. The designer played as a role of coordinator while the family was encouraged to speak out their demand and focus actively and take part in the

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<sup>1</sup> Archdaily, <http://www.archdaily.com/tag/alejandro-aravena/>.

<sup>2</sup> Elemental, <http://www.archdaily.com/tag/elemental/>.

process of the whole renovation program as much as possible. In this way, the beneficiary of family renovation program becomes the builder of the community. The family and its members involved in the construction are continuously encouraged to build a better home. When they finish the remaining half of the house, they are able to improve their own capacity more actively as well as their ability to increase their revenue. During the whole process of the community construction, as community members have more or less participated in the program, which makes it easier for people to acquire satisfaction and sense of achievement. And it also contributes to the resonance of the whole society, the formation of a centripetal force and harmonious atmosphere. The members of the community will in turn have a stronger identification and sense of belonging for the community and the relation among the members will be tighter.

(4) City managers are supposed to fully mobilize different groups of people to participate in urban planning, construction and provision of public services so that the participants can give full play to their own expertise and advantages while effectively allocating resources by focusing on targeted problems and directions. The combination of flat management and diversified services is effective to improve service efficiency and livability effects.

(5) Both construction and services of harmonious cities and communities should be considered from the perspective of service objects. During the process of housing improvement or slum reconstruction, apart from centralized relocation or expansion, more attention should be paid to understanding the real needs of improved objects. Service objects and beneficiaries should be encouraged to actively participate in the development process, and effective channels should be set up to listen to and collect the demands of service objects, while providing adequate response. Good communication can not only guide policy decisions, but also help service objects understand feasibility and progress of demands.

## 5. London Underground in the UK: Continuously Improved Urban Transportation<sup>1</sup>

As one of the most important cities in the world and as an economic indicator, London has been featured by forward-looking and directional thinking regarding urbanization development through ages. London's case study concerning livability in this chapter, aims not only to elaborate upon the perspective of transportation

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<sup>1</sup> <https://tfl.gov.uk/info-for/open-data-users/>.

planning and construction, but also engage in reflection on housing, culture, employment, public welfare and other social issues that extend from transportation. This multi-cross development model has immense guidance potential, under the trend of increasingly convergent and faster urbanization in future.

### 5.1 Case Overview

The population in London rose from less than 1 million in 1800 to 2 million in 1850. In Victorian Era in the 1860s, the city center was full of buildings. Streets had become unbearably narrow and congestion was caused by carriages during rush hour. Traffic became a major problem in London. In order to solve the congestion problem, a solicitor named Charles Pearson proposed to build a central railway station in London city. This was how the current renowned London Underground came to be, with the support of the combination of program and sponsors with solid financial strength.

Completed and opened to the public on January 10<sup>th</sup>, 1863, London Underground is the world's first underground passenger railway called the 'Metropolitan Railway'. Initially, it covered a distance of only 4.8 km with 7 stops. Its average daily passenger capacity exceeded 25,000 in just a few months after opening.

Underground trains run under the ground in central London and above the ground in the suburbs, where lines above the ground account for 55%. London Underground is often called 'The Tube' in English because the cars run in a circular tunnel like a tube. Four years later, construction on the Circle line commenced.



Figure 6.13 London Underground



The underground tunnel across the River Thames transformed into an underground railway in 1869, and the Circle line was completed in 1884. After the completion of the Metropolitan Railway and the Circle Line, a crisscross Underground network took shape in London. The Underground Line running from South London to City of London opened in 1898, and the Central Line with a large tunnel, powerful motor vehicles and power systems, which ran under the entire London Underground, was completed in 1900.

## 5.2 Specific Measures

**(1) Promoting Service Characteristics of London Underground.** In London, 9% of Underground passengers are transfers from buses. This feeder bus system increases passenger flow of Underground stations, and also addresses the problem of lack of passengers on some bus routes. London's transport corporation's bus division searches for new ways to improve line access and service quality while reviewing bus routes and services, and actively plans for feeder services during construction of new Underground lines.

Convenient transfer options characterize London's public transportation. Basically, each Underground line crosses 10 other lines, so passengers can access another line through a transfer. There are 5 airports in London, all of which are connected with the Underground, with fast direct trains or coaches. The Underground crosses the railway at 46 stations. Passengers can take the train or Underground to travel within 6 districts with a daily ticket, and they can transfer to the Underground after getting off the train or plane. Some Underground lines are connected to the back entrances of hotels, so passengers can take the Underground directly after checking out.

London Underground tickets are divided into single and return journeys, daily, weekly, monthly tickets and so on, and fares vary based on zones. London Underground also offers discounted tickets for two-day at weekends, festivals, families, students, etc. Passengers can purchase tickets on the internet or over the counter. In addition, Underground tickets are generally associated with buses, and some tickets can also be used to take the light rail train<sup>1</sup>.

**(2) Building Livable Towns.** Londoners began the lifestyle of migrating to suburbs long before the first underground railway was built. With the development of Underground, more and more people opt for this lifestyle, and as a result, many towns with vitality have been formed along the Underground, such as Amersham

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<sup>1</sup> <https://tfl.gov.uk/info-for/open-data-users/>.

at the westernmost station of the current Metropolitan Railway. Strictly speaking, Amersham is not inside the six districts planned by London, but it is still included in the London Underground lines because the Metropolitan Railway has been continuously developing, faster than the expansion of London over the last 100 years, extending beyond London. Passengers can arrive at Amersham within 45 minutes without transfer if they get on the Underground from the city center. The town is quiet and houses are well arranged. Most of the houses here were built in the 1930s. The Metropolitan Railway had just provided connectivity to this town at that time. Many people decided to settle here due to availability of cheap houses, low product prices and convenient transportation, thanks to its location on the Underground line. To attract passengers with stable incomes and fixed residences, the Underground Corporation offered many preferential policies. For example, passengers could take the Underground three times with a ticket, free 3-month tickets to residents settled near the new Underground stations, and so on. These measures greatly encouraged London citizens to move to the suburbs, where they built new houses near the stations, gradually forming a new community.

**(3) Building Underground for the New Century: Crossrail.** At the beginning of 21<sup>st</sup> century, despite the fact that London is an international megalopolis and capital, the Underground system still remained at the level of late 19<sup>th</sup> century and early 20<sup>th</sup> century. The old signal system led to faults on the Underground and it became a commonplace event, with stoppages occurring almost every day, so much so that locals had become accustomed to it. They would check Transportation for London website to check which part of the Underground had stopped before determine their itinerary. To remedy this, London government initiated a plan for a new underground railway construction long ago. To balance of views on different sides, it spent 20 years on repeated discussions and demonstrations, and finally started construction in 2010. The new underground Crossrail connects west and east, and it will not only significantly reduce traffic pressure, but also bring jobs and promote development of the eastern region after completion.

Crossrail runs from Heathrow Airport in the west to the new financial district Canary Wharf in the east, and extends to Shenfield and Abby Wood eastward with a total length of 118 km. It is expected to be completed in 2018. After completion, London Underground's passenger capacity will increase by 10%, 24 trains will run uni-directionally through central London per hour, and 1.5 million passengers can be transported within 60 minutes during rush hours.

However, Crossrail will bring more than just changes in abstract numbers. London's eastern region where Canary Wharf is located is an old industrial area with serious pollution, rampant crime and low per-capita income, making it the poorest region in London. The region also needs revival. It conducted a comprehensive transformation in mid-80s, intending to create a new financial center in London, and it broke the record of London's building industry by completing 7.5 high-rise buildings in the record speed in just 18 months. However, the buildings were found to be unsatisfactory after completion. It was difficult to rent out houses, the rent was very low and vacancy rate was high. The situation gradually improved later due to a series of preferential policies, where ultra-low rent was charged or some well-known enterprises or news media houses were offered to stay for a year rent-free. Despite these efforts, the prescribed goals were still far away, and young people in pursuit of greater development space preferred to leave home for the bustling mid-western regions. London Olympic venues and Olympic Park are very close to Canary Wharf. With the influence of the Olympics with Crossrail combined, this area will be changed effectively, retaining more youngsters, and restoring it to its former glory as a tourist attraction with prosperous life and work opportunities.

**(4) Advocating Public Art on the Underground.** London Underground has been developing shoulder to shoulder with the city for over a century, producing social, economic and cultural value, while fulfilling transportation functions. It is interesting to see that the Underground has been invaluable in providing a unique medium for growth and dissemination of contemporary art and culture.

In 2000, to continue and support public art on the Underground, Transport for London specially set up an Underground art management and executive body—Art on the Underground, which aims to enrich daily travel experiences of millions of passengers with a variety of art programs and hopes to deepen people's understanding and perception of London Underground's identity. Therefore, clear visions and plans have been developed: (1) providing an international environment for Underground passengers, employees and diversified communities in London to experience contemporary art, so that they can better understand and enjoy contemporary art; (2) strengthening links between Underground and users, and reshaping people's imagination, changing their ways to experience the city with art; (3) supporting contemporary art internationally on behalf of London, and providing a unique platform for new and old artists worldwide to showcase their art works; (4) contributing to London's urban

art design heritage and cultural landscapes through numerous temporary and permanent art programs; (5) expanding reputation and social recognition of Art on the Underground, its stakeholders in the UK and even the international community.

So far, Art on the Underground has subverted the traditional model of beautifying Underground network with graphic designs, installation of decorative lights and other visual communication means. Art on the Underground makes good use of new media and technology to continuously try and introduce new art forms. It actively conducts extensive cooperation with schools, communities, art organizations, etc., trying to share these with the public, letting them experience some great original artworks in Underground art to the maximum extent. Art on the Underground has diversified forms, usually divided into permanent art works and temporary art programs. The former mostly involves decoration and beautification of Underground stations and facilities through paintings, installations and other art related items. Temporary art programs receive more extensive coverage and flexibility. These include exhibitions, performances, public creations and other art activities lasting several weeks or months. There are also frequently updated posters, brochures and other graphic design works.

The artistic achievements of London Underground have already penetrated the entire Underground network. People travel back and forth and might encounter a musical performance, stop to watch a video or appreciate graphic works. To them it feels like they have entered a multi-dimensional space with increasing imagination, as they enjoy their travel surrounded by dynamic art. To provide passengers with a more vivid art experience, Art on the Underground continues to improve its art programs, expand art forms and carry out relevant art activities with the help of new media and new technology.

At the same time, London Underground also conducts several art activities such as public creations, themed-guided tours, themed exhibitions and so on with ‘public participation’ as a pre-condition, to encourage public participation in art events. This also inspires people to explore and ponder about art and their implications and social problems reflected in the design. Art on the Underground also actively cooperates with primary and secondary schools and social art organizations, so that they can contribute their art in an effort to popularize art education and enhance social welfare through relevant art activities, in and along underground stations.

**(5) Selling Newspaper—an Aid for the Homeless.** According to statistics,

the number of newspaper publications and circulations in London rank first in the world. In London's underground stations and trains, you can see almost all passengers concentrating on reading a newspaper or magazine, which epitomizes the idea of the Underground. Among many newspapers, one is particularly striking because of its distribution channels, rather than its content or form, as the owner especially hire the homeless to sell the newspaper in the Underground.

*The Big Issue* was born in 1991, and was introduced by its sponsor Gordon Roddick to the UK, by emulating *Street News* in New York, and is specially sold by the homeless. *The Big Issue* welcomes every homeless person as long as they can prove that they are truly homeless. They can then fill up a form, receive uniforms and 10 free magazines and begin to sell *The Big Issue*. Some diligent homeless can sell 250 magazines and earn 200 pounds a month. John Bird, the editor-in-chief of *The Big Issue*, believes that in fact many of the homeless want to earn their own living, but lack opportunities to restart their lives due to restrictions such as advanced years, lack of education, no start-up capital, etc. At the same time, they also face emotional problems. They feel lonely because they have no home and they are psychologically fragile. Selling *The Big Issue* can offer the homeless not only a chance to earn a living, but also a chance to talk and communicate with others, helping them regain self-esteem and feel their value. 'If someone begs you for help, you will not talk with him unless you're drunk, but you will talk with a newspaper seller.'

In 1995, *The Big Issue* established 'The Big Issue Foundation' to pay further attention to various issues regarding the homeless such as housing, health, personal and financial issues and so on, after guaranteeing their income. On the information board of *The Big Issue*'s Office, people can see a lot of service information provided to the homeless: free dental check-up, free collection of letters, job counseling, assistance in opening a bank account, etc. They even offer free veterinary services, and the office also provides the homeless with free coffee and tea.

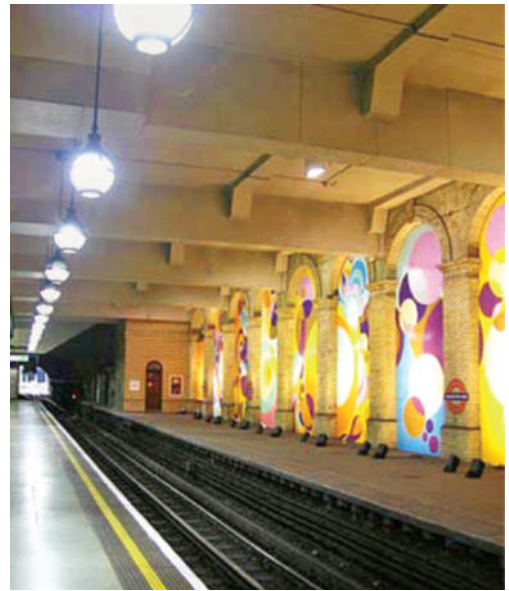


Figure 6.14 A Glance at London Underground Railway Art

### 5.3 Case Effects

For over a century, London has constantly played on its charms to become the symbol of the UK. People are not clear how the Roundel of London Underground, the red circular logo was originated. It used to be called ‘Bulls-eye’ or ‘Target’, and the only thing that people knew about it was that the logo was first used for London’s transportation in the 19<sup>th</sup> century to symbolize London General Omnibus Company. At that time, the middle stripe was marked with the characters ‘GENERAL’. The logo was adopted by London Underground in 1908 because it was easy to identify when applied to station names and railway platforms. The name in the middle of the logo was soon changed to ‘UNDERGROUND’ as an early corporate identity. Later, Edward Johnston made some minor adjustments to the logo in 1919.

Every platform in London Underground displays this sign, with the words in the middle indicating the name of the station. As the sign began to be applied to other transportation means, including underground and bus. Transport for London decided to apply the logo to other transportation means, including taxis and trams. And soon this logo became one of the logo of London.

The logo with station name in the middle was displayed on each platform of the London Underground. The logo soon began to be applied to different means of transportation in London, and then Transport for London decided to apply differently colored logos for different means of transportation, such as taxis, trams and so on. The logo soon became one of London’s symbols.

Today, London has a 402-kilometer Underground network, with 160 km undergrounds, a total of 11 lines and 270 stations in operation. On normal days, London Underground’s daily passenger volume is about 2 million and annual passenger volume is about 850 million. Hourly passenger volume at the entrance



Figure 6.15 London Underground Roundel

of Oxford Street Station is 22,500 during rush hour, while the actual population of London is only a little more than 7 million. The rapid development of London Underground has created many job opportunities because each track, each platform and each entrance and exit needs labor. Most Underground workers face long hours, low wages, poor working conditions and insecurity. Through continuous self-improvement over the last century, London Underground has extended from a single transport element, to a reflection on living, culture, employment, public welfare and other social issues, making it London's calling card. As a representative case study of urban livable experience, the London Underground has fully expounded on the demand and supply of a livable city, with regards to tangible infrastructure, intangible infrastructure and humanistic heartware with its multi-crossed development model. At the same time, it continues to keep pace with the times, bringing many more possibilities. As one of the world's most famous metropolitan cities, London Underground with a heavier mission to carry, continues to offer livable experiences as well as provide development and progress.

#### 5.4 Experience and Inspiration

(1) The close link between the Underground's operations and the transportation throughout the city provides passengers with convenient means of travel along with a variety of ticketing options. The Underground's operation can never be separated from the transport development of the entire city. By connecting various means of transport and rational planning of transportation routes, London closely connects trains, planes, buses and other modes of transport to make things easier for travelers who need to make decisions about routes and means of transport to their destinations and transfers. At the same time, diversified ticketing systems apply to different people with different needs and different levels of consumption so that all residents can feel that their needs are met at every step of their travel.

(2) With the combination of transport, urban layout adjustment and expansion, the economic development and livable experience in areas around underground station are promoted with the help of underground. More than 150 years ago when the construction of underground just began. London started adjusting and expanding in urban planning. Low prices and good natural environment in the suburbs helped distribute the population, and residents were no longer forced to choose between the bustling city center and distant suburbs. Livable experience was distributed everywhere along the Underground, and expanded to the whole city with the expansion of Underground. After the beginning of the new century, London Underground also considers the regional balance of the city from the perspective of

overall urban development. With the Underground, the function division of the city has shifted from over density to rational arrangement ensuring economic development without reducing comfortable living experience of the residents.

(3) Developing public art in the Underground improves travel experience and artistic taste of residents. Urban public transport such as the Underground should not just be dispassionate ways of transport. London Underground makes good use of the platform to provide a stage for art exhibitions, not only depicting its own inside story and values, but also providing a temporary art publicity space for free creators, artists, students, promotional companies, etc. Meanwhile, public art can bring public welfare promotion and interactions with the public. Underground art not only makes it possible for art creators to demonstrate their talents, but also nudges every ordinary resident onto a journey with spiritual and livable experiences above the ordinary mundane life.

(4) A city's livable experience should be delivered to everyone, even to every homeless person because the city belongs to every urban resident. However, numerous homeless people in many cities are vulnerable groups, and are often not taken into account in urban planning. London Underground case expounds the philosophy of delivering livable experiences to everyone. Homeless people can get a job and supplement their income by selling newspapers in the Underground, which is of help for passengers. Although selling newspapers in London Underground works is only due to Londoners' habit of reading newspapers, other forms can be used in other cities. Comfortable travel experiences and services can be created for passengers, while vulnerable groups are provided with jobs. Livable experience is bi-directional, and includes both supply and demand of services.

(5) As a case for livable city construction, London Underground is considered successful. Inevitably, there are certainly things we need to avoid and we need to notice when we try to duplicate the result. In an international metropolitan like London, the construction of complete underground system is indispensable with vast capital investment and the maintenance on later stage. This basic condition is an inevitable and an essential condition almost impossible to solve for the developing countries. It is even hard for some developed countries to borrow this experience. Therefore, the possibility of duplication of a livable city should be based on necessary economic level and actual demands. Take developing countries as an example, underground system, as an emerging transportation system, certainly will not form scale effect at the beginning. As a result, what they should learn from underground is the role that it plays in promoting economic development and the



change of city structure so that the construction can become a tool to drive urban transformation and upgrading. The construction of livable cities in developing countries still depends on building requirements of tangible infrastructures in the city on material level. For small and medium cities in developed countries with some economic base, intangible ‘software’ of a livable city and humanistic building are something more important to demonstrate. These cities usually feature less dense population, so it is not possible to duplicate the tangible construction in this case. More efforts should be done to optimize other public transportation system, for example, the ‘undergroundation’ of railway network. But, in this case, the cultural industry creation and media extension brought by the transportation system are recommended to duplicate as a demonstration for a livable city.

## Suggestion for Decision-Making .....

### Strategy 1: Balance the Relationship between Public Service with Livability

**Policy Option:** Efficient and equitable public services in the city. Emphasis should be placed on both tangible and intangible infrastructure, and adequacy and availability should be considered  
Identity and legitimacy of a livable city. Public participation in urban development should be encouraged and respected, while humanistic care and material satisfaction are equally important

### Strategy 2: Advocate Three-dimensional and Public Participation

**Policy Option:** Service objects and beneficiaries should be encouraged to actively participate in the development process, and effective channels should be set up to listen to and collect demands of service objects, while providing adequate response. Good communication can not only guide policy decisions, but also help service objects understand feasibility and progress of demands  
Emphasis on public participation places an important and positive role in enhancing the efficiency, validity and identification during the process when public services are provided. People and people’s interests should be secured and respected more in urban development. Material and humanistic care are equally important

### Strategy 3: Emphasis on the Integrity of Livable City Construction

**Policy Option:** Overall planning and comprehensive construction. As policies influence with each other, the efficient supply of public service should be consider comprehensively, with both tangible and in tangible services as focuses. We should avoid the waste of resources and balance different parties to drive the construction of three aspects. First, for a livable life, we need fresh air, clean water, quiet living environment where humans can be a part of the natural environment. Second, a livable city should have a sound social order; complete public services including disaster prevention and pre-warning systems, safe facilities for daily life, safe and convenient transportation and travel environment and so on. Furthermore, public services should stress on social fairness and justice. They should strive to reduce social poverty, create ample employment opportunities and ensure that everyone has access to shelter. Third, a livable city needs to have distinct local characteristics

#### Strategy 4: Emphasis on the Inheritance of a Livable City

**Policy Option:** The public services in a city should focus on inheritance. Public policies are not the results of some subjective decisions by some officials. They are not entirely the copy of policies in other cities. Attention should be paid to the protection of culture, ecology and urban spirit and creative renewal during the process of urban renewal and development. We should not blindly replace the old by the new. Culture, ecology and the spirit of urban people are the root of the city and also the inner motive and development drive.

#### Strategy 5: Strengthen the Capacity Building of the Government of a Livable City

**Policy Option:** City government, especially leaders, can play three roles in public services—supplier of new concepts and ideas, supervisor of public services, and coordinator between government and enterprises, and between city and enterprises.

The government should be aware of learning from better public innovation cases. It should also turn to a supervisor of fair and just public services from the supplier of public services. It should use plausibly the financial and technical aid that international organizations provide, carry out policies according to actual situations, exploit late-developing advantage and make and carry out public policies that meet local needs.

#### Strategy 6: Strengthen Resource Use in Livable Cities

**Policy Option:** The reasonable use of limited resource. At any time, in any region and city, resource is limited. Urban development needs a lot of resource of investment, which means labor, facilities, funds and time should be allocated and matched logically. During the urban development, factors including urgency, degree of importance, radiation range, benefited groups and difficult degree and so on should be taken into consideration so that limited resource can be given full play.

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## Postscript

United Nations, Bureau International des Expositions (BIE) and the Organizing Committee of World Expo jointly proposed in *Shanghai Declaration* released on the Summit Forum of Expo 2010 Shanghai, China that ‘to compile the *Shanghai Manual* by concluding the thinking results on exhibitions, displays, forums and best practice area of Expo Shanghai 2010, and spread it to the world’. Through concerted efforts made by relevant parties, *Shanghai Manual* in both Chinese and English versions was officially released in Shanghai in November 2011, which caused positive impact on sustainable development of cities around the world.

It has been five years since the publication of the first edition of *Shanghai Manual*. According to the working plan approved by the Chinese government and consensus reached with international organizations such as United Nations and BIE, it’s time to update *Shanghai Manual* by utilizing ‘World Cities Day’ as the platform, so as to provide first-hand materials for scholars specializing in relevant studies, and model cases for mayors and city administrators in China as well as around the world to solve existing urban problems.

With the overall coordination of United Nations, BIE, Ministry of Housing and Rural-Urban Development and Shanghai Municipal Government, the meticulous organization of Shanghai Coordination Center of World Cities Day, and concerted efforts made by domestic and foreign experts, we have completed the compilation and publication of *Shanghai Manual 2016* despite of the tight schedule and heavy task.

In October this year, the United Nations Conference on Housing and Sustainable Urban Development (Habitat III), which takes place every 20 years, will be held in Quito, the capital of Ecuador. The New Urban Agenda with the key topic of urban sustainable development will be discussed on the conference, and sustainable urbanization will once again become the focus of the international community. Through negotiation with UN-Habitat, we will launch the *Shanghai Manual 2016* on the forum themed ‘World Cities Day’ of Habitat III, hoping that this document that pools the wisdom of various parties will contribute to the successful holding of

the conference.

City is the crystallization and symbol of the evolution of human civilization, as well as the place where innovation and vitality concentrates. Every day thousands of people come to the city with their dreams to live and strive here. As is said by Aristotle more than 2000 years ago, people come to the city to live and stay for a better life. On the Expo 2010 Shanghai, we jointly demonstrated the theme ‘Better City, Better Life’. In the future, we will take ‘World Cities Day’ as the platform, and update and promote relevant work concerning *Shanghai Manual* under the guidance of 2030 Agenda for Sustainable Development and New Urban Agenda.

To this end, we will prepare annual reports for the Manual, release them on the ‘World Cities Day’ celebration each year, and announce the excellent urban cases selected by us. We will promote and publicize the Manual through internationally renowned platforms including World Urban Forum, Recognized and Registered Expositions, and conduct exchanges and communication on a global scale. We will release the *Shanghai Manual* in both English and Chinese versions on various official websites, and use the Manual as the main content of training and knowledge sharing on World Cities Days in the future. We believe, through concerted efforts, *Shanghai Manual* will make contribution to the sustainable development of cities all over the world.

*Shanghai Manual* Revision Committee

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