



School of Environmental Science
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Tomorrow's Eco-city in China
Improving Eco-City Development through a Culture of Collaborative Communication

Thesis submitted in accordance with the requirements of the University of Liverpool for the degree of Doctor of Philosophy

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May 2018

Abstract

The delivery of Chinese eco-cities has met certain challenges in plan-making and the subsequent implementation of planning documents. Meanwhile, communicative and collaborative planning has been advocated as a method that can assist in decision-making and facilitating urban development in China. In the development of the 'eco-city', communicative and collaborative planning has met certain barriers to implementation, and has thus played a limited role in the planning system. This research aims at examining whether a communicative turn has occurred in the delivery of eco-cities with regard to sustainable development in China, discusses how communicative and collaborative planning could help to improve the development of Chinese eco-cities, and examines the methods that can achieve this.

To provide an update on the difficulties of communication and collaboration in planning work, the development programmes of the Sino-Singapore Tianjin Eco-city and the Shanghai Dongtan Eco-city are reviewed and compared. The Tianjin Eco-city was approved by central government as one of several pilot areas for developing eco-cities; the Dongtan Eco-city was suspended and failed to achieve its original vision. Data and evidence was collected from the planning documents in both Tianjin and Dongtan, and combined with data collected from interviews with 12 key persons who directly engaged in the delivery of the eco-city programme in China.

Along with emerging technologies, local authorities are facing new challenges and opportunities in adopting communicative and collaborative planning. The study concludes that an extensive implementation of communicative and collaborative planning, through both traditional and emerging technologies, is required to reconcile the diverse interests of stakeholders and address the multi-disciplinary issues in the sustainable development of the Chinese eco-city.

The major outcome of this study, as the final part of the thesis demonstrates, is a series of recommendations to mitigate issues during the delivery of Chinese eco-cities. According to these recommendations, a practical framework is developed to adopt a communicative rationality in the current Chinese planning system to facilitate the planning process of an eco-city programme in the field of plan-making, implementation, and monitoring. The study also contributes to stakeholder engagement through advancing a modified and innovative approach to dealing with the barriers to communicative activities and consensus building in the development of the eco-city programme in China.

Acknowledgements

First and foremost, I would like to thank my primary supervisor, Dr Ian Mell, for his expert advice, constant patience, and encouragement throughout this project. His insightful comments on my research, life, and career have helped me to overcome difficult times during this PhD project. Therefore, personally, it has been my privilege to work and study with Dr Ian Mell. He will remain a memorial to mentorship and priceless treasure for my life.

Furthermore, I would like to thank my supervisory team at the University of Liverpool and Xi'an Jiaotong-Liverpool University, especially Mrs Sue Kidd and Dr Bing Chen, who gave me many pieces of advice on the thesis. Additionally, I am grateful to Dr Olivier Sykes, who gave me suggestions on applying for a place on the PhD programme at the University of Liverpool.

I would also like to thank the interviewees who spent their valuable time taking part in my research. I offer my most sincere thanks to the government officers in Tianjin and Mrs Hong Mei Lu, who facilitated connections with key interviewees in Tianjin Eco-city and Dongtan Eco-city.

I owe some special words of gratitude to my parents. It would not have been possible for me to finish my PhD in the UK without their financial support.

Most importantly, I would like to thank my wife, who has shown great patience in the long-distance relationship that was necessary to complete the thesis and who provides me with emotional support. This research would not have been achieved without your understanding and love. Lastly, to my unborn daughter or son, thank you; you have provided me with the dynamism to polish my thesis and to pursue better research.

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Table of acronyms and abbreviations

ARUP	Arup Group Ltd
BAT	Baidu, Alibaba, Tencent
CABR	China Academy of Building Research
CAS	Chinese Academy of Sciences
CAT	Communicative Action Theory
CAUPD	China Academy of Urban Planning and Design
CCEP	Collaborative and Communicative Eco-city Planning
CNKI	China National Knowledge Infrastructure
CNY	China Yuan
CP	Collaborative Planning
CPPCC	Chinese People's Political Consultative Conference
CSUS	Chinese Society for Urban Studies
CTC	China Building Material Test & Certification Group Co., Ltd
CUHK	Chinese University of Hong Kong
DER	Distributed Energy Resource
EAS	Environment Assessment System
ECHI	Eco-city Health Index
ER	Economic Reform
ESDP	European Spatial Development Planning
FYP	Five-Year Plan
GBP	Great British Pound
GBRI	Tianjin Eco-city Green Building Research Institute
GDP	Gross Domestic Product
GI	Green Infrastructure
KPI	Key Performance Indicator
MLR	Ministry of Land and Resources (China)
MND	Ministry of National Development (Singapore)
MOE	Ministry of Education (China)
MOHURD	Ministry of Housing and Urban-Rural Development (China)

NBSC	National Bureau of Statistics of China
NHFPC	National Health and Family Planning Commission
NPC	National People's Congress
PV	Photovoltaic System
SCAI	Sustainable City Assessment Indicator
SDEC	Shanghai Dongtan Eco-city
SII	Shanghai Industrial Investment Company
SIPAC	Suzhou Singapore Industrial Park Administrative Committee
SNS	Social Network Site
SSTEAC	Sino-Singapore Tianjin Eco-city Administrative Committee
TADI	Tianjin Architecture Design Institute
TOD	Transit-oriented Development
URPL	Law of Urban and Rural Planning

Chapter 1 Introduction

In China, the modern planning discipline was established in 1956 (Sun, 2016), and focused on land use and transportation systems during its first 30 years. Additionally, Wu and Yu (2005:2) argued that Chinese planners played the role of an “urban designer whose hands are tied”, which means that the planning discipline was confined to making spaces, or designing urban spaces, rather than combining perspectives from multiple disciplines. In the last three decades, Chinese planning theorists started to advocate the importance of integrating the perspectives of other disciplines, such as demography, economics, and ecology (Wu and Yu, 2005; Chen and Liu, 2014). This is probably because Chinese planning professionals encountered certain challenges in the practice of planning, including infeasible planning theories and insufficient expertise to support practical work. These difficulties required innovation and exploration in the field of planning to guide plan-making and planning management (Zou, 2005). The enlarging gap between planning theories and implementation should be mitigated through a systematic study of planning theories, as well as the socio-economic reasons behind these theories being generated in both China and western countries (Xiang, 2004; Duan, 2005). The purpose of urban planning is to achieve a more effective and equitable way of allocating spatial resources and to make areas more conducive to spatial activities (Duan, 2005). Therefore, it was advocated that various perspectives associated with urban development should be integrated into the process of planning. Such innovations indicated a shift in the process of decision-making from one dominated by politicians and planning professionals to one that supported the greater integration of perceptions from multiple stakeholders in China.

The process whereby decision-making engages with multiple stakeholders is a contested view which requires extensive study with regard to the priorities, principles, and processes needed to deal with emerging issues in the current Chinese planning system (Chen, 2000). This research therefore pays attention to plan-making, as well as monitoring, and combines such concerns with insights from Habermas’s Communicative Action Theory (CAT) and the theory of Collaborative Planning (CP) based on the work of Judith E. Innes and Patsy Healey. Both theories highlighted the relevance of communicative collaboration in plan-making and the implementation of blueprints in urban development. This chapter introduces the rationale and the scope of the research to identify the dynamics and boundaries of the research programme. In addition, the objectives and questions of the research are outlined. Moreover, it provides the reader with an overview of the structure of the thesis.

1.1. Research questions and aims

This research aims to mitigate the gap between plan-making and implementation through communicative planning by using eco-cities in China as a thematic focus. The study explores a modified approach to delivering the eco-city programme by applying CAT and CP theory. To examine the issues which could, or would, hamper eco-city development in China, this study focuses on two eco-city cases (Tianjin Eco-city and Dongtan Eco-city) and uses the implementation of two aforementioned theories (CAT and CP) as an empirical research approach by which to address the following four questions:

1. What planning theory or conceptual framework would contribute to the plan-making and implementation of Chinese sustainable developments?
2. Why should the eco-city be used as an approach to achieve sustainability in China?
3. What has hampered the delivery of the eco-city programme in China?
4. How does the rationality of planning theories contribute to the practice of planning eco-city developments in China?

The first research objective is to seek appropriate planning theories for the implementation of sustainable development in a Chinese context. The existing Chinese planning discipline focuses on urban design, which was to a large degree impacted by the ethos of the rational model from Western countries. However, it needs to combine perspectives from economic, social, and environmental dimensions to deal with the issues which have occurred in the current planning system in China. Moreover, Western planning theorists attempted to reinforce the validity of planning documents by combining different notions of multiple disciplines (Zhang, 2012). Thus, the first question highlighted in this research is to examine Western planning theories to explore which theory or theories might contribute to the practice of planning in China. The study also addresses certain questions related to planning theories in China, such as the nuances of planning theories recognised between Western countries and China, and whether collaborative planning has been discussed in Chinese planning academia.

The second research objective is to critically review the process of urbanisation to indicate the trend and ethos of urban development in China. Moreover, the literature review was conducted to support the argument that eco-city development has relevance as part of the programme of sustainable development in China. Hence, it attempts to cover the following questions: what significant impact has urban development had during the rapid growth of

urbanisation; which models of sustainable development have been introduced in China; what are the defining criterion of an eco-city programme; and what is the difference between the new town programme and a newly built eco-city.

Thirdly, the study seeks to illustrate the issues which hindered the delivery of the eco-city programme in China. This research reviewed the literature to address the challenges that have occurred in delivering eco-city projects in China. This is an essential component of the conceptual framework of the research. Moreover, in order to promote the relevance of issues concerning the delivery of the eco-city programme highlighted in the study, the paper contains two case studies; the Sino-Singapore Tianjin Eco-city and the Shanghai Dongtan Eco-city. These are included to enable the thesis to explore the issues which emerged in these actual developments. The field study in Tianjin and Shanghai sought to gain evidence of the factors that hindered the delivery of an eco-city in practice, and which have, or have not, been highlighted in existing literature.

Finally, after illustrating the issues in delivering the eco-city programme in China, this research attempts to synthesise these issues by integrating them with communicative rationality. In order to answer the final research question which relates to the rationality of planning theories and how they contribute to the practice of planning eco-city development in China. It requires an exploration into how communicative rationality mitigates the issues in delivering the eco-city programme. To this end, it configures the in-depth deficiencies of issues in aspects of time and duration, location and venue, stakeholders, and the patterns of communicative activities, or *When, Where, Who, and How*, which were highlighted in CAT and CP. Subsequently, this study provides recommendations to deal with the deficiencies of adopting communicative rationality.

The major outcome of this study is to establish a practical framework (Collaborative and Communicative Eco-city Planning, or CCEP) to implement communicative and collaborative planning to facilitate the delivery of eco-cities in China. The framework is established based on existing practices of planning by introducing communicative rationality, which is a combination of the conceptual framework and recommendations. It aims to facilitate the process of planning, including preparation, decision-making, implementation, and monitoring, by mitigating the negative influence of ineffective communicative activities in the practice of planning in the Chinese context.

1.2. Rationale for research

This research argues that the theoretical reason for shifting the process of decision-making in China can be found in Western planning theories. Chinese planning theorists have attempted to address the problems in the planning system by introducing Western planning theories since the 1980s (Wu, 2000; Wang, 2003; Shi, 2007; He, 2008; Li, D.Q., 2013). The dynamics of generating these Western planning theories can also be found in Chinese society (Li, D.Q., 2013). Moreover, China witnessed a dramatic increase in urbanisation from the 1990s after its shift from a planned economy to a market economy (Wei, 2012). Along with the rapid growth of urban populations and areas, practitioners have faced a conflict between the development of socio-economic factors and the protection of environment. To overcome such conflicts requires an understanding of how to develop urban areas in a sustainable way in China (Qiu, 2009). Similarly, the disadvantages of focusing on economic development in the process of plan-making were recognised in Western society in the 1920s, and became a motivation for generating modern planning theories which paid attention to the relationship between economic development and environmental protection (He, 2008).

Furthermore, Chinese planners paid attention to making spaces and urban design, and in so doing gained insights from Western planning professions. Thus, it is not surprising that Chinese planners started to learn from Western planning theories such as Garden Cities, and Rational Model, and through so doing started to lay emphasis on environmental issues during urban development. According to the findings of Zhang (2012), and as Figure 1.1 shows, the focus of Western planning theories moved from a dominant consideration of the relationship between people and the city toward a comprehensive consideration of the relationship between people, the city, and the natural environment (especially the importance of the relationship between people and nature). The Chinese planning discipline has been impacted by the rational model, but there has only been a limited revision on the actual process of plan-making from the perspective of the second generation of planning theories (advocacy planning, and so forth) and the third generation of planning theories (communicative planning, among others) (Zhang, 2012). The process of plan-making in China drew great attention to the perceptions of politicians and planning professionals who were focused on planning techniques and the quantitative features of urban development. The dominance of technical considerations in the planning system was to a large degree impacted by the ethos of Western planning theories in the early stage, when it had not yet

shifted to an approach of connecting multiple stakeholders in a democratic manner (Zhou, 2001). Consequently, this research explores the relevance of Western planning theories and their social implications in the Chinese context.

The discussion about and learning from, Western planning theories should keep pace with the evolution of society to ensure the appropriate implementation of relevant concepts and ideas in the Chinese context. Since collaborative planning, highlighted in Western countries, has effectively not been recognised in the Chinese planning system (Zhang, 2012), this research focuses on exploring the relevance of collaborative and communicative planning in the Chinese political and historical context. To this end, it first focuses on the theoretical derivation of collaborative and communicative planning in Western planning academia. Additionally, the study considers why research pays attention to the implementation of Western planning theories in a Chinese context, and why China needs Western planning theories.

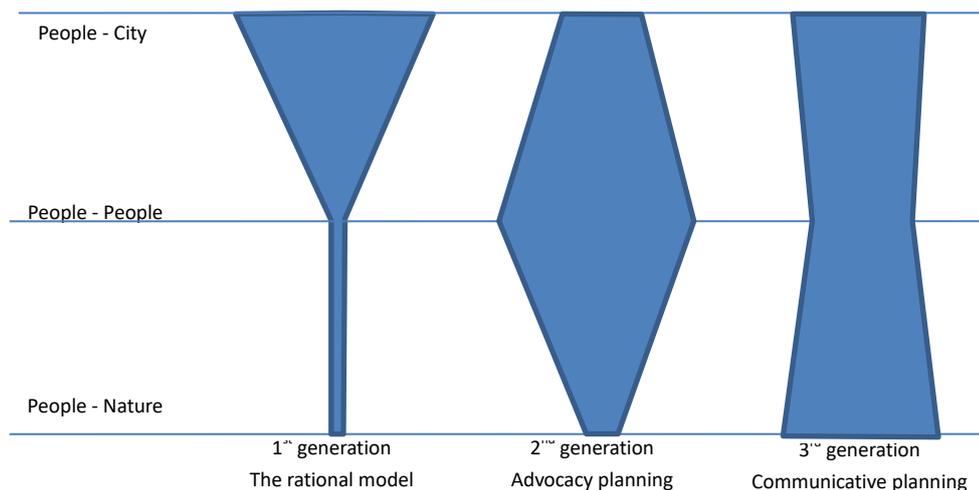


Figure 1.1 The focus of Western planning theories

(Sources: Zhang, 2012, edited by author)

1.3. Scope of research project

Having noted the social and historical reasons for introducing Western planning theories into the practice of planning in China, this study scrutinises the scope of planning theories and the Chinese planning system to explore the relevance of adopting the theory of communicative action and collaborative planning in the delivery of the eco-city programme in China. To this end, this section identifies the boundaries of collaborative and communicative planning and eco-city development in China. Moreover, it provides a brief overview of eco-city development to illustrate the reasons for requiring a modified

approach to address the issues of delivering eco-city projects in China.

The theoretical perspective of this study is derived from the Communicative Action Theory (CAT), proposed by Jürgen Habermas (1984), and is also associated with Collaborative Planning (CP) theory (Allmendinger, 2002; Healey, 2006). CAT highlights the relevance of communicative rationality in social science (Healey, 2008). The central principle of this theory is the distinction between emancipative communicative reasons and strategic and instrumental reasons (Habermas, 1984). That is, it can help to distinguish communicative plan-making from a traditional functionalist planning system and help to develop strategic urban development through applying CAT and CP to the practice of planning in China.

Furthermore, the approach of applying these theories in the Chinese context is examined in this study. The lack of practical measures in adopting CAT in the real world has been pointed out since it was first proposed. Irazabal's (2009) criticism was that Habermas set up 'ideal speech conditions' (utopia) for stakeholders to be involved, empowered and competent without feasible methods. In other words, Habermas, sought to reconstruct the 'unfinished project of modernity' (Allmendinger, 2009: 197), instead of focusing on the instrumental rationality that exists in daily life (Allmendinger, 2009). Healey (2006) presents several measures to contribute to the feasibility of adopting communicative rationality in practice. Generally, this study attempts to explore a scenario to strengthen the relationship between communicative rationality and the practice of planning in China.

This research attempts to explore a feasible way of adopting communicative planning in the Chinese planning system using the eco-city concept as a thematic focus. It therefore seeks to scope out the eco-city as one of future patterns of sustainable urban development in China. It has been noted that planning professionals are intending to pay more attention to ecological and environmental science in the next 50 years (Zhao, 2011a). According to the work of Zhao (2011a), key research areas in ecological and environmental science include climate change, biodiversity, the circular economy, and environmental monitoring, and all of these aim to promote the relationship between human activity and the natural environment. Indeed, there is an intention to achieve sustainable development by adopting diverse environmental techniques in China. This research therefore targets models of sustainable development, especially the new eco-city programme, which has been recognised as an effective means of achieving sustainable urban development with low energy consumption and low carbon emission in China (Qiu, 2009). Moreover, according to the work of Register (2006), a priority in delivering an eco-city programme should be the

relationship between human activity and the natural environment and resources, which is similar to the goal of town and regional planning in China. Consequently, this study highlights the relevance of delivering eco-city projects to achieve sustainable development in China.

However, the development of Chinese eco-city projects has been hindered by emerging challenges. As shown in Figure 1.2, there was significant growth in the number of proposed eco-city projects between 2004 and 2010. This may have been politically motivated according to the Five-Year Plans. The advantages of delivering eco-cities have the drawn attention of politicians and planners in China (Qiu, 2009). The number of proposed eco-city projects suddenly decreased in 2011, with only 13 new programmes in 2011 compared to 38 in 2010. Consequently, the confidence of policy-makers and developers in eco-cities was reduced by emerging issues which occurred during the delivery of eco-city projects in China. This research therefore discusses the key issues which hindered the delivery of Chinese eco-cities, and examines the potential relationship between these issues and communicative rationality.

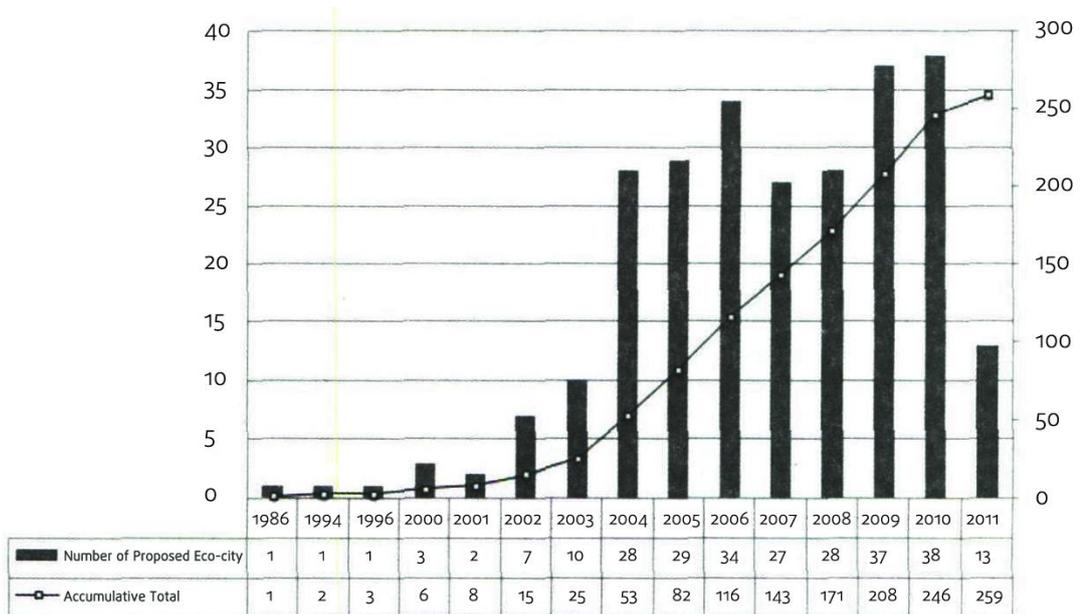


Figure 1.2 The number of proposed eco-cities and the cumulative total

(Source: Chinese Society for Urban Studies (CSUS), 2011)

1.4. Methodology and research strategy

In order to achieve the research objectives, a case study approach was adopted as the major research strategy within this research. This qualitative research explores the

non-numerical relationship between the development of Chinese eco-city projects and collaborative and communicative planning. A case study approach can offer the researcher a starting point from which to draw broader conclusions regarding eco-cities in China (May, 2011). Moreover, it provides the researcher with an open and free environment to explore and understand current, real-life events and issues in the proposed areas (Yin, 2014).

The research was conducted in four stages, as shown as Figure 1.3:

- An examination of the theoretical and social background of implementing collaborative and communicative planning in China (Research Questions 1 and 2).
- The finding of evidence of issues which hampered the delivery of eco-cities (Research Question 3).
- An identification of the issues that arose in delivering the eco-city programme and their relationship with communicative rationality (Research Question 3)
- The providing of recommendations to deal with the issues and establish CCEP (Research Question 4).

The first stage was to establish a theoretical and conceptual framework for implementing collaborative and communicative planning in the Chinese context. The framework was set up in three steps: it began with a critical review of planning theories in Western countries and the interpretation of these by Chinese planning professionals. Moreover, it illustrates the current discourse and implementation of collaborative planning in Chinese planning academia. Subsequently, this research paid attention to the process of urbanisation to explore the focus of, and trends in, current urban planning in China. The models of sustainable development were scrutinised to seek an appropriate method of mitigating conflict between economic development, human activities, and environmental protection. Hence, the study attempted to discover the rationality of delivering eco-city projects to achieve sustainable development in China. In addition and in accordance with existing studies, the challenges of delivering eco-city projects were examined to set a benchmark for the data collected in the field study component of the research. Finally, the political and academic environment of adopting collaborative and communicative planning was re-examined to ensure the feasibility of implementing communicative rationality in the planning practice of China.

The second stage attempted to gain evidence as to what has hindered the actual development of the eco-city projects in China. The strategy of a case study was

implemented to underpin data collection. It also included the benchmark of case selection and general information concerning the selected eco-city projects to indicate the rationality of selecting Tianjin Eco-city and Dongtan Eco-city as case studies. Data was collected through semi-structured interviews with central decision-makers in both the Tianjin and Dongtan Eco-city projects.

The third stage was to analyse the data and discover the in-depth relationship between issues of eco-city development and communicative rationality. The issues that arose in delivering eco-city projects were highlighted by combining the perceptions of existing studies and the results of data which were generated through data analysis. This indicated the issues in the political, economic, cultural, environmental, and collaboration and communication dimensions, following on from the structure of the issues highlighted in the literature review. Getting insights from CAT and CP, the study points out the key features of communicative activities (*Where, When, Who, and How*) as ways of configuring the issues. From this it was deduced that the deficiencies in the field of communicative activities lead to the issues that arose in delivering the eco-city. Eventually, this identification helped to establish the linkage between the issues and communicative rationality.

The final stage proposes certain recommendations to address the question as to how communicative rationality can contribute to the practice of planning in the eco-city programme in China. The recommendations are made to deal with the deficiencies in four respects: venues, time, stakeholders, and patterns of collaboration and communication. Furthermore, these recommendations underpin the establishment of the practical framework (CCEP). CCEP focuses attention on the barriers to communication between multiple stakeholders in the practice of planning, including decision-making, implementation, and monitoring in the delivery of the eco-city programme. Generally, it is anticipated that the implementation of CCEP can facilitate the planning of eco-cities; meanwhile, it can also address a majority of the issues that are highlighted in this study. The following section introduces how the study formulated the four stages in the context of the thesis.

1.5. Outline of chapters

Chapter 1: Introduction: This introduces the rationale and the scope of the research to identify the dynamics and boundary of the research programme. It also indicates the objectives of the research by setting out the research questions in each stage of the study. Moreover, a structure of the thesis is provided to link the stages of the study with the

chapters respectively.

Chapter 2: The communicative turn in China: This chapter compares planning theories in Western countries and China to assess whether there are dynamics at play in adopting planning theories in China, including the perception of planning theorists, the ethos of planning theory, and the challenges of adopting collaborative and communicative planning. Additionally, it provides evidence of existing collaborative and communicative discourses in China.

Chapter 3: The rationale for considering the eco-city as a planning trend: The process of urbanisation is examined to illustrate the focal point of planning in China. The patterns of achieving sustainable development, as well as the delivery of new town programmes, are scrutinised to provide evidence of the rationality of developing eco-cities in China. Furthermore, and with reference to existing studies, the challenges of delivering the eco-city programme are highlighted in this chapter.

Chapter 4: Examining the feasibility of adopting CAT and CP in the Chinese context: Chapter 4 introduces the main two theories, Communicative Action Theory and Collaborative Planning, to indicate the origin, rationality and existing discourses of both theories in Western countries. It also focuses on the linkage between CAT and CP and the Chinese context by indicating the academic and political environment that exist in China.

Chapter 5: Methodology: Evaluation of communication during the existing planning process: This chapter develops the methodology, including the data collection strategy, the criteria for the eligibility of the case studies, and the applicability of the interview questions. It also discusses the methods of data analysis and evaluation to provide a clear idea of how data can contribute to the validity of the findings in this research.

Chapters 6 and 7: Tianjin Eco-city and Dongtan Eco-city: The two chapters emphasise the analysis of the data collected in Tianjin Eco-city and Dongtan Eco-city to generate greater understanding of the issues in delivering eco-city projects in reality. The issues are illustrated according to the perspectives of the interviewees, and through discourse analysis of the political, economic, cultural, environmental, and collaboration and communicative dimensions.

Chapter 8: Discussion: Establishing a framework of eco-city planning in China: The penultimate chapter begins with a summary of the findings in Chapters 6 and 7 to highlight the key issues that exist in delivering eco-city projects in China. Then it synthesises the

issues by indicating the four features of communicative activities (*Where, When, Who* and *How*) to link the communicative rationality with these issues. Thereafter, it explores the in-depth deficiencies in the field of communicative rationality which have caused or contributed to the issues. Based on the proposed deficiencies, a series of recommendations are made to address the occurring and emerging issues in the practice of planning in Chinese eco-city projects. A practical framework (CCEP) is established in this chapter to facilitate the process of planning by combining the conceptual framework and the recommendations.

Chapter 9: Conclusion: The final chapter of this thesis draws together the final conclusions based on Chapters 1 to 8. It indicates the major contribution of the research in China, and also some of the limitations of this research which could, if overcome, add further validity to the findings. Finally, certain recommendations are proposed by suggesting appropriate areas for further research.

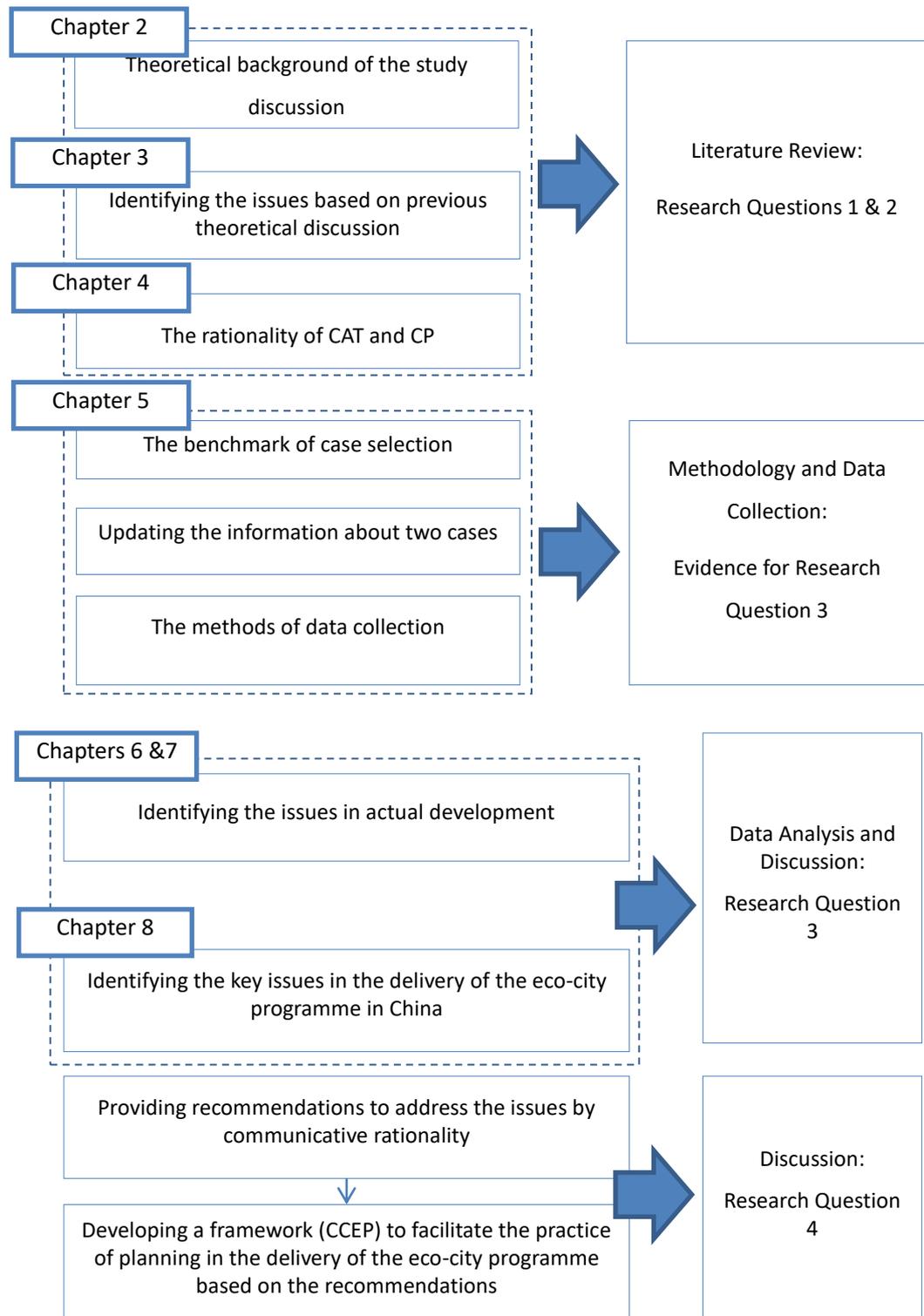


Figure 1.3 The research strategy and methodology

Chapter 2 The communicative turn in China

2.1. Introduction

Planning ethos and theories are themes of discussion and debate at each stage of planning development. Western planners, such as Innes (1995) and Healey (1997), have raised a question for two decades as to whether planning could be facilitated by collaboration and communication. Similarly, collaborative and communicative planning, especially in respect of the coordination of local governance and market forces, the interests of the public and public participation, has been highlighted in Chinese academia (Zhou, 2001; He, 2008). Chapter Two attempts to provide an overview of the historical context of implementing a collaborative and communicative approach in Chinese planning enterprises. It is argued that the driving forces that lay behind introducing the Western planning ethos and planning theories into China can be traced historically in Chinese society. This chapter also examines the existing adoption of Western planning theories in Chinese society. It reviews the development of planning theories and compares the nuances of Western and Chinese planning theorists in recognizing planning theories. In fact, the comparison provides a range of evidence to examine the status of adopting planning theories in China, including the perception of planning theorists, the ethos of planning theory, and the challenges of adopting collaborative and communicative planning. Additionally, it provides an overview of the existing collaborative and communicative discourse in China.

2.2. Planning theory in China

Before discussing collaborative and communicative planning in China, the section provides an overview of existing planning theories, including the typology and social origin of planning theories in both Western countries and China, and the perception of these theories in Chinese academia.

According to Hall (1988), the period after World War Two represented 'the golden years of planning'. Western planning theories, generated in the last hundred years, have been discussed through a range of strategies and policies in China. For example, Wu (2000) introduced Western planning theory by using a mixed order, that is, a mixture of an annalistic style and the biographies of classical philosophy. Liu and Wang (2006), studied planning theories following the annalistic style. Some others introduced the theories by analysing the philosophical logic of the theory (He, 2008; Li, D. Q. 2013; Wang, 2003). Furthermore, a few Chinese scholars classify the theories by the main founders and authors

(Shi, 2007). Based on the studies of the above Chinese theorists, Figure 2.1 provides an overview of the planning theories recognised in China, and the gap in planning theories between China and Western countries. Before discussing that, this chapter attempts to examine the typologies of planning theory in Western countries and China.

In Western countries, perceptions of planning theories have become more diverse because of the historically contingent understanding of planning discipline and the developing planning context. The typology of planning theories is a debatable topic according to Faludi's (1973) substantive and procedural theories and Yiftachel's (1989) three questions around planning theories (namely what is urban planning, what is a good urban plan, and what is a good planning process). However, according to contemporary discourses of planning theories, Western theorists have tried to avoid debate between these two ideas (Healey, 1997), and have even criticised the redundant debate of the substantive/procedural distinction with a post-positivist perspective (Allmendinger, 2009). In contrast, in China, research on planning theories is at an initial stage of understanding the shifts of paradigms in Western planning theories (He, 2008). Contemporary planning theories discussed gain insight from existent planning theories in Western countries (Zhang, 2012). Wu (2000) criticises that some scholars study western planning theories and theorise planning in the Chinese context without having an comprehensive of the history and evolution of planning theories, which is insufficient to establish a framework of planning theories for Chinese theorists. It should be noted, however, that he still believes that planning theories offer an integrated understanding of substantive and procedural planning. The fundamental parameter of classifying planning into categories is the influences upon theory, which is supported as a route for a post-positivist planning typology by Allmendinger (2009). Allmendinger's typology was followed by Wang (2003) and Qiu (2003), who discuss planning theories based on existing social problems. Additionally, Wu's perspective on the typology of "planning theories" focuses on the distinction between "Theory *in* Planning" – which draws upon the classical theory of other disciplines (such as economics, sociology, and ecology) – and the "Theory *of* Planning" - the theory generated during planning work. Allmendinger (2002: 85) also believes that the question of 'to what extent can we know (if ever) distinguish between theories "of" and "in" planning' is important for planning theorists in the discourse of the typology of planning theories. With these ideas, it is suggested that there is no significant bifurcation of understanding as to the typology of planning theories between current Chinese and Western academia, although the discourse of planning theories remains at an initial stage. The chapter therefore provides the study with a basis for comparing planning theories.

The typologies of planning ethos and theories, discussed in this section are based on the work of Allmendinger (2009), Wu (2000), and Wang (2003). Furthermore, other perspectives of planning theories adopted in China, including the starting year of the planning ethos, are employed for the broader examination of the conception of these theories and ethos.

According to Figure 2.1, the majority of key Western planning theories have been recognised in the Chinese academia. When compared to the perception of planning theories by Allmendinger (2009), there is no significant mismatch or gap between the evolution of a theory in the Western planning system and its counterpart in China. The difference in the starting year of a planning ethos or theory could be ascribed to a different perspective on the representative theorist. For instance, Allmendinger (2009) suggests that the post-modern paradigm was gaining increasing attention from Western theorists (for example, Habermas, 1984; Healey, 1997; Sadercock; 1998) in the late 1980s, while some Chinese theorists indicate that the post-modern ethos started from 1980, after the dominance of modernism in planning academia (Qiu, 2003). Even though there is a major difference on the perception of the term “neo-liberal planning”, which is considered an ethos with profound implications in Western planning, as well as Japan (Allmendinger, 2009), less attention is paid to it in China. This may be because in Chinese society, as suggested by Liu (2009), the ideology of neo-liberalism was not encouraged to be introduced and recognised by politicians and thus it made a limited contribution to the process of decision-making in economic development in China. Nonetheless, both Western and Chinese theorists suggest that the motivation for developing planning theory in Western countries mainly came from a growing need for urban reconstruction (Wu, 2000), and the criticisms on the emergence of isolated and unnatural urban spaces (Jacobs, 1961). Urban problems are not confined to one nation, and thus the driving force for generating and adopting planning theories are not limited to Western countries. They exist in China as well (Allmendinger, 2009). D. Q. Li (2013) supports the view that the motivations for developing Western planning could be found in Chinese society.

The dynamics of developing the planning theories in China are dealing with a dramatic change began in the field of social structure after the Economic Reform (ER), led by Xiaoping Deng who shifted the planned economic system to market economic system in 1978 in China (Li, D. Q., 2013). The social problems of urban development have become more diverse since the change in the economic system in China, and this has drawn growing attention from planning academics in China. He (2008) stated that the duality of

government-market planning system in Western countries before the 1980s has also emerged in the Chinese planning system after the ER. Chinese theorists, therefore, started to introduce Western planning theories to address the issues that occurred in the urban development in China from the beginning of the 1980s.

Having scrutinised that the social issues in motivating the theorising around planning in the Western countries could be found in China, a main question that arises is: Why collaborative and communicative planning should be discussed in China? The following section focuses on the shift within planning paradigms in Chinese planning academia.

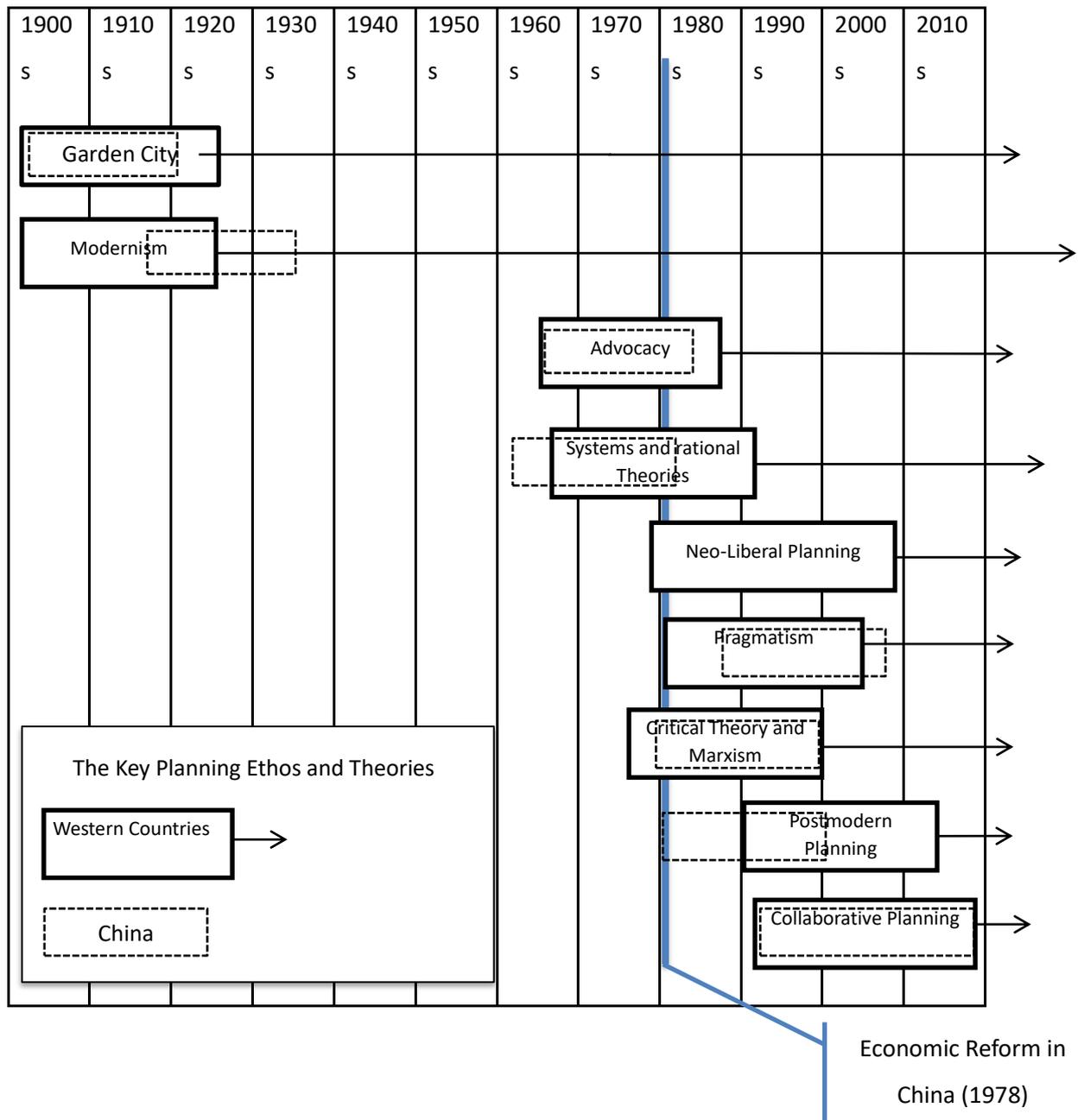


Figure 2.1 The key planning theories and ethos recognised in Western countries and China

(Sources: Allmendinger, 2009; He, 2008; Liu and Wang, 2006; Qiu, 2003; Shi, 2007; Wang, 2003; Wu, 2000)

2.3. The Communicative Turn in Chinese Planning Academia

Collaborative planning has been highlighted and embraced by planning professionals in Western countries since the 1990s (Forester, 1989; Healey, 1997; Innes, 1995; Cheng, 2013). In China, it gained increasing attention from planning academics as they sought to develop an approach of planning that included collaboration and communication (He, 2008; Zhang,

2012). Getting insights from Wu (2000) and Shi (2007), collaborative and communicative planning was considered one of the most influential planning paradigms within postmodern planning discourses. Thus, this research suggested that Collaborative Planning gained, and is gaining, attention from both western and Chinese scholars at the time of this research (2014-2017). It is to provide an overview of viewpoints of “communicative turn” in China, including the supporters and critics, in the following sections.

There have been a growing number of planning academics advocating adopting planning that adopts a communicative and collaborative approach (Hu, de Roo and Lu, 2013). Dong (2004) noted that the theory and practice of collaborative planning from the Western countries could help to reconcile any conflict that may exist between the power of the capital market and government in China, such as with regard to their different perspectives on carbon emission reduction (Li and Ma, 2016). Sun (2005) also suggested that public participation should be carried out in the process of planning preparation rather than during the approval process in the final stage. The work of He (2008) showed the relationship between the market, government and the public and He argued that the planning theories learned from Western countries could be divided into three paradigms: structure and function, rationality and participation, governance and collaboration. A process of collaborative and communicative planning could help Chinese urban planning shift from physical planning to public policies. Moreover, it is proposed that some advocates of collaborative planning, including the advocating of the agreement through free and open discourse (Allmendinger, 2009), and the trinity of government-market-citizen (He, 2008), have been introduced into the Chinese context. Zhang (2012) also pointed out that collaborative and communicative planning is a planning paradigm that deals with the relationship between government, market, and the public, and suggested that this is the planning theory for urban development in the 21st century. Moreover, Hu, de Roo and Lu (2013) declared that Chinese academia should pay attention to the difficulties of achieving communicative planning. They suggested that the similarities between China and Western countries in socioeconomic dynamics of urban development where communicative planning was proposed and practiced.

It has been discussed that a series of practices focusing on advocating the communicative and collaborative approach in planning work have been carried out in China. Cheng (2013) found the role of collaborative planning by examining the case of the PX project in Xiamen and the nail house in Chongqing. The feedback from the public and the interests of

multi-stakeholders, to lesser or greater degree, were considered an important factor in the process of decision-making. According to Zhou (2014), the programme of urban village regeneration in Guangzhou benefitted from sharing interests between diverse stakeholders. An established collaborative partnership is the key issue to achieving success in such programmes. Additionally, according to Deng et al. (2015), a series of new models of communication, as well as new collaborative approaches were suggested to address the issues which occurred in traditional planning processes, such as insufficient information exchange, there being a lack of communication platform, and the inefficient participation of stakeholders. In brief, these Chinese planners believed that the implementation of collaborative and communicative planning could help transform public policy and bring diverse perspectives into planning. This, they further argued, would achieve the cultivation of a more free and open climate in China (Cheng, 2013; Zhou, 2014; Deng, et al., 2015).

A further concern raised is the difficulty of implementing communicative and collaborative planning in China due to the presence of specific political issues as well as public and local communities. Indeed, Chinese theorists were trapped in the dilemma of facilitating the procedure of planning and promoting the outcome of planning. Following the suggestion of Zhang (2012), collaborative planning aims to facilitate the procedure of planning, but it may not effectively promote the outcome of planning. This seems to be a debate between the supporters of procedural and substantial planning. Indeed, before implementing these planning theories, a critical conceptual or procedural framework should be established to seek the correspondence between Chinese and Western planning societies (Wu, 2000).

As Hu, de Roo and Lu (2013) note, although power relationships have generally shifted from the government sector to the market in the last three decades, the political hierarchy and top-down government structure have not changed in China. As a result, the decision-making process is still dominated by different levels of government. Cheng (2013) stated that although governments and decision-makers have received criticism and suffered a loss of public trust, they hold the power to influence planning. Moreover, economic growth is to a large extent the number one priority for government and this could cause significant bias in the decision-making process. Consequently, planning professionals are subject to the political or economic purposes of central government to a large degree.

In terms of the public and local community, the effect of communicative and collaborative planning process can be doubted since there is the bifurcation of ideology between China and Western countries. Decision-makers have concerns about the self-awareness of the

public to engage in plan-making, since individuals seek to be supported by groups or collective positions rather than argue for their own welfare and wellbeing as a consequence of ingrained Chinese culture (Leung, 2007). Furthermore, it is suggested that systematic errors may exist in emerging methods of data collection, for example, Social Network Site (SNS). In the study of Dafo Temple (Deng, et al., 2015), it was noticed that there was a gap between online and on-site respondents with regard to their level of educational attainment. The majority of online respondents had obtained at least a Bachelor degree. In contrast, the education background of onsite respondents was more varied. It is evident that planning professionals should not focus on the interests of a minority, or just one aspect of the body of stakeholders, to keep in line with the initial purpose of adopting communicative and collaborative planning.

Overall, the collaborative and communicative approach has gained increasing attention in the Chinese academia, although academic scrutiny on introducing Western planning theory was considered to be insufficient to support all aspects of theorising around planning in China. Some planners, or planning theorists, strongly argued that the collaborative and communicative planning was, and should be, one of the major planning paradigms to address the social issues in Chinese planning enterprises (Zhang, 2012; Hu, de Roo and Lu, 2013; Zhou, 2014). It was also claimed by commenters that a free and open climate in both political and public dimensions could facilitate the communicative turn in the Chinese planning system (Cheng, 2013; Deng, et al., 2015). However, it is still a contested question as to whether an approach of collaborative and communicative planning could benefit the practice of planning. Although there was a “communicative turn”, or an increasing voice for embracing collaborative planning in Chinese planning academia, the existing studies provided insufficient evidence to support the view that collaboration and communication could substantially facilitate the planning process in China.

2.4. Conclusion

Since Chinese planning theorists started to introduce Western planning theories, it is doubtful whether there is a suitable ground for developing these theories in China, especially those contested planning paradigms debated by Western planning theorists. Indeed, China had an opportunity to implement Western planning theories upon the transformation of the economic system. Although there is a bifurcation of ideology between Western countries and China, the in-depth driving forces of planning theories emerged in the social evolution of Western countries and have now started to be found in Chinese

society. Urban and social problems have been brought into a worldwide discussion rather than confined to one nation. It is concluded that extensive examination of existing and emerging theories, including collaborative planning, should be further examined, both intellectually and experientially.

Chapter 3 The rationale of considering the eco-city as a planning trend

3.1. Introduction

According to Hu (2016), deputy director of the National Development and Reform Commission (NDRC), China witnessed about 20 million migrants per year moving from rural areas to the urban areas during the 12th Five-Year Plan (2011-2015). Sharifi (2015) pointed out that the rapid rate of urbanisation in China has resulted in an increasing demand for development in completely new urban areas. The Annual Urban and Rural Construction Statistical Bulletin (Ministry of Housing and Urban-Rural Development (MOHURD), 2015) also shows that there is a positive correlation between newly built urban areas and the growth in the urban population.

In order to establish a conceptual framework for the Chinese planning system, it is essential to provide an overview of the process of urbanisation in China. This chapter scrutinises the reasons for targeting the new-build Eco-city programme as a paradigm of future urban development in China. It also examines the key issues which hampered the delivery of the Chinese eco-city programme to support the establishment of a conceptual framework by which to adopt collaborative and communicative planning. To this end, the chapter first provides a definition and the criteria for an eco-city based on a range of perspectives in Western countries. Thereafter the chapter moves to a discussion of the rationale for delivering eco-city projects as a key part of sustainable development by indicating the role of the eco-city in the process of urbanisation in China. A table of all the types of sustainable development models is provided in this chapter (Table 3.2) to afford a comparison of all of the models in respect of date, development scope and further vision. It also provides an applicability analysis of delivering eco-cities instead of the new town programme within the bounds of sustainable development. In order to illustrate the shift from the new town programme to the eco-city programme, the chapter discusses the role that the new town and eco-city programmes play in the Chinese planning system. Having indicated the importance of delivering the eco-city programme, the chapter finally updates the occurring issues in the Chinese eco-city development by integrating the perceptions of literature and existing studies.

3.2. The overview of the urbanisation process in China

In China, urban areas have dramatically developed and changed in the past few decades.

During this period of rapid development, the Chinese government made an effort to explore the factors prevalent in urbanisation. According to Wei (2012), there are three stages of urbanisation within the history of China (see Figure 3.1): fluctuations (1949-1977), stable-rising (1978-1995), and fast-rising (after 1996). Urbanisation has continued to soar since 2011, as stated by Hu (2016), and its rate has been maintained at 1.23% per year for the last five years. Some scholars anticipate that the urbanisation rate could reach 60% by 2020 (Wei, 2012; Hu, 2016). Although the progress of urbanisation is anticipated to be slower than in the past two decades, it is still expected that a great number of newly built urban areas will emerge in the next five years. Additionally, central government has awareness that the process of urbanisation must also involve a comprehensive consideration of the function of land use, the location of new urban areas, and the relationship between urban areas and urban development (Liu, 2010). The rest of this section seeks to illustrate the political driving forces that exist in the process of urbanisation in China.

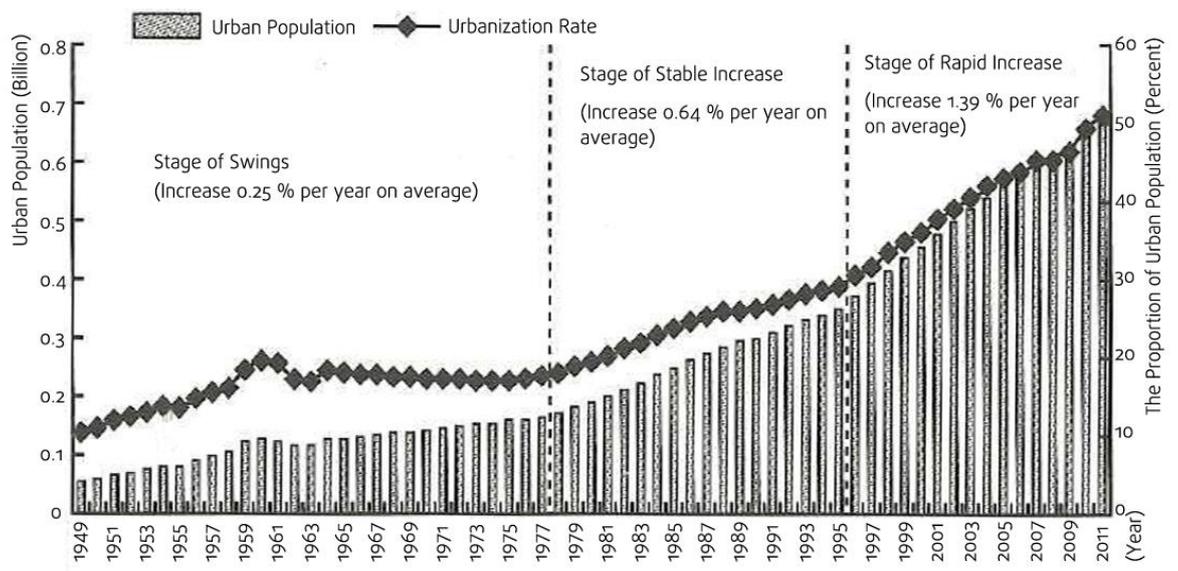


Figure 3.1 The stages of Chinese urbanisation

(Sources: Wei, 2012; NBSC, 2007, 2008, 2009, 2010, 2011a and 2011b, 2012)

In the first stage, according to the report by National Bureau of Statistics of China (NBSC), from the foundation year (1949) of the People's Republic of China to 1977, the development of urbanisation grew slowly after the Second World War. According to Figure 3.1, an urban population growth rate of 0.25% per year was recorded for the years from WWII until 1977. The urban population increased along with the growth of birth rate which rocketed (1.25%) between 1959 and 1961 due to the policy of Great Leap Forward

(1958-1962) (Zhou, 2018). The policy was proclaimed by Zedong Mao, which aimed to push the development of agriculture rapidly and achieve a communist society from an agrarian economy (Liu, 2010). However, it exceeded the economic basis of the country, which was largely established on agriculture at that time, and was followed by three years of de-urbanisation. According to the work of Wei (2012), the proportion of urban population decreased by 2.91% (0.97 per year) in following three years after the revocation of policy.

In the second stage, from 1978 to 1995, China witnessed a stable and steady development of urbanisation with the launch of the Economic Reforms (ER) in 1978. The proportion of urban population increased 11.49% (0.64% per year) during these 18 years (Wei, 2012). However, Fan et al. (2012) claim that, in 1989, under the improvement and rectification policy, the development of urbanisation slowed (to 0.47% per year). The level of urbanisation blocked the development of industry in these decades.

In the third stage, the proportion of urbanisation increased 1.39% per year from 1996 to 2011. This was caused by a shift in policy in 1992 which aimed to address the problems within China's economic structure. In 1997, a pilot policy on rural migrants was published by the central government, which allowed the rural population to work in small and medium cities. Meanwhile, the children of these rural migrants, with their parents, were allowed to register in urban areas (Legislative Affairs Office of the State Council (LAOSC), 1997). Consequently, an upward trend of urbanisation occurred in this open and free political environment. This was because rural migrants had to overcome fewer difficulties to live in cities. By 2012, urban areas had a population of 711.82 million (NBSC, 2013), which was 52.6% of the national population. It has increased by 1.3% from 2011 onwards. In 2014, the reform policy of household registration was eventually approved by the State Council, which completed the removal of restrictions for rural migrants to register in towns and small cities.

Based on the findings of previous research, it is concluded that there has been an overall increase in the urbanisation rate in the past six decades, especially during the last recent 20 years. Moreover, a positive attitude towards rapid urbanisation has appeared amongst planning academics whereby some scholars predict that a strong surge in the increasing urban population and urban areas will last for the next five years (Wei, 2012; Hu, 2016). In general, increasing newly built urban areas is gaining attention from both political and planning systems China.

3.3. Criteria for eco-cities

In this section, a model of sustainable development, the eco-city, is discussed, including the diverse perceptions of the criteria for delivering an eco-city, to indicate what the benchmark for an eco-city is. Additionally, it provides a clue to the relationships between the collaborative and communicative approach and the features of an eco-city.

The delivery of the Chinese eco-city programme drew upon the spatial conceptualisations of the American philosopher, Richard Register, who established a blueprint for the journal, *Urban Ecology*, in 1975 (Roseland, 1997). Register coined the word ‘eco-city’ as a city balanced with nature (Roseland, 1997), and this key definition remained unchallenged as a for thirty-years, as Table 3.1 below demonstrates.

Table 3.1 The priorities of *Urban Ecology*

Encourage	<ul style="list-style-type: none"> ● Public transport ● Foot traffic, cycling ● Restore destroyed urban environment ● Affordable housing and liveable community ● Social justice and opportunities for disadvantaged groups ● Local agriculture, green facilities ● Energy recycling and green technology ● Environmentally friendly economic development ● Simplicity and ecological lifestyle ● Education for ecology and public awareness
Discourage	<ul style="list-style-type: none"> ● Private vehicles ● Pollution and waste ● Production of hazardous materials ● Excessive consumption of material goods

Source: *Urban Ecology*, 1996

Urban Ecology laid an emphasis on environmental, social, and economic priorities, especially the relationship between human activity, the natural environment, and resources. The perspectives of the eco-city were extended by Graedel (2011) with regard to the time scales of development, economic development, and plan-making: a long-term sustainable development programme should be embedded in the chain of regional and global economy, and ensure the flexibility and feasibility of the plan to cope with the changing features of a city, such as population, climate and technology. In addition, the ‘carbon’ discourse gained prominence in eco-urban programmes in the years following the Copenhagen Conference (2009), which focused on global warming, climate change, and carbon emissions extending the conventions proposed in the Kyoto Protocol (Cheng and Zhu, 2011; Sharifi, 2015). According to Joss and Molella (2013), the ‘carbon’ agenda involves the development and

utilisation of a range of green technologies to reduce carbon emissions and energy use, such as photovoltaic cells, 'smart grids', water treatment systems, and sustainable waste management systems, which have subsequently been embedded within eco-city delivery programmes. Furthermore, Joss and Molella (year) illustrated the role of local culture and community in the delivery of eco-cities using the case of Caofeidian Eco-city to argue their proposal. In Caofeidian practitioners and researchers sought to coordinate the subsystems of an eco-city by addressing the emerging issue of the need to develop integrated urban development (Tsolakis and Anthopoulos, 2015).

However, commentators on Chinese eco-city projects have placed an emphasis on the creation of a singular framework that focussed on economic efficiency, environmental effects, and social influences (Zou and Li, 2014; Li and Qiu, 2015; Wang, et al, 2016). Moreover, reflecting on China's political and bureaucratic system illustrates the existence of a series of powerful pressures that have impacted upon the development of Chinese eco-city projects (Ghiglione and Larbi, 2015). However, there is a less well defined discussion as to whether the political, economic, environmental, cultural, and communicative aspects of an eco-city can be situated within a comprehensive development framework. It is therefore pertinent to rationalise how these divergent issues can be integrated to create a conceptual framework to aid practitioners in the development, delivery and evaluation of the performance of eco-city projects in China (Ghiglione and Larbi, 2015).

In general, the criteria for an eco-city focus on the creation of a harmonious relationship between the natural environment and human activities. Additionally, the principles of plan-making and governance have been discussed and added to the criteria for eco-cities. Therefore, the increasing specificity and complexity of the criteria, to a lesser or greater degree, require support from a range of diverse groups within political, technological, and public realms. Furthermore, a conceptual framework for the evaluation of Chinese eco-cities was constituted by the 5-way influences, including political, economic, cultural, environment, and collaborative dimensions.

Table 3.2 Scope and vision of different sustainable models in China

Models	Starting Years	Scope and vision	Instances
The National Civilized City	1980	Achieving coordinated development among material, political, and spiritual civilisation to enhance the citizen's ideological quality.	Xiamen, Qingdao, etc.
The National Hygienic City	1990	Aimed at improving the living conditions in the field of urban hygiene.	Weihai, etc.
Healthy City	1994	Aimed at improving the urban environment and providing a better health service.	Changshu, Kunshan, etc.
The National Garden City	1992	Promoting the function of the city and improving the living environment to achieve sustainability.	Beijing, Hefei, etc.
The Ecological Garden City	2004	Promoting the harmonious relation between humanity and nature by using ecological principles and priorities	Qingdao, Nanjing, etc.
The National Environmental Protection Model City	1997	Coordinated environmental, social, and economic development sample cities.	Zhangjiagang, Shenzhen, etc.
The Ecological Demonstration Zone	1994	Setting up an ecosystem to organise socio-economic activities and the environment in order to achieve sustainable development and meet the growing need for resources from the population. Meanwhile, contribute to the regional sustainable development.	Hainan province, Jilin province and other 12 provinces
Ecological City	2001		Tianjin Eco-city Caofeidian Eco-city, Dongtan Eco-city, etc.
The Liveable City	2005	To build a city with well-organised environment and green facilities. Lays emphasis on the sustainability of the cultural environment as well.	Zhuhai, Dalian, Zhongshan, Xiamen, etc.
Sponge City	2014	To build an urban area with a low impact water management system and ecological vision.	

Sources: Zhao, 2011a; Li and Zhong, 2012; Li and Dong, 2006; Zhang et al., 2007; Zhao, 2005; MOHURD, 2015; Chang and Wang, 2013; Kang et al., 2013; Wang et al., 2013

3.4. The role and status of eco-cities in Chinese urbanisation

The variability in patterns of sustainable development have been discussed by Chinese academics and politicians for over four decades (1970s-2010s). According to Zhao (2011a), the sustainable welfare of citizens can be ensured by developing sustainable cities, and from the 1980s onwards, the Chinese government explored a range of 'sustainable investment models' in the field of planning including; the National Civilized City, the National Hygienic City, the Healthy City, the National Garden City, the Ecological Garden City, the National Environmental Protection Model City, and the Liveable City, in addition to the Eco-City (Zhao, 2011b). Sponge Cities, initiated by President Xi in 2013 are the latest and most frequently mentioned sustainability proposal to be discussed in planning academic forums and government meetings (Zhang, 2015). The visions and scope of these paradigms of sustainable development were identified by the key problems raised in each as shown in Table 3.2.

From the data contained in the table, it can be seen that Chinese planners and politicians have started to pay attention to sustainable development. Each sustainable model was formed with a people-oriented principle that incorporated the historical, social, and economic conditions of the given area. Moreover, the vision of the model of sustainable development obtained insights from the national Five Year Plans (FYPs) and associated strategic policies. The table above shows that, between the 1980s and 1990s, the urban development of Chinese cities focused on the promotion of living conditions and urban hygiene.

At the end of the 1990s, the priorities of ecological development discussed in Western countries started to be adopted in plan-making in China. The discourse of sustainable development started to focus on the relationship between the natural environment and humans, as well as low impact developments, rather than the living conditions of urban citizens. Shen (1996) suggested that urban development, including aspects of urban industry, water management, efficient land use, the relationship between urban and rural areas, and biodiversity, were added as priorities within the sustainable development model. According to the column, scope and visions (Table 3.2), it is evident that sustainable development started to be considered as a comprehensive system that included social, economic, and environmental dimensions. Meanwhile, the quality of green infrastructure was increasingly highlighted so as to improve public open spaces, the environment of the local community, and to help cope with issues of flooding and climate change in urban areas.

In 2014, for instance, the development of sponge cities was initiated to address the issue of flooding in urban areas. Furthermore, according to the Five Year Plans (FYPs) from 1991, the item “Ecological/Ecology” (the item was searched by Chinese Vocabulary “生态”) was mentioned frequently in FYPs, especially in the 11th FYP (See Figure 3.2). According to the proposals within the eco-city programme from 2001 to 2011, the concept of ecology gained increasing support from local and central government, and was adopted in the strategies of national development, as well as within local governance. Additionally, the proposals for delivering eco-city projects decreased from 2011 because of the emerging challenges which are discussed in section 3.6.

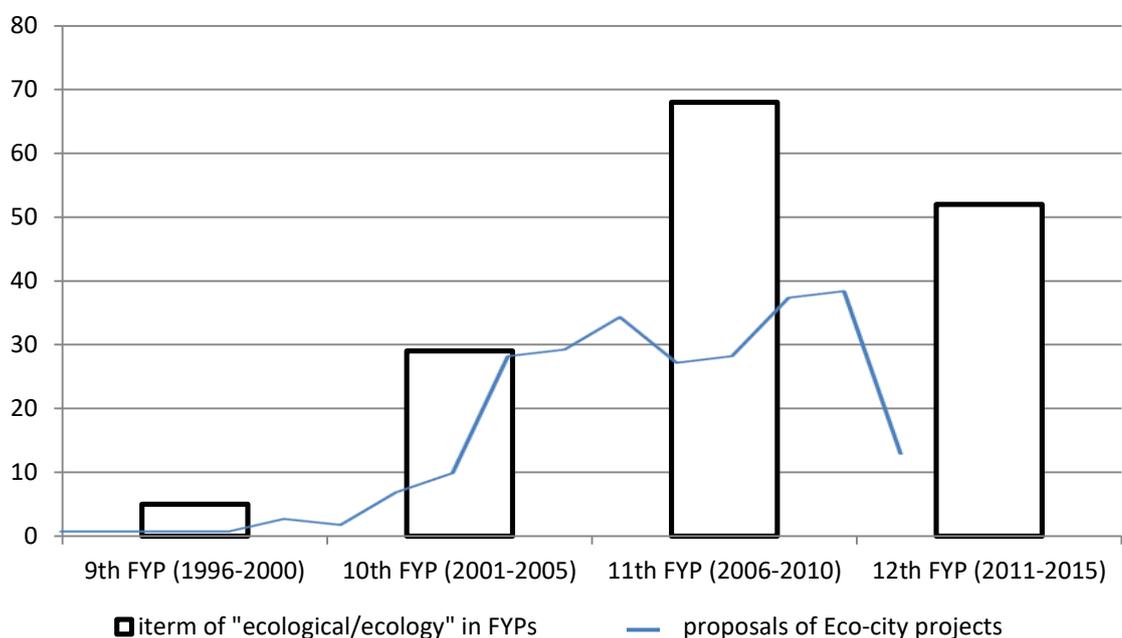


Figure 3.2 The frequency of the item "Ecological/Ecology" mentioned in FYPs and the proposal of Eco-city projects (1996-2011)

(Sources: National People’s Congress (NPC), 1996, 2001, 2006, and 2011; Li and Liu, 2011b; Edited by Author)

It is proposed that a comprehensive process of decision-making is needed because of the growing number of conflicts and issues that have occurred in the field of sustainable development and within eco-city projects (Li and Liu, 2011b; Yu, 2012). As the flagship programme of sustainable development, the eco-city programme consists of specific quantitative and qualitative features and visions which are different from those of the green city or the environmental friendly city. The delivery of an eco-city programme requires a balanced relationship to exist between economic development and natural resources, as

well as with regard to the behaviour of humans and the capacity of nature. This means that more trade-offs are involved during the period of decision making in an eco-city compared to the other models. Stakeholders must have a deep understanding of the interests of others and be prepared to compromise. According to Wang (2015), the development of an eco-city should be facilitated in areas of productivity richness, institutional effectiveness, high life quality, good physical and mental health, and advanced ecosystems. To this end, the ecological programme should be monitored under a collaboration between government, enterprises, scientists, and the public.

In 2003 and 2008, the number of eco-city proposals increased after the publication of the Indicators of Developing Eco-town, Eco-city and Eco-county (Draft) (Revision)¹ (Li and Liu, 2011b). X. Li (2012) suggests that more than 280 cities (96% of cities in China) delivered a vision for ecological development in the last three decades. Although there is wide recognition of the need to develop ecological programmes of different scales in China, the motivations for proposing such projects should be questioned. This is because the dynamics of delivering an eco-city programme encompass administrative authorisation, scientific supervision, industrial sponsorship, community participation and media motivation (Wang, 2015). In brief, eco-city projects, as well as the development of ecological programmes, have gained prominence from government, as well as planning academia. However, there is concern about the dynamics of delivering eco-city projects; they may become vanity projects to meet the demands of a strategy instead of taking the current situation of the city itself into consideration.

According to the comparison of different models of sustainable development exploration in China, this study suggests that the eco-city played, and will continue to play, a key role in Chinese urbanisation. Moreover, the Chinese eco-city should be developed through a people-oriented approach, but also part of a national strategy to achieve long-term sustainable visions in economic, social, and environmental dimensions (Qiu, 2009).

Chinese Eco-city projects could be classified into two major models: newly built Eco-city and transfer existing urban areas ecological. In general, the initial motivation for delivering ecological programmes in China was to achieve sustainability between economic development and environmental protection (Huang, 2004). Moreover, a majority of the proposed eco-city developments in China were implemented in new urban areas because

¹ 生态县、生态市、生态省建设指标（试行稿）和（修订稿）

there would be fewer barriers hampering their development (Li, H. L., 2012).

There is a concern that some eco-city projects were delivered with biased motivations, such as political implications, economic interests, academic advocacy, and environmental conservation, all of which have become intertwined in Chinese eco-cities (Li and Liu, 2011a). The comprehensive visions and priorities of eco-city projects have not been identified in China, since there is no consensus of the assessment criteria for the eco-city programme (Li, X., 2012; Yu, 2012). Moreover, there are more than 40 titles or names of ecological programmes, such as Low-carbon Eco-city, Green Low-carbon Eco-city, and liveable Eco-city. This is due to the lack of an explicit definition of what an eco-city is in Chinese planning academia, as well as in Western countries (Li and Liu, 2011b). It is therefore essential to examine the visions of eco-city programmes during discussion of selection of the two case study cities.

Since there is no census as to the criteria of an Eco-city programme in China, this research compares ecological visions of eco-city projects which have been accredited or recognised domestically and internationally. According to existing Chinese eco-city projects, a number of newly built eco-cities programmes were delivered through international collaboration (Li and Liu, 2011b), for instance, the Sino-Singapore Tianjin Eco-city, Sino-Sweden Caofeidian Eco-city, Sino-Finland Ecological Valley, and Sino-UK Dongtan Eco-city. Despite the fact that these eco-city projects act as advocates for international collaboration and communication in the exploration and delivery of Chinese ecological programmes (Li and Liu, 2011a), it is not straightforward to adopt foreign experiences to the Chinese context because of differences that exist in the political framework, culture, and economic base of China when it is compared to those within developed Western countries. This research does not imply that a programme developed through international collaboration is better than other eco-city projects in China. However, these programmes could provide more opportunities for undertaking critiques. Accordingly, this study pays attention to eco-city projects that were developed through international collaborations rather than those that utilised domestic collaboration.

3.5. Revisit the role of New town in China

Having illustrated the relevance of new build eco-cities in achieving sustainability in China, there is still the question of what the relationship is between a new eco-city and a new town. The idea of building new town derives from Ebenezer Howard's garden cities in Letchworth and Welwyn (Merlin, 1980). In the post-World War II period, the first wave of

rebuilt cities tried to release the heavy population burdens borne by core cities, such as London, Paris, Tokyo, as well as cities in China. A variety of new towns started to be built after the 1950s across the globe. After a quarter of century, the idea of an eco-city was coined by Richard Register in 1975 and was used to describe the development of a city that was sustainable (Roseland, 1997). There is a limited literature that compares new towns and eco-cities, and whether there has been an evolutionary approach to develop new towns as eco-cities in China.

The purpose of this section is to specify the uniqueness of integrating the collaborative and communicative approach with reference to eco-cities rather than new towns. Through so doing this study answers two research questions:

- Why are ecological concepts important in the newly built urban areas?
- What is the motivation for this shift in policy?

Since satellite towns were first proposed in Shanghai in 1956 and in Beijing in 1957 (Su and Pan, 2008; Wang, 2009), new towns have been delivered as a strategy for dealing with both the population and environmental pressures that both cities have faced. As noted in the section 3.3, China witnessed a period of rapid urbanisation after the economic reforms of 1978. Therefore, a series of metropolitan cities planned to build satellite towns. The satellite cities or new towns played an important role in receiving rural migrants throughout the process of urbanisation. According to a national demographic report (Lin and Xuan, 2015), the population of urban areas rose from 0.17 billion to 0.75 billion between 1978 and 2014, which indicates the rapidity of the process of urbanisation in China. It follows that more than 600 million people moved from rural area to cities in four decades. Indeed, according to this report, more than 100 million rural persons were waiting to be urbanised in 2014. Consequently, there is a need for further new town programmes which would play a critical role of balancing regional populations and development.

3.5.1. The challenges and drivers of new town development in China

It was argued that, over the past two decades, the challenge of delivering new town programmes occurred in developing countries has been more complex than that within developed countries (Huang and Ning, 2003; Tao, 2005). To resolve certain unique issues in the delivery of Chinese new towns, requires a combination of experiences from Western countries and China. In Western countries, the role that markets play in the planning approach was highlighted as 'Urban planning and land-use regulations thus need to adopt

market-oriented principles and concepts' (Staley & Scarlett, 2000: abstract). Unlike developed countries, Stewart (1996) pointed out that new town programmes can be hindered by the less developed education facilities in developing countries, such as Egypt. Young parents would not work and live in the new towns because of the lack of educational opportunities for their children. Lv and Cao (2005) claimed that, as a result of it being a developing country, the Chinese government placed more emphasis on dealing with the gap between less developed areas and developed areas, than financial issues. In brief, both dynamics and challenges of delivering new town programmes are variable geographically, and this is studied, within a Chinese context, within this thesis.

In China, since the 1990s, there has been a shift of policy to limit the delivery of new town programmes. At the beginning of the 1990s, based on the report of the 8th FYP (1991-1995), the central government started to place more of an emphasis on agriculture, industry, and basic infrastructure, as well as improving housing and the environment. However, the 9th FYP (1996-2000) stated that there was a significant shortage in farmland, water resources, fossil fuels, and other natural resources. There was also a conflict between the need for land to deliver the new town programmes in rural area and the need for such land to be used for farming purposes. Lv and Cao (2005) suggested that, based on the current stage of urbanisation, the government in the east of China could place more of an emphasis on the urban and social issues caused by the development of the metropolis. In contrast, most cities in the middle and western parts of China should focus on the improvement of their urban systems and issues of infrastructure. Local governments should, therefore, deliver new town programmes according to their local context (Jiang, Yang & Zhu, 2014).

According to Fei (1983) small towns should play a role in receiving rural migrants and labours and should be helped in so doing by big and medium sized cities. This contested suggestion was highlighted by Sai (2016) for the relevance that it has with regard to current concerns about on-going developments in small towns which have ageing problems. However, Wei (2012) criticised the development of small cities because it involves the use more energy compared to big cities due to the relationship that exists between the cost of building infrastructure and the population who uses that infrastructure. Moreover, Zhang (2010) argued that the delivery of cities should address the needs of investment, energy consumption, and natural environment rather than simply considering the scale of the city. Within this idea there is a focus on the efficiency of energy, infrastructure, and transportation facilities in urban development. These factors challenge the delivery of new

town programmes.

Supporters of the new town programmes argued that the dynamic of delivering the new town programme is shown in the growing awareness of urban regeneration and the enhanced consideration of the relationship between existing and new urban areas (Hu and Wang, 2006). In China, there is a long history of urban development, which has led to a series of conflicts between on-going development and heritage protection. In addition, the delivery of new town programmes involves lower costs in addressing the issue of heritage protection since new towns can be built in areas which have a small number of heritage or historic buildings (Hu and Wang, 2006). It is proposed that the delivery of the new town programme reduces the cost on urban development since the long-term issues which occur in existing urban areas are more difficult to deal with. However, it was also suggested that new town programmes could not substantially deal with the issues that exist within existing urban areas because these issues could also occur in the new town programme in the future (Li, 2014).

The key dynamics of delivering a new town programme are a combination of political, social, and economic factors. Moreover, along with the process of urbanisation, the changing of administrative districts and the establishment of new administrative centres led to a requirement to build new urban areas (Hu and Wang, 2006). Furthermore, a close relationship between new town development and approaches to urbanisation has been noticed as shown in Figure 3.3 (Ding, 2007). The development of new towns accelerates the process of urbanisation. Simultaneously, urbanisation becomes a driving force for delivering new town programmes. It was proposed that the delivery of new town accelerated rural migration into urban areas, (Hu and Wang, 2006; Shao and Shen, 2009). The increasing number of rural migrants contributes to the growth of urbanisation rates, which leads to a cycle of new town programme and urbanisation (Figure 3.3).

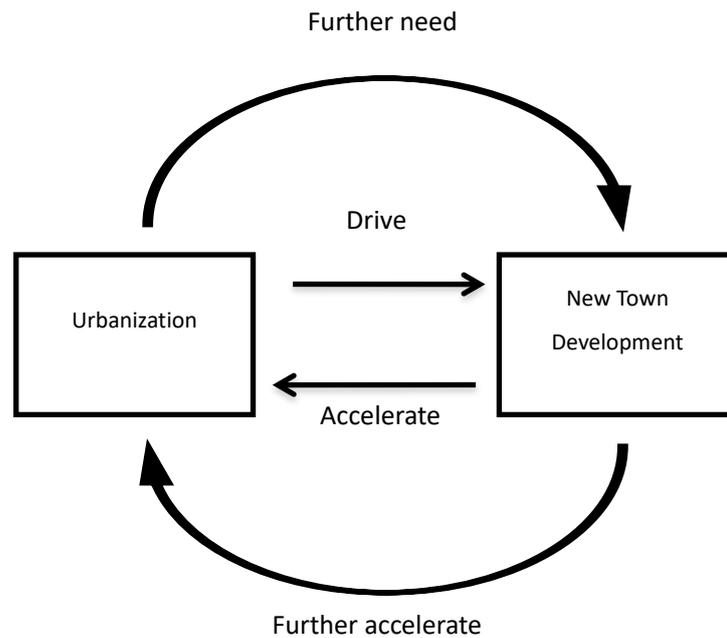


Figure 3.3 Cycle of urbanisation and the development of New Town

(Source: Ding, 2007, edited by author)

In addition, the construction of a new town inevitably involves discussion of investment and finance. In contrast to the high price of land and property in existing urban areas, it requires less funding with regard to promoting living conditions and establishing resident communities in rural areas. As a consequence, real estate developers were motivated by the high economic profit and targeted the delivery of new town programmes (Hu and Wang, 2006). According to their study, local government is also motivated by the economic rewards of developing the real estate industries sited in their respective new town programmes. The development of the housing market in a new town as well industrial development has gained attention from politicians and planning professionals. Shao and Shen (2009) suggest that there are a growing number of new town programmes which focus on industrial development, especially hi-tech companies and innovation parks. Consequently, it is increasingly necessary to discuss the relationship between investors, planning professionals and decision-makers, as well as who holds the power to affect the planning process of a new town programme (Huang and Ning, 2003).

3.5.2. The relationship between new town and eco-city

D. Q. Li (2013) pointed out that there are three stages in the eco-city development in China: the recognition of an eco-city, addressing existing ecological problems, and the wide implementation of the eco-city programme. From the 1980s onwards, China started to explore the practice of ecological construction and integrated ecological concepts with the development of regions and cities. I suggest that the trend of developing 'new town' is being considered as an example of an 'eco-city', since the vision and function of new towns have become similar to that of new eco-cities. The relationship between the two paradigms of urban development is illustrated in Figure 3.4.

The stage of New Town (1950 - 2007)

Shao and Shen (2009) suggested that the development of a Chinese new town or satellite city gained insights from the planning system of the former Soviet Union after 1950. Thus, the delivery of Chinese new-town programme was considered to have in 1950. However, there is no significant evidence to support the view that the ecological concept was adopted before 2007. X. Li (2012) argued that there is less number of Eco-city projects before 2007. Consequently, this research argues that the new town model was not linked with ecological development between 1950 and 2007.

The stage of eco-urbanism (2007-2020)

From 2007, Chinese planning professionals witnessed a significantly increased number of proposals for eco-cities including Dongtan Eco-city, Caofeidian Eco-city, and Tianjin Eco-city (Li, X., 2012). According to the work of H.L. Li (2012), there were 58 proposed eco-city projects completely built in new urban areas. This indicates that a number of new town programme started to implement the ecological concept at this stage.

Furthermore, in light of the 12th FYP (2011-2015), the urbanisation process in the five years (2011-2015) should be integrated with green concepts such as lowering carbon emissions and energy conservation. New town programmes and ecological concepts were integrated at this stage. Local authorities were required to follow the guidance of the national planning strategy and the FYP to scrutinise their local planning documents to achieve the ecological goals. Since there is no study or policy that provides an anticipated date of implementing ecological principles extensively in new town development, the author has sought to ascertain this data by exploring the vision of energy saving and emission reduction stated in 13th FYP (NPC, 2016). From this it is advanced that the principles of ecology should be

adopted before 2020.

The stage of Ecological Perspectives (2021-)

According to the study of *Ecological and Environmental Science & Technology in China: A Roadmap to 2050 (Roadmap 2050)*, Zhao, (2011a), the vision for ecological development by 2050 is to establish an ecological environment system which has a set of mechanisms to address the issues of climate change, river basin environment quality, environmental quality, and the bio-diversity within an urban setting. This suggests that the majority of new town programmes will contain eco-city criteria by 2050 or thereabouts.

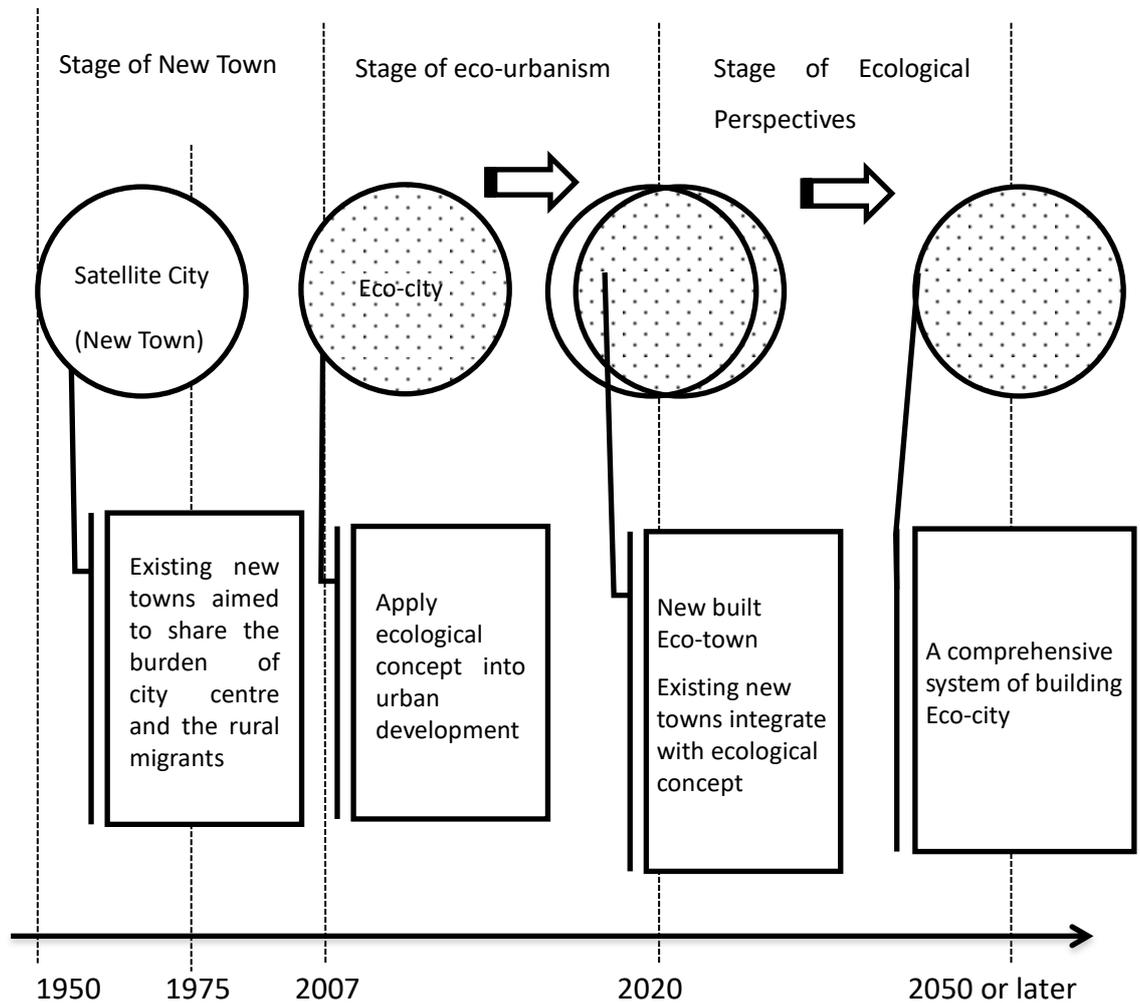


Figure 3.4 The Relationship between New town and Eco-city in China

(Sources: Shao and Shen, 2009; Li, X., 2012; edited by author)

3.6. The key issues involved in developing Chinese eco-cities

In China, the relevance of promoting energy conservation and environmental protection in urban development gained prominence from central government according to the 11th FYP (2006-2010) and the 12th FYP (2011-2015). However, along with the ideas suggested at the end of section 3.4, it can be advanced that the delivery of eco-city projects has come across certain challenges which could reduce the confidence of practitioners in sustainable development. Although China has witnessed a profound improvement in developing the eco-city concept, the criticism of the eco-city model needs to be carefully reviewed and considered. Baoxing Qiu (2009), the vice minister of MOHURD, argued that there was a conflict between the unqualified location and ecological vision in some Eco-city projects. It was also declared by Yu (2012) that some developers have attempted to build a sample of an eco-city, rather than focusing on priorities such as implementing planning documents and monitoring. In addition, whilst the eco-city programme in China has met certain challenges which occurred in other countries, a number of emerging issues have emerged that have been unique to the Chinese context (Yu, 2012). Much literature on Chinese eco-city projects has emphasised the singular framework, i.e. economic efficiency, environmental effect, and social influences that exist within the country (Zou and Li, 2014; Li and Qiu, 2015; Wang, et al, 2016). Furthermore, China's political and bureaucratic system has created a series of powerful pressures that have impacted on the optimal development of Chinese eco-city projects (Ghiglione and Larbi, 2015). Studies have drawn attention to the existence of comprehensive framework in perspectives of political, economic, environmental, cultural, and collaboration aspects of the eco-city development rather than a framework of five aspects aligned. Hence it is necessary to constitute a comprehensive framework to help practitioners in evaluating the performance of eco-city programme, and also contribute to the shortage on literature on Chinese eco-cities (Ghiglione and Larbi, 2015). The following review the existing challenges of delivering eco-city projects with respect to political, economic, social, environmental dimensions, as well as collaboration and communication.

3.6.1. The Politics: Interests, Dominance, and Discretion

Despite the fact that ecological development was supported by central government, the delivery of an Eco-city programme came across a range of political barriers which arose as a consequence of the top-down political system in China. Hu, de Roo, and Lu (2013) believe that the planning system should shift from a top-down approach towards a more

decentralised approach at local and community levels. In this section, we explore barriers in the field of political government engagement by examining the political motivations and processes of decision-making in the delivery of ecological programmes.

Political interests

In a top-down political system, political interests are inevitably engaged in the delivery of new ecological programmes. The eco-city projects have drawn great attention from governments at the local level (Li and Liu, 2011b; Wen, Ni and Bai, 2012). X. Li (2012), suggests that newly built eco-cities were generally planned as the administrative centre of their respective regions. This was also done in existing urban areas by relocating the local government from existing urban areas to the eco-city. Additionally, some eco-city projects were completed by setting up new local political bodies, such as the Tianjin Eco-city Administrative Committee, and the Tangshan South Lake Eco-city Administrative Committee. These committees play a role of representation in the upper level municipal government and facilitate the development of the given eco-city. For instance, all planning documents made by the Tianjin Eco-city Administrative Committee should be submitted and approved by the Tianjin Municipal Government (BH, 2011).

A number of critiques have focused on those eco-city projects are highly politically motivated. In these programmes, the priorities of delivering an eco-city programme were established based on political reputation rather than the actual requirements and ecological criterion of delivering an eco-city (Li and Liu, 2011b; Li, X., 2012). Moreover, some local governments attempted to deliver programmes because of the wave of building eco-city in China (Li and Liu, 2011b; Wen, Ni and Bai 2012). Yu (2012), suggests that the existing assessment system of political achievements which determines the focus of political interests could hamper the progress of urban development from traditional paths to ecological patterns, because the current system is dominated by the need to ensure growth within a given local economy rather than furthering green and ecological strategies within urban development.

Decision-making and Leaderships in political system

An eco-city and a normal city possess similarities in the field of decision-making in the political system. In China, there are four central decision-makers (the Municipal Party Committee, the Municipal People's Congress, The CPPCC Municipal Committee and the

Municipal Government (People's Government). However, in the field of planning, the importance of these four authorities in the decision-making is unbalanced, as shown in Figure 3.5. First and foremost, the Municipal Party Committee and especially the Standing Committee, plays a conclusive role compared to other stakeholders during planning work. In the group of central decision-makers in the political system, the Municipal Government focuses on the approval and implementation of planning in practice. However, according to the *Law of Urban and Rural Planning* (URPL) (2007), planning authorities hold the administrative power of implementation, which is hampered because of the discretion of the Municipal Government (Liu, 2010). Generally, a majority of decision-making in an actual development, including plan-making and implementation of planning, are conducted by the Municipal Party Committee and the Municipal Government.

In contrast, the Municipal People's Congress places more of an emphasis on the long-term strategic perspectives of urban development. It is specified in the URPL (2007) that the master plan and strategic planning documents should be scrutinised by the Municipal People's Congress before they are submitted to the Municipal Government for approval and adoption. Liu (2010) notes that there is limited time for the Municipal People's Congress to discuss planning of urban development during the period in which it meets. Consequently, the Congress pays more attention to macroscopic and long-term progress due to time constraints. Moreover, the local people's congress is only held annually. For these reasons, it is unfeasible for the Congress to pay attention to the detailed urban development projects that are proposed for their administrative region. Although the Municipal People's Congress holds the key powers of decision-making in the political system, a majority of actual revisions and decisions made during the process of plan-making are conducted by the Municipal Party Committee. The CPPCC Municipal Committee makes limited contributions to the process of decision-making. Instead, the role of the CPPCC Municipal Committee is to focus on comments and judgements based on existing decisions. However, the role of the CPPCC Municipal Committee in the decision-making process is not approved in the URPL; it is not legally required in the field of planning. Thus, the influence of the CPPCC Municipal Committee is limited and this impacts on the decision-making processes within actual development programmes.

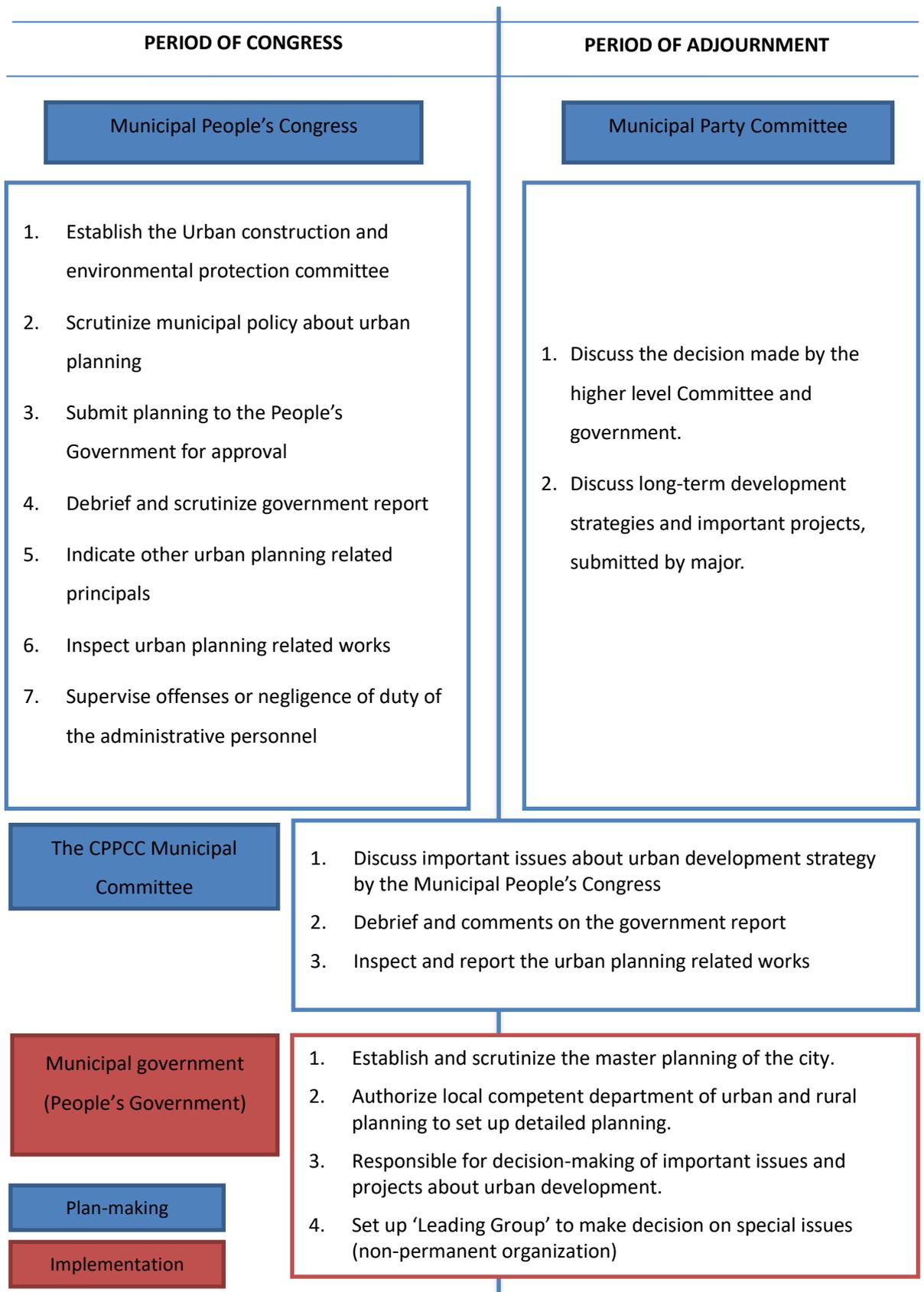


Figure 3.5 The General Process of Plan-Making and Implementation
(Sources: Liu, 2010; URPL, 2007)

Additionally, in the hierarchical political system of China, the leadership of the Municipal Party Committee and Municipal Government can impact on planning decisions to a large extent (Liu, 2010). Hence, the influences of very important persons (VIPs) or leaders significantly impacts on the process of decision-making in the political system. Despite the fact that civic rights are highly encouraged in the constitution of China, Chinese urban planning remains in a primary stage of public participation; that is, decision-making accentuates how pivotal leadership is, with limited opportunities for the integration of different perspectives from other stakeholders.

The excessive use of political discretion has thus become a contested issue. This may be due to aspects of the institutional system itself or the ability of political leaders in the process of decision-making. In terms of the procedural system, the irrational employment of political discretion may be caused by the ambiguous definition of the scope of discretion. Lei (2001), suggests that the process of decision-making is dominated by the VIPs of the given local government and is not, therefore, a mature executive process. The legislative system may encounter difficulties when dealing with emerging issues which may require support from planning professionals and other specialists.

In China, urban planning is seen as a responsibility of government. As a result it entails the materialisation and continuation of the National Economic Planning. The process of decision-making is therefore top-down in nature. The limitations of personal leadership can, therefore, significantly hamper the process of dealing with serious issues, including, for instance, the management of information, and the reconciliation of divergent interests (Heazle, 2010; Catney and Henneberry, 2012). The interests of a political leader may significantly impact on the employment of discretion. Yu (2012) argued that the current political assessment system focuses on economic development rather than a comprehensive evaluation of the governance which leads to economic oriented discretion.

Figure 3.6 indicates existing power relationships in the political system. The Municipal People's Congress consists of representatives with governmental and non-governmental backgrounds, could not consistently impact on the planning process throughout the decision-making and implementation. The Municipal Party Committee and the Municipal Government dominate the decision-making process and the implementation of proposals in the hierarchical political system. Although the current congress engages representatives of the public to ensure the engagement of non-government stakeholders in the process of decision-making, there is a lack of mechanism by which they can advocate their interests

after the Congress. Moreover, the current planning system cannot effectively offer political leaders methods by which to combine the perspectives of different stakeholders. This leads to a process of decision-making that is dominated by VIPs.

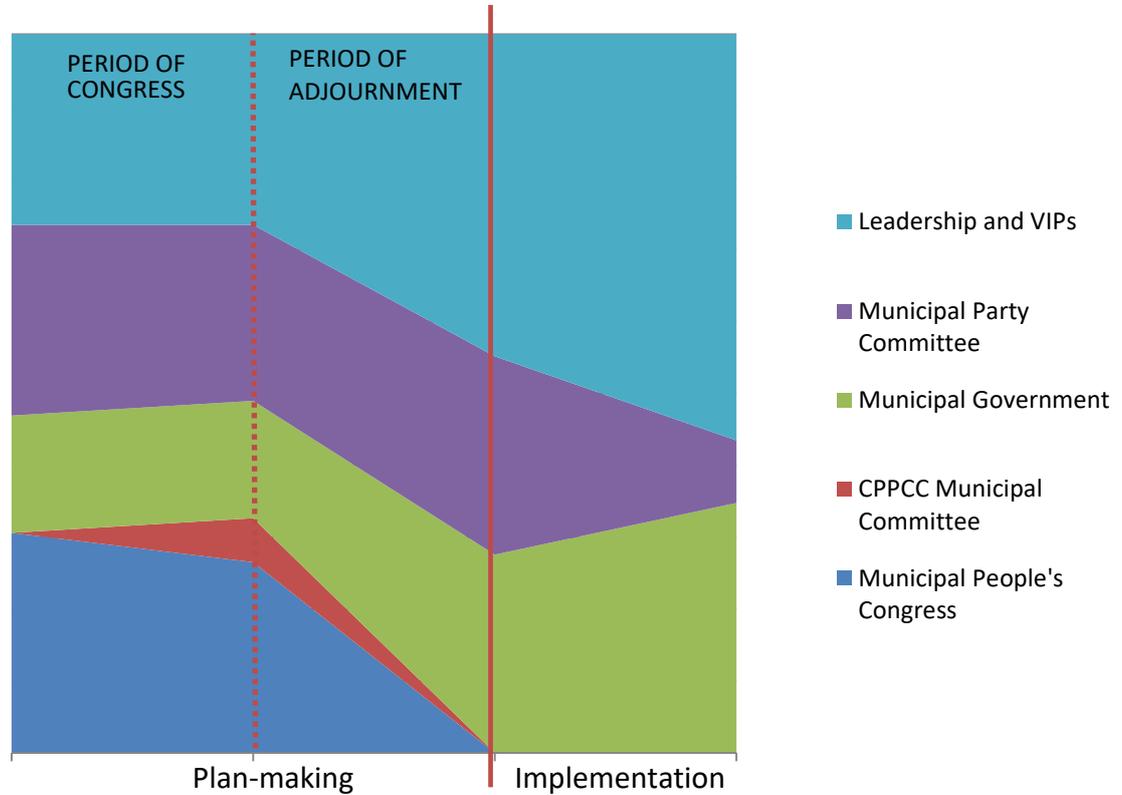


Figure 3.6 Power Relationships in the Decision-Making in Political System

(Sources: URPL, 2007; edited by Author)

3.6.2. The Economy: Patterns, Scale, and Sustainability

The patterns of Economy

The needs of self-contained community and community economic development were highlighted in the economic discourse along with the discussions of the eco-city concept in Western planning academia (Roseland, 1997; Pow and Neo, 2015; Sharifi, 2015). In China, the economic discourse is frequently associated with the “Circular Economy”. According to the findings of Zhu and Li (2013), the item “Circular Economy” was the fifth most frequently mentioned term amongst existent discourse of eco-cities based on the database of China National Knowledge Infrastructure (CNKI). It was suggested that the circular economy is an essential way of developing the eco-city to achieve sustainability (Li and Li, 2003; Li, 2004; Xu, L. Y., 2008). Dai (2012) believed that the development of the eco-city focuses on the

establishment of eco-systems and the uniform layout of the city instead of the circular economy. These “Circular Economy” discourses largely encompass the economic development at a strategic level, repeating the process from “resources – production – consumption - pollution” to “resources – production – consumption - recycle” and so on. It also advocates 3-R strategies (Reduction, Reuse, Recycle) (Li and Li, 2003; Dai, 2012; Sun, Liu and Wang, 2013). In comparison, there are certain similarities between the paradigms of economic development discussed by both Western and Chinese planning professionals. They both seek to deal with the long-term relationship between local economies and the natural environment to achieve sustainable economic progress.

Existing studies have laid less emphasis on the major solutions that facilitate economic progress. Critical research on the traditional paradigms of economic development in the field of the eco-city suggests that the barriers are caused by the long standing problem of pursuing economic growth since the period of economic reform, as well as the process of selling land as a means of creating major funding resources (Yu, 2012). Selling land has become a driving force of local economic development. Another issue that has occurred within local economies is the development of local job markets, especially where expansion is a consequence of the delivery of new town programmes. According to Wang (2009), at the beginning of the 1990s the new town programmes in China placed more attention on residential areas than economic functions. As a result, the job market is less developed in a number of newly built urban areas (Wang, 2009). The diminished self-sufficiency of the city is a major difficulty that hampers sustainable development. In general, the circular economy has gained prominence in planning academia as a means by which to develop the ecological economy in the eco-city. However, there is a critique that focuses on the limited research that has been undertaken on the economic issues that have occurred in actual developments such as economic driving forces and local job markets. A gap between the foci of economic discourse has been noticed between planning academia and practice in the field of eco-cities.

Scale of the city and its economic implications

There is also concern about the ecological principles which were adopted for economic reasons in big metropolitan cities rather than small- and medium-sized cities and rural areas. Gaining insights from the priorities of the ideal eco-city (Roseland, 1997), small- and medium-sized cities, as well as rural areas, have advantages in organising traffic systems and

repairing damaged environments when compared with the situation that exists in big cities and mega-cities. However, a majority of Chinese eco-cities ignored the delivery of ecological programmes in both urban and rural areas. Since a majority of the Chinese eco-city projects were initially proposed to be a pilot area of ecological development, or a result of a highly political motivated programme (Li and Liu, 2011b; Yu, 2012), the reputation and influence of the programme was considered to a large extent. Sun, Liu and Wang (2013) support this view, and argue that green infrastructure within big cities drew a lot of attention from investors. However, more than half of China's population lives in small- and medium-sized cities and rural areas (Ren, 2010), where green infrastructure plays an important role in promoting the urban environment. Wei (2012) asserts that ecological development strategies should focus on small- and medium-sized cities, which have received a majority of rural migrants through the urbanisation process. Moreover, compared to other countries, the Chinese planning system provides limited support to the planning of rural areas, and even suburban areas (Yu, 2012), because planning professionals have limited interest in adopting ecological programmes in rural areas as a consequence of the small level of consultancy fees that they receive. The pecuniary interests of both planning professionals, as well as the developers, cannot be satisfied through developing ecological programmes in small cities and rural areas. Furthermore, limited awareness of how to develop sustainability was raised by local authorities in these areas. It follows, therefore, that in general, the preference for adopting eco-city projects relates to big cities, newly built urban areas, and even mega-cities, rather than small cities and rural areas because of economic considerations.

3.6.3. Culture: Protection, exploration, and advocates

Ecological culture

The delivery of an eco-city not only requires ecological theories and technologies, but also ecological culture to provide recommendations as to the lifestyles that should be promoted in the city (Lin, 2009). However, there appears to be a conflict between ecological culture and the top-down decision-making system. In terms of ecological culture, gaining insights into eco-socialism requires a synthesis of perceptions pertaining to the relationships that exist between the human and natural environment, including an awareness of environmental protection, energy saving, and other issues related to environmental promotion (Wang and Yang, 2010). Kuang (2015) proposes that ecological culture, as a part of society, is inevitably generated during social progress and that this results in a growing

awareness amongst the public and local community. In brief, the ecological culture in the eco-city is a combination of certain comprehensive perspectives, including perceptions of multiple disciplines, the traditional Chinese culture, cultures that refer to developed countries, and geographical features. The promotion of public awareness of ecological development may also take place through social media - especially the ecological education of the younger generation (Fan and Yao, 2014). In addition, the discourse of ecological culture suggests that the self-conscious identification of the public and local community with the vision and value of ecology is basically one of the principles of the eco-city (Wang and Yang, 2010). Thus, to a large extent, ecological culture is advocating a bottom-up form of stakeholder engagement to achieve ecological visions within eco-cities. However, as previously indicated (Chapter 3.6.1), the current planning system is a top-down process dominated by political leaders. Supporters of ecological culture have provided a bottom-up approach for decision-making, which may draw limited attention from the decision-makers in the current system.

Original and migrant culture

It is believed that a billion people will live in China's urban areas by 2030 (Woetzel et al., 2009). However, newly built eco-cities are facing a common problem in their urban areas: that is, how to encourage migrants to move into new eco-cities. According to the BBC (2014), Chinese eco-cities have a shortage of residents. Until September 2014, for example, there were 12,000 residents in Tianjin Eco-city, which has room for 350,000 residents. The limited number of residents in Tianjin Eco-city hindered the delivery of local culture to some extent. According to Y. P. Liu (2014), the limited number of residents led to insufficient attention being paid to the development of infrastructure, including cultural facilities. Furthermore, the migrants could only bring a limited contribution to the development of original culture within the eco-city.

There is also a concern that certain conflicts between rural and urban culture emerged in the newly built urban areas where rural migrants have started to live and work. Song (2005) suggests that rural migrants have to confront a more competitive and economically oriented urban environment compared to that which exists with their hometowns. As a result, rural migrants were facing discrimination in job markets, social insurance, and educational opportunities in the city. These migrants have, therefore, had to adjust to an urban culture with regard to economic, social, and psychological considerations (Zhou, 1991; Ye, 2010). To deal with the difficulties of rural migrants adapting to an urban culture, Chinese planning

scholars made a series of recommendations including providing job and education opportunities and information about urban life, improving the urban household registration system, and building open and equal neighbourhoods (Song, 2005; Ye, 2010). Ye (2010) suggests that the establishment of social organisations for rural migrants could, to some extent, improve the unity of migrant neighbourhoods and reduce the negative effects that the new urban environment has upon migrants. T. L. Liu (2013) has also provided some suggestions on the integration of emerging and original cultures, including establishing supervisory organisations of cultural protection, facilitating the development of cultural industries, employing cultural elements in physical urban design, and delivering cultural facilities within the city. In brief, along with the process of Chinese urbanisation, migrants moving from rural areas to the newly built urban areas came across a number of cultural issues which hampered cultural development in the city.

3.6.4. The environment: Pollution, assessment, and infrastructure

Environmental problems have drawn attention from political, academic, and the public dimensions in China. The issues discussed in this section are comprised of certain perceptions, especially in the field of living conditions and environment, the assessment system, and the green infrastructure in the city, which hampered the delivery of the eco-city.

Living conditions and environmental pollution

According to the National Health and Family Planning Commission (NHFPC) (2014), a hygienic city should achieve targets in nine areas, including creating a healthy environment, providing a clean water supply, enabling a community environment to flourish, and other principles related to living conditions. Subsequently, the criterion of building a healthy community was integrated into the criterion of building an eco-city. It was one of the dynamics employed in delivering the eco-city programme. Some additional principles were subsequently added such as the accessibility to fitness facilities.

According to Li (2006), the exploration of Chinese sustainable development is threatened by environmental pollution in the 21st century. The extremely foggy days that were caused by air pollution lasted for several months in various big cities in 2002. This problem remained unsolved until five years ago years in some cities, including Beijing (see Figure 3.7). Shuai and Huang (2012) argued that the use of private cars caused the foggy days. However, the rapid development of the automobile industry, supports economic development and,

according to the Report of Status and Perspectives of Automobile Industry in China (2013-2017), contributed 13% to national revenue in 2012. Eco-cities face challenges with regard to air pollution, noise pollution and traffic congestion (Sun, Liu and Wang, 2013). Register (2006) criticised the negative impacts that are associated with a large number of cars. He also stated that vehicles break the original liveable environment and space structure of city and town. Car usage thus becomes an inevitable topic of discussion when one is addressing the conflicts that exist between ecological development and economic development. The delivery of eco-city projects was significantly hampered by these environmental problems.



Figure 3.7 A foggy day in Beijing

(Resources: Author, 2014)

Ecological Assessment System

During the delivery of the Chinese eco-city programme, an issue arose because some business branding of the eco-city concept was delivered without there being a sufficient adoption of ecological principles. X. Li (2012) criticised the fact that unqualified eco-cities, or real estate agencies branding eco-cities, emerged because of a lack of an assessment

system to evaluate the delivery of ecological programmes. Guo et al. (2001) claimed that an assessment system could provide decision-makers a perspective by which to deliver eco-city projects. Research by the Indicator System Team of Sino-Singapore Tianjin Eco-city (Indicator Team of Tianjin Eco-city) indicated that Chinese urbanisation has a lack of scientific indicators and that the existing system's concentration on commanding the physical environment and became irrelevant during the actual development of eco-cities.

Having noticed the lack of either a feasible indicator or an assessment system, Chinese planning professionals were determined to work out how to guide and assess the development of eco-cities. According to the study by Zhu and Li (2013), the establishment of an assessment system in the field of eco-city development has gained prominence in Chinese planning academia. The Indicator Team of the Tianjin Eco-city (2010) has established an indicator system with a range of priorities relating to building an eco-city, including local governance, social issues, economic development, the environment, and the energy needs of the given settlement. Cui et al. (2013) established an Eco-city Health Index (ECHI) based on an extensive study of eco-systems, living habitat, energy conservation, economic development, lifestyle, and cultural and political environments. Additionally, Zhao (2011b) reported a Sustainable City Assessment Indicator (SCAI) based on the study of the Chinese Academy of Sciences (CAS), which encompassed economic, social, ecological, and environmental dimensions. Although the importance of establishing an assessment system has drawn attention from Chinese planning academics, there is limited evidence to support the implementation of the system in the actual development of eco-city projects in China. In general, the discourse of existing assessment systems does not provide substantial support to the practical development of eco-city projects.

It was also highlighted that an assessment system should be supported by a legislative system so as to ensure the role and effectiveness of the system (Sun, Liu, and Wang, 2013; Li, Y. K., 2013). Y. K. Li (2013) declared that there were five major problems and demerits in the existing planning system: the gap between the legislative system of environment and new emerging areas (such as bio-diversity and nuclear energy); the redundant parts of assessment and evaluation systems caused by difficulties in enforcing the law; the limited penalties imposed on people who damage the environment; the limited supervision of government activities; and the limited supervision provided from social and public dimensions. According to a study undertaken by the China Academy of Sciences (CAS, 2015), national environmental governance should be facilitated through a synthesis of perceptions

of the legislative and administrative system, social and the public participation, the price and property ownership system, and the ecological cultural system. However, it is a concern that the economic assessment system, part of the political system, could not be delivered without the co-operation of several related departments. Moreover, the supervisory role of social organisations and the public were not highlighted since there is no mechanism for social and public participation in the field of environmental assessment and supervision. In a study by the Tianjin Eco-city research team (2010), the eco-city was assessed according to the Environment Protection Law, Urban and Rural Planning Law and acts established by local authorities. It was doubted as to whether the current Urban and Rural Planning Law could be applied in ecological development, especially in the field of legislation and monitoring. The existing assessment system fails to facilitate legislation including the law and penalty methods. There is also a limited supervisory function based on cooperation between political sectors, social organisations, and the public.

Green Infrastructure

It is a recurring issue that insufficient green infrastructure challenges the development of Chinese cities. Based on a national report (Wang, et al., 2012), records that 62% of the 351 cities in China suffered flooding during the 3 years from 2008 to 2010 (see Figure 3.8). This flooding arose because of the rapid and dramatic development of urban areas and the ineffective design of infrastructure within these areas (Yu, 2012). In some eco-cities, building the underground infrastructure after aboveground construction dramatically increased costs (Sun, Liu and Wang, 2013). Commenting further, Sun, Liu and Wang (2013), noted that underground infrastructure development could have negative impacts on the infrastructure above ground and eventually damage the latter. Yu (2012) suggests that, in some cases, a city is built for a political purpose with limited consideration of planning theories and green infrastructures. Xuan and Sun (2015) support this view by criticising the fact that some politically motivated projects within the context of green infrastructure prefer to transplant big trees as local landmarks. Such programmes are delivered with only a limited consideration of either the ecological function or the original eco-system of these big trees.

In addition, there is a gap between planning documents and implementation in the delivery of green infrastructures. As previously discussed, the legislative system is ineffectual in ensuring the implementation of ecological principles in cities. The green infrastructure needed in these cities, therefore, cannot be delivered according to the ecological planning

of the same eco-city. Some local authorities and developers used the eco-city title to build luxury real estate projects (Li, 2011). The motivations for delivering eco-city projects in these areas were, to a large extent, focused on maximising investment returns through using the title eco-city.

Furthermore, practitioners came across a financial problem in the delivery and continuous maintenance of green infrastructure. Xuan and Sun (2015) believe that the delivery of green infrastructure could be hampered by insufficient financial support, for instance, insufficient funding could reduce the types of plants delivered in a green infrastructure programme which could negatively impact on the interaction of multiple types of trees and the creation of a micro ecological system. Xuan and Sun (2015) illustrate that if green infrastructure projects are poorly thought out they can increase maintenance costs. For instance, in a specific green infrastructure programme, developers had to spend 100,000 CNY each year (about £10,000 GBP) maintaining only four transplanted trees. In general, the ineffectiveness of green infrastructure is mainly caused by: the lack of academic guidance on delivering green infrastructure and the inadequate focus that has been placed on the importance and effectiveness of building green infrastructure.



Figure 3.8 Flooding in Chinese urban areas

(Resources: Chinanews, 2012 and 2015; Jschina, 2015; cnwest, 2011)

3.6.5. The Collaboration and Communication in the Eco-city

Research upon eco-city development has focused on the promotion of green technology and the achievement of economic interests, while, laying limited emphasis on the comprehensive development of economic, environmental and social dimensions (Yu, 2012). This section reviews the issue of collaboration and communication in respect of department and disciplinary collaboration and public participation.

Departmental and disciplinary collaboration

In the top-down process of decision-making, an issue that exists is that inadequate cooperation and coordination may occur in the governance and work of plan-making. Huang (2004) indicated that inadequate administrative coordination and collaboration between departments can impact upon the delivery of an eco-city. A top-down mechanism may provide a clue as to how to deal with issues of economic progress. However, these may become less effective, or even hamper the delivery of Eco-city programme, where the ecological development requires departmental coordination and collaboration. To achieve the effective governance of an eco-city, shared responsibility and cooperation should be engaged in a range of activities in local authorities, as well as national level departments (Dai, 2009). Additionally, in a study of infrastructure in Xinjiang and Guangdong province, Mah and Hills (2012) argued that although central government dominates the top-down decision-making process, local authorities could still play a complementary role through collaboration.

In terms of communication and collaboration between disciplines in the planning profession, a comprehensive decision-making process in an eco-city requires professional advice to be given from economic, social, and environmental dimensions. Since the Chinese Society for Urban Studies (CSUS) was established in 1984, a synthesis of multiple disciplines has been advocated as an essential priority of urban studies (Huang, 2004). It was suggested that the integration of ecology and planning disciplines could have a profound significance for urban and environmental issues in practice, as well as theoretical developments in the fields of urban and environmental science. A study from the Chinese University of Hong Kong (CUHK) reported that “the fundamental challenge is to have in hand and master the spatial information from different disciplines” (Tsou, et al., 2003: 31). Moreover, the current coordination and communication between multi-disciplines is insufficient in the delivery the Chinese eco-cities (Hu, de Roo and Lu, 2013). Consequently, an essential question for

practitioners of eco-city projects is how multiple disciplines could collaborate more.

Public participation

Public participation is a strategic method of engaging the public and local community in the process of decision-making in the delivery of an Eco-city. Healey (2006) argued that the interests of the public and local community should be shared and discussed extensively in municipal areas. In China, public participation started to be discussed and conducted through public surveys and the publication of planning documents from the 1980s onward (Sun and Zhu, 2010). Current public participation in eco-city projects was thought to be tokenistic (Chen, Zhao & Geng, 2007). The role of public participation at the strategic level of plan-making has been stated in the URPL (Sun and Zhu, 2010). However, few studies have been conducted on the exploration of public participation at each stage of the planning process in China (Xu and Tao, 2011). It was argued that the implementation of public participation was geographically diverse in China. Qian (2001) suggested that local government has attempted to adopt an approach that would help to increase public participation in the field of planning in Shanghai, Shenzhen, Qingdao, and Nanjing. Furthermore, in Hangzhou, a significant improvement in public participation was witnessed after the employment of “*Yangguang Guihua (Bring Plan-making into Sunshine)*” (Gu and Fang, 2006). It is a policy that aimed to engage the public in the monitoring, after implementation, of planning documents. In fact, Sun and Zhu (2011) have summarised the nature of public participation in China, and in so doing argued that a majority of existing public participation was conducted at the stage of monitoring when planning had already been implemented. Thus, the effectiveness of public participation was doubted as it provided limited opportunities for plans to be revised following comments from the public.

The barriers to increasing public participation are primarily the current political system and the willingness of the public. First and foremost, public participation cannot fit into the current political system that exists within China. Li and Liu (2004) argued that the dominant role of government in decision-making led to a planning system controlled by government and political leaders and that this hinders the development of public participation. Chen (2000) also criticised the viewpoint of assuming the process of decision-making could address all issues in the urban development by combining the perspectives of politicians and planning professionals. Moreover, a few studies raised the concern that public participation might become an obstacle to facilitating the process of decision-making (Sun

and Zhu, 2010). Another important issue about public participation relates to the willingness of the local community to engage in public participation. The public and local community showed limited awareness of how they might participate in the process of plan-making (Chen, 2000).

3.7. Conclusion

Chapter Three provided an overview of the urbanisation process in China. Then, in order to define the scope of the eco-city projects discussed in this thesis, it noted how the benchmark of an eco-city requires a combination of perspectives from Western and Chinese planning professionals. It was suggested that an eco-city is one where a harmonious relationship between human activity and the natural environment is facilitated through combining aspects of society, economy, and the environment (*Urban Ecology*, 1996; Graedel, 2011; Tsolakis and Anthopoulos, 2015; Roseland, 1997).

Then it was suggested that delivering new town programmes becomes an inevitable approach to address the impact of urbanisation in China. The ecological concept was adopted in the delivery of newly built urban areas along with a growing awareness of the need to protect the natural environment in planning practice (H. L. Li, 2012). Further, a coherent relationship between a new town and eco-city projects has been recognised according to the strategic planning undertaken by the central government of China (NPC, 2011). Therefore, it is suggested that the new town programmes will be delivered with an ecological vision for the future.

The challenges in delivering eco-city projects were illustrated with reference to political, economic, cultural, and environmental dimensions. In terms of political issues, it was argued that political interests become both dynamic and barriers to delivering ecological programmes. Some eco-city projects gained prominence from politicians but were not delivered in compliance with the criterion for eco-cities (Li and Liu, 2011b; Bai, Wen and Ni, 2012). Moreover, the top-down decision-making system determines that the planning of an eco-city programme is controlled by the leadership to an extent (Lei, 2001). Moreover, an excess of political discretion may bring negative influences to the programme because of the irrational nature of decision making. Furthermore, the rationality of decisions made during the period of congress could be contributed to by Congress Democracy. However, the existing process of decision-making could not engage stakeholders effectively during the adjournment (Liu, 2010). The economic dominated political assessment system will inevitably impact on the decision-making in the delivery of Chinese eco-cities (Yu, 2012).

Economic discourse in both Western and Chinese planning academia highlights the importance of achieving sustainable economic progress (Roseland, 1997; Pow and Neo, 2015; Sharifi, 2015; Li and Li, 2003; Li, 2004; Xu, L. Y., 2008). However, such economic discourse has not addressed the long-standing issue of a shortage in funding resources, especially in the newly built eco-cities. Indeed, the dynamics of economic progress are the real estate industry and the selling of land which provide limited contributions to the job market in eco-cities (Wang, 2009). In addition, politicians and planning professionals have placed more importance on the implementation of eco-city programmes in big cities because of the interests of reputation, investment return, and income implications (Li and Liu, 2011b; Yu, 2012). It is essential to deal with the absence of adopting ecological concepts in small and medium-sized cities where half of China's population lives (Ren, 2010) and where it is suitable to deliver eco-city programmes (Roseland, 1997).

In the cultural dimension, a key issue highlighted in this research was the barriers that exist between local cultural and migrant culture. There is insufficient attention from practitioners on promoting the cultural facilities at the beginning stage of eco-city projects because of the small number of local residents at the starting stage of an eco-city development (Y. P. Liu, 2014). Furthermore, in terms of the issues caused by the increasing number of rural migrants, there is concern about the ability of migrants to adapt to the demands of living in a new environment and urban culture (Zhou, 1991; Ye, 2010). The key question of how to mitigate these issues is how to establish social organisations (Ye, 2010), and how to reform the household registration system in China (Song, 2005).

Another issue in the field of cultural development is the gap that exists between the priority of establishing an ecological culture and the current process of decision-making. An ecological culture should be achieved through the participation of the public and the local community (Kuang, 2015). However, the lack of public participation in the current top-down decision-making process results in limited attention being given to the development of an ecological culture.

The delivery of eco-city projects also came across issues in the environmental dimension, including environmental pollution, lack of ecological assessment systems, and inadequate green infrastructure. First, a dilemma between economic development and environmental protection in China was highlighted. The negative influence of using private cars and the importance of developing the automobile industry has thus become a critical question for decision-makers in urban planning in China. Secondly, some existing ecological programmes

were doubted in respect of the criterion and motivations for their delivery under the auspices of the eco-city programme (X. Li, 2012). This led to concerns about the lack of a rigorous ecological assessment system. Although some practitioners attempted to set up an assessment system to evaluate existing eco-city projects (Indicator Team of the Tianjin Eco-city, 2010; Zhao, 2011b; Cui et al., 2013), there is limited practical evidence to support the establishment of the system. In addition, it was suggested that the establishment of a robust and effective ecological assessment system is hindered by an ineffective legislative system which has limited experience of dealing with the issues that emerge in the delivery of an eco-city (Sun, Liu, and Wang, 2013; Li, Y. K., 2013). Thirdly, there is the suggestion that the existence of insufficient green infrastructure cannot underpin the delivery of eco-cities. The planning of green infrastructure could not be effectively implemented in practice because of financial constraints.

Finally, it was pointed out that a lack of collaboration and communication within the eco-cities causes difficulties. The key issues with reference to this aspect included ineffective departmental and disciplinary collaboration (Huang, 2004) and the existence of only symbolic public participation (Sun and Zhu, 2010). To deal with emerging and complex issues, stakeholders from diverse departments and disciplines need to follow an approach of collaboration and communication. Moreover, public participation in the current planning system in China was considered to be tokenistic (Chen, Zhao and Geng, 2007; Sun & Zhu, 2010). The next chapter discusses the linkages that exist between communicative planning and the Chinese planning system.

Chapter 4 Examining the Feasibility of Adopting CAT and CP in Chinese context

4.1. Introduction

This chapter presents an assessment of the feasibility of applying the Communicative Action (CAT) and Collaborative Planning (CP) theory to the Chinese planning system, especially after the publication of 13th Five Year Plan (FYP) in 2016. The 13th FYP advanced several improvements in planning practice and legislation, including promoting democratisation in governance and setting up an open and free public sphere.

Before examining the feasibility of adopting CAT and CP in new circumstances in China, this research proposes two questions. The first question is 'Why CAT and CP are relevant within/to planning?' Communicative action can underpin planning research in the field of collaborative and democratic planning. According to Allmendinger (2009), planning is considered a communicative process. It therefore requires that stakeholders are engaged in communicative collaboration during plan-making. Additionally, a general doubt as the feasibility of adopting the theory may be reflected in the second question: 'have CAT and CP been applied in Chinese Planning system?' Drawing from the literature upon planning theories in China, there is a debate on introducing CAT and CP into the Chinese planning system as there is a desire to avoid being trapped in the Hulme's puzzle, that is, to avoid predicting the future based on the past narrowly and simply (Allmendinger, 2002). Given this, it is more important to examine the feasibility by combining the purpose and rationality of the theory and the Chinese context rather than examining previous and existing adoptions of the theory.

This study argues that it is beneficial for the practice of planning in China to introduce CAT and CP. Mah and Hills (2012) suggest that collaborative governance has become a strategy for achieving sustainable goals in China. It is important for decision-makers and planners to understand whether CAT and CP can contribute to the development of sustainability as well as the Chinese planning system more generally. Adopting CAT and CP into the Chinese planning system may be seen as an essential step in achieving a people-oriented planning process as well as ecological development.

4.2. Revisiting Communicative Action Theory (CAT)

Communicative Action Theory, based particularly on the work of philosopher Jürgen Habermas, focuses on the power behind the language and the potential to maintain and expose power relations (Allmendinger, 2009). Habermas highlighted the importance of the right to speak in the planning process to expose the influence of communicative activities in urban development. According to Irazabal (2009), Habermas set up ideal speech conditions that promote stakeholder involvement, empowerment and competence. It is the suggestion of Sager (1993) that the theory should not be adopted where communication is dominated by any party or private motivation. Additionally, the theory gains insights from speech-act philosophy and sociolinguistics, but criticises the positivist approach which gains insights from logical and mathematical rationalities (Irazabal, 2009: 134). Instead of only acknowledging scientific knowledge as valid knowledge and treating society as a physical world, the theory of communicative action establishes a normative understanding of society by establishing a linguistic structure according to McCarthy (1981).

According to Healey (2006), 'communicative rationality', a key term in Habermasian Theory, could be adopted in the field of planning as a kind of social objectivity in order to break down the dominance of scientific objectivism. According to McCarthy's interpretation (1984) of Habermasian principles of communication rationality, the ideal conditions required for communication include comprehensible speeches, true content, truthful or believable speakers, and appropriate norms and values of speech. To achieve these conditions, participants should have 'accurate and complete information' about the communication topic, the ability to judge the conflicts and arguments during the communication, and self-knowledge to assure that they are 'free of distortion, inhibitions, compensatory mechanisms or other forms of self-deception' (Mezirow, 1989: 171). In addition, communicative actors should be free of any internal and external obstacles or influences during their engagement.

4.3. Revisiting Collaborative Planning (CP)

Collaborative Planning, firstly debated by Judith E. Innes in 1995 and Patsy Healey in 1996, draws upon three main influential theories (Allmendinger, 2009; Healey, 1997; Innes, 1995). First, the theory gains insights from the work of Habermas, who sought to reconstruct the 'unfinished project of modernity' (Allmendinger, 2009: 197). Secondly, there is the work of Michel Foucault, who sought to understand the potential influence of language and meaning in

existing power relations. Thirdly, Giddens and the institutionalist school study the ways in which individuals could interrelate and co-exist through webs of social relations (Allmendinger, 2009).

Collaborative Planning was criticised for 'being too idealistic', for neglecting the engagement of power in practice, and for being impractical (Healey, 2006). The theory has been implemented in actual developments which have occurred across the globe in the last 20 years. For example, the European Spatial Development Planning (ESDP) network of academics, scholars, researchers and practitioners, was founded in 1987 to strengthen relationships and communication between different stakeholders in spatial planning across Europe (ESDP Network, 2016). The priority of setting up the action plans for ESDP members was to achieve a balanced system within the multi-central EU. The practice of ESDP may not directly inspire the delivery of Chinese Eco-cities, but it can provide evidence to support the view that Collaborative Planning is not merely idealism. The discussion of adopting Collaborative Planning in planning practice should focus, therefore, on whether the actual issues of communicative activities could be addressed by employing communicative rationality.

4.4. Four themes of CAT and CP

Communicative planning has been criticised for neglecting intractable problems in reality, especially the power relationships that existing within the structure of society (Flyvbjerg and Richardson, 2002; Castells, 2009; Innes and Booher, 2015). CP theorists attempted to offer responses to such criticisms through a series of notions. These are reviewed in this section in order to provide sources for framing the analysis and discussion in Chapter Eight. These responses encompass four themes: arenas, time, stakeholders, patterns (ways) of communicative actions (Figure 4.1). Each gained insights from CP theorists and opponents, especially Habermas, Healey, and Innes.

Communication power was challenged for ignoring conflicts in power relationships and providing alternatives to the existing structure of domination in society (Huxley and Yiftachel 1998; Fainstein 2000, 2010; Innes and Booher, 2015). CP theorists suggested that conflicts could be addressed through using alternative places for authentic dialogue between local actors (Innes and Booher, 2015). According to Healey's (1992) illustration of ten propositions of collaborative planning, this involves invention in the construction of arenas to facilitate the identification and mediation of conflicts. Thus, diversity and progress in the arena is essential for achieving productive communicative activities; this is considered

the first theme.

Moreover, there are criticisms relating to those divisions which are difficult, or impossible, to overcome, such as race, gender, and ideology. This led to a concern that stakeholders could not move the dialogue forward but fell into the trap of mutual distrust, which may “take months and years” to work through (Innes and Booher, 2015: 204). However, the approaches of communication were varied and impacted by a technical convergence, from point-to-point communication to mass communication, as well as mass self-communication (Castells, 2009), which reduces the emerging barriers of communication. Such an approach to communicative planning is to “start out” and “go along” in mutual way of achieving agreement (Healey, 1992: 143). A concept of long-term (continuous) communication provided opportunities to overcome the difficult issues, and therefore embedded in the discourse of communicative activities.

Within the discourse of communicative planning, power relationships were varied based on the specific communicative actors involved. Critics assumed that communication power is the opposite of state power (Innes and Booher, 2015). However these critical viewpoints were contended less progressively without examining the various types of power relationship that exist between different actors and the importance of planners in organising attention (Forester, 1982; Bryson and Crosby, 1993). Practitioners should identify correct actors who have interests in the issues at stake, including power holders, planning professionals, and laymen, to enhance the knowledge forms of reasoning and valuing (Healey, 1992). This research acknowledged existing power relationships and attempted to offer thoughts on how communicative planning could address issues that arise by effectively engaging stakeholders in Chinese planning enterprises.

The term “stakeholders” should be defined so that it is clear as to who are “proper stakeholders” in a Chinese eco-city. It has been suggested that stakeholders could be described by asking five questions (Rietbergen-McCracken and Narayan-Parker, 1998; Schlossberg and Shuford, 2005):

- Potential beneficiary?
- Adversely affected?
- Vulnerable groups?
- Supporters and opponents? and,
- Has the relationship amongst stakeholders been identified?

Therefore, before proceeding with collaborative and communicative planning, there is a need to ensure against convening improper stakeholders or disregarding relevant stakeholders in the Eco-city development.

Participants and the targets of collaboration and communication examined in this study include existing and potential participants engaged in the delivery of eco-city projects. The common ground of existing and potential participants is that they have interests in the delivery of eco-cities. Therefore, practitioners of collaboration and communication are relevant stakeholders.

Communicative planning involves a series of priorities which shape and facilitate mutual understanding. Critical commentators assumed that Habermas's work had provided suggestions on "what should be done" in the planning enterprise (Flyvbjerg and Richardson, 2002: 44), while CP theorists focused on processes rather than outcome (Fainstein, 2010) or future possibilities (Healey, 1992). A good process offers opportunities for a better outcome. Innes and Booher (2015: 204) contended that CP supporters' commitments are to "what they identify as good process—inclusionary, empowering, equitable, informed, and so on". Healey (1992: 143) also offered certain propositions pertaining to CP such as "respectful discussion", "reflective and critical", and "common language". The concept also encompasses other criteria relating to the communication activities, including patterns, language, and the scenario of dealing with the existing structure of society (Figure 4.1 - *How*).



Figure 4.1 Key notions highlighted in collaborative and communicative approach
(Sources: Habermas, 1984; Healey, 2006; Innes and Booher, 2015)

4.5. Exploration of the feasibility of adopting CAT and CP in Chinese context

The adoption of CAT and CP in the Chinese context is not straightforward. The shift of paradigms of planning theories is, to a large extent, determined by on-going variations in the relationship between market, government, and the public (He, 2008). It is also essential for Chinese planning theorist to link the rationality of Western planning theories with the socio-economic context of China (Zhou, 2001). Otherwise, as previously discussed, government leaders and some planners play the role of central decision-makers in the current planning system.

4.5.1. Theoretical linkage between CAT and CP and Chinese planning system

The definition of the planning discipline in Chinese academia is contested on whether it is a natural science or a social science (Wang, 2003). According to Wang (2003), planning is considered a rational process of decision-making in China. It was proposed that the

interrelation and interaction between market (capital, funding), government and public, is the motivation and dynamic of developing planning theories. This suggestion would imply similarities between the Chinese system and that which exists in Western countries (Zhou, 2001; He, 2008). Consequently, many planning theorists started to combine the rationality of Western planning theories with the Chinese context. As discussed in Chapter Two, there is no significant difference as to the recognition of planning theories between Western and Chinese academia. In addition, planning professionals in China have discussed the approach of communicative planning as a key paradigm of planning to deal with the emerging issues in Chinese urban planning. However, this study argues that CAT and CP have not been recognised thoroughly, although China has witnessed a communicative turn in planning academia.

Based on a review of existing literature, it is advanced that there is less enthusiasm for discussing CAT and CP in Chinese academia. In China, relevant research discusses collaborative and communicative planning through the lens of public participation to a large extent (Hu, 2013; Li, D. Q., 2013; Wang, 2003). Healey (1997) placed an emphasis on stakeholder engagement in the discourse of spatial strategy formulation by raising five questions: the site and access for public participation, the method for engaging the public with different background to be involved, the method of public voices classification, the ways of interpreting these ideas in the field of monitoring, and the measure to engage different parties and participants unanimously over time. Therefore, there are gaps in adopting CAT and CP between Chinese and Western academia. Collaborative and communicative planning should firstly identify stakeholders in the delivery of an Eco-city programme rather than simply engaging the public and local community. Moreover, Sun & Zhu (2010) pointed out that a complete process of stakeholder engagement should ensure the role of stakeholders in each stage of the planning process in China. The discussion of collaborative and communicative planning advocated in China has failed to identify essential questions of communicative activities, including suitable venues, the methods of information exchange, and the patterns of consensus building between diverse interests.

Although the theory of CAT and CP has not been extensively discussed in Chinese academia, communicative rationality has been invoked to support the idea of developing deliverable decision-making. For example, D. Q. Li (2013) stated that it is a challenge for Chinese planners to communicate with different stakeholders instead of merely undertaking desk-based work. He also suggests that it is difficult for them to move beyond simply

playing the role of a political and technical expert. Furthermore, a large amount of comprehensive knowledge should be amassed by planners in order for them to successfully face this 'communicative turn'. Cheng (2013) suggested that Chinese planners are required to facilitate consensus building by using the language of mass media. A phenomenon which he used to argue the importance of communication is '*Dingzihu*²' (Figure 4.2). This occurs during the process of demolition and regeneration in an urban area. A failure of mutual communication and understanding between planning practitioners and land owners may hamper consensus building as well as the implementation of planning documents.



Figure 4.2 *Dingzihu* (Nail House) in China

(Source: *China Daily*, 2015)

It is argued that progress has been achieved in the theoretical discourse of communicative rationality in Chinese academia. The progress may be imitated by the findings of planning theorists as well as by emerging social issues in Chinese society. Further, it is anticipated that there will be an increasing awareness of achieving rationality in the field of planning by adopting communicative rationality in China.

² *Dingzihu*, known as Nail House in English, is a Chinese neologism for home owner who refuse to make room for demolition, development and regeneration.

4.5.2. Political environment of adopting CAT and CP in China

Over the last three decades, non-government stakeholders gained increasing powers to engage in the process of decision-making (Hu, de Roo and Lu, 2013). This section provides evidence as to the growing awareness of adopting communicative rationality in the political system, even if it has not been adopted deliberately. First, the political environment is examined by analysing content relating to communicative activities according to the Five Years Plans (FYP) from 2000. Table 4.1 provides an overview of the frequency of the item, including *Jiaoliu (communication)* and *Hezuo (collaboration)*, mentioned in the four documents of the FYPs.

Table 4.1 Frequency of item Jiaoliu (communication) and Hezuo (collaboration) mentioned in FYPs (2000-2020)

(Sources: NPC, 2001, 2006, 2011 and 2016, Edited by Author)

	<i>Jiaoliu (communication)</i>	<i>Hezuo (collaboration)</i>
10 th FYP (2001-2005)	4	16
11 th FYP (2006-2010)	3	34
12 th FYP (2011-2016)	13	71
13 th FYP (2016-2020)	28	99

It is evident that the Central Government of China has placed growing emphasis on communication and collaboration especially from the 12th FYPs, which offers the discourse of communicative rationality a more open and free political environment. Moreover, the item '*Shehui Guanli (social supervision)*' which was stated once in 10th FYP was elaborated upon in the 12th FYP in five chapters (*Chapters 37 to 41*) in respect of disadvantage groups, the social security system, public health, public safety, and mechanisms of social supervision (NPC, 2011). In the 13th FYP, it was stated that the integration of information gathered by government and social sectors was encouraged. Moreover, it highlighted the importance of government establishing an open platform for information exchange (NPC, 2016). According to this suggestion, local government should be facilitated based on data – such as big data - which reflects the actual requirements of the public and local community. By extension, employment of big data signifies that governance could be delivered more effectively and

accurately to cope with the interests of multiple stakeholders (Liu, R. S., 2013).

Furthermore, a key purpose of planning in China is to maintain the social equilibrium by reconciling the interests of diverse stakeholders. This requires public participation, and stakeholder engagement (Chen, 2000). According to the findings of Chen (2000), the role of public participation in the planning and legislative system has not been ensured. However, the 13th FYP encouraged stakeholder engagement in the legislative system and it was hoped that this would further facilitate the democratic process of legislation (NPC, 2016). Indeed, it brought about a shift in practice of stakeholder engagement in legislation and planning at the stage of strategic planning. Moreover, the 13th FYP explicitly indicated what the role of stakeholder engagement at each stage of the legislative process should be including at draft, modification, and approval stages. It is argued that central government has provided an open political environment for adopting communicative rationality.

This section examines the relationship between government stakeholders and non-government stakeholders to assess the extent to which local government has started to transfer their role in the practice of planning. The traditional process of decision-making followed a top-down manner (Hu, de Roo and Lu, 2013). However, the priority of employing communicative rationality is a collaborative relationship and self-organising rather than a hierarchical or bureaucratic (Innes and Booher, 2000). As a result, whether or not a decentralised process of decision-making could fit into the current system of power relationships in China has become a contested issue (Huang and Long, 2003; Zhao, 2015). The statement of the 13th FYP encouraged the improvement of power relationships through legislation. It also stated the importance of “extending the scope of public participation in policy-making” (NPC, 2016, *Chapter 74*) and the importance of “minimiz[ing] the exercise of discretion” (NPC, 2016, *Chapter 75, section 2*). Based on the findings of Hu, de Roo and Lu (2013), it can be suggested that there has been a gradual shift in power relationships during the last decade. They also suggested that government has realised the importance of embracing the influence of local communities. As a consequence, societal groups, especially business interest groups have played a more important role in the practice of planning (Figure 4.3).

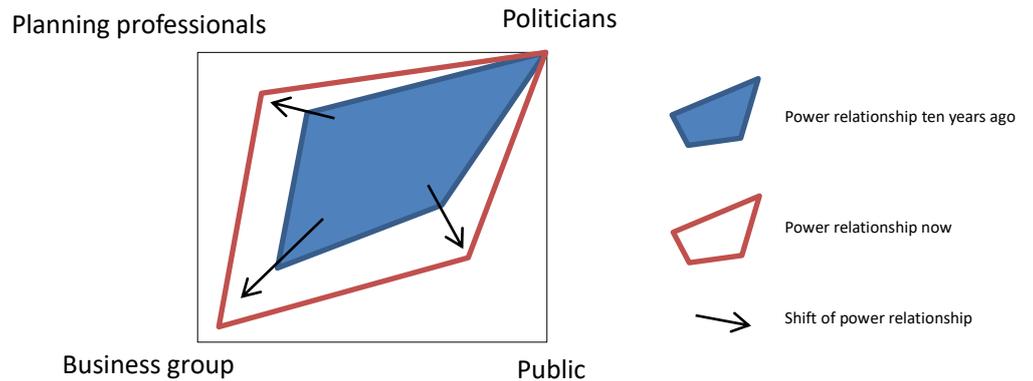


Figure 4.3 The changes of power relationship in practice of planning in China in the last 10 years

(Sources: Hu, de Roo and Lu, 2013, Edited by Author)

Although the government is establishing a more open public sphere in the practice of planning in China, there is limited evidence to support the view that power relationships have been distributed equally (Hebere, 2008; Hu, de Roo and Lu, 2013). The study of Hu, de Roo and Lu (2013) illustrates that whilst non-government actors have increasing power in the process of decision-making, local government has remained the most important actor in the process over the last 10 years (Figure 4.3).

4.6. Conclusion

This chapter has argued that communicative rationality, highlighted in CAT and CP, was gradually discussed and adopted in academia and the political system in China. Before providing evidence of an improving environment for adopting communicative rationality, it revisited both theories, and also addressed the criticisms that both have faced. Communicative Action Theory, as a major work of Habermas, raised the issue of communicative rationality, and it was argued that this could contribute to the achievement of rationality in planning. Although it has received critiques of being idealistic with regard to the optimal conditions needed for the maximisation of communication, the priority of communicative rationality could be employed as a means to promote greater efficiency in communicative activities in the practice of planning in China. Collaborative Planning, first raised by Innes (1995) and Healey (1996), focuses on improving power relationships by communicative rationality. CP was also criticised for being idealistic, but has been implemented in Europe to some extent.

In terms of planning theories, there is no significant difference between Western countries and China, although the boundaries of the planning discipline in China is still under debate. The study of collaborative and communicative planning has not gained prominence from Chinese planning theorists and planners. The limited research on communicative rationality has placed more attention on the discourse of public participation in China. The notions of communication and collaboration in these studies may differ from the highlights of a deliverable process of decision-making via a series of communicative activity in CAT and CP. Nonetheless, the perspective of engaging the public in the process of plan-making is a starting point for discussing communicative rationality in Chinese planning academia. Indeed, some planning theorists have noted the relevance of implementing communicative rationality in the practice of planning in China (Sun & Zhu, 2010; Hu, de Roo & Lu, 2013; Zhang, 2012).

The political environment is another key factor that affects the feasibility of adopting CAT and CP in China. According to the comparison of FYPs over the past two decades, there has been growing attention given to the importance of communication and collaboration in planning practice and planning legislation in China. The mechanism of social supervision is highlighted in the 13th FYP (2016-2020), and this reflects the need for enhanced stakeholder engagement. Furthermore, the power relationship in the field of planning and legislation has gradually changed over the past ten years. The Central Government of China advocates the policy of decentralising power in local government by extending public participation and minimising the use of discretion. Although local government is still the most important actor, the public sector and non-government stakeholders are gradually exerting more influence on the practice of planning and legislation. Overall, there is, and will be, a gradual further opening and freeing of the political environment for CAT and CP in China. To link the actual development of eco-city development and communicative planning, the following chapter notes the methodology adopted within this study including the strategy of case selection, data collection, and data analysis and evaluation.

Chapter 5 Methodology: Evaluation of Communication during the Existing Planning Process

5.1. Introduction

This chapter develops the methodology, including the data collection strategy, the criteria for eligibility for the case studies, and the applicability of the interview questions. It also discusses the method of data analysis selected.

5.2. Data collection strategy: A study based on two cases

A data collection strategy is the pattern of obtaining data for enabling further analysis, and generating guidance for practical activities. Healey's (2006) CP and a number of other critical researchers on CAT (Innes, 1995; Fischler, 2000; Cooke and Jütten, 2013; Roy, 2015) have debated the initial research on which communication and collaborative planning are focused which help to identify a practical way to underpin the discourse of communicative rationality. Although communicative rationality is the subject of inquiry throughout the research process, the aim of data collection is to provide evidence to promote the validity of the findings, and seek a practical method of adopting communicative and collaborative planning in the Chinese context. The research highlighted the qualitative factors of delivering Eco-city programmes in China. Thus, as a piece of qualitative research, it allows the researcher to focus on the study without the need for numerical relationships (Kenawy, 2015). Indeed, this study aims to explore the non-numerical relationship between the eco-city programme and communicative rationality by using a series of qualitative techniques, including interpretation and explanation.

Qualitative research was conducted through a case study approach, which offers the research a starting point to draw broader conclusions on the development of eco-cities in China (May, 2011). Furthermore, a case study strategy provides researchers with a flexible environment to explore and understand the current real-life event and issues in targeted areas (Yin, 2014). It also contributes to the research by specifying a situation or scenario in respect of time, venue, participants, and patterns of activities (Clardy, 1997). This research examines the delivery of eco-city projects in China, and in so doing seeks to discover the potential for adopting communicative rationality through scrutinising the issues which have constrained the development of Chinese eco-cities. It synthesises the issues of delivering an eco-city by indicating their four key features of communicative activities, including location (*where*), time (*when*), stakeholders (*who*), and patterns (*how*). These are in turn illustrated

through commentary on the issues which occurred in their actual development.

Two case study cities were selected from the large number of eco-city projects in China. Those chosen were Tianjin and Dongtan. The adoption of a comparative case study can reinforce the reliability of the data collected and provides more evidence to question assumptions made (Altinay, 2008). Stewart (2012) suggested that using multiple-cases as comparators is a common method of deduction and hypothesis testing. This is a fundamental strength that a multi-case study approach has over single-case case studies. In addition, multiple-case research projects enable the researcher to explore and comment upon the differences between similar cases.

The study highlights the relevance of implementing communicative rationality in the delivery of eco-city projects through a two case study approach (Figure 5.1). In so doing it first presents a combination of existing studies and comments on both eco-city projects in Tianjin and Dongtan to provide an overview of the two cases. It also provides evidence to support the rationality of case selection (Chapter 5). Secondly, it provides discourse analysis based on the responses and experiences of interviewees in the actual developments. It identifies issues that occurred in the actual development of the two eco-city projects by quoting the statements of the interviewees who were engaged in the delivery of Tianjin and Dongtan eco-cities (Chapter 6 and 7). Finally, the study compares and integrates the perspectives drawn from the literature review with the comments made by the interviewees; this enables it to update the story of eco-city development in China (Chapter 8). Thereafter, the thesis concludes with a series of recommendations on how communicative rationality could be further adopted to practices of planning as well as noting additional areas of related research which could be reviewed.

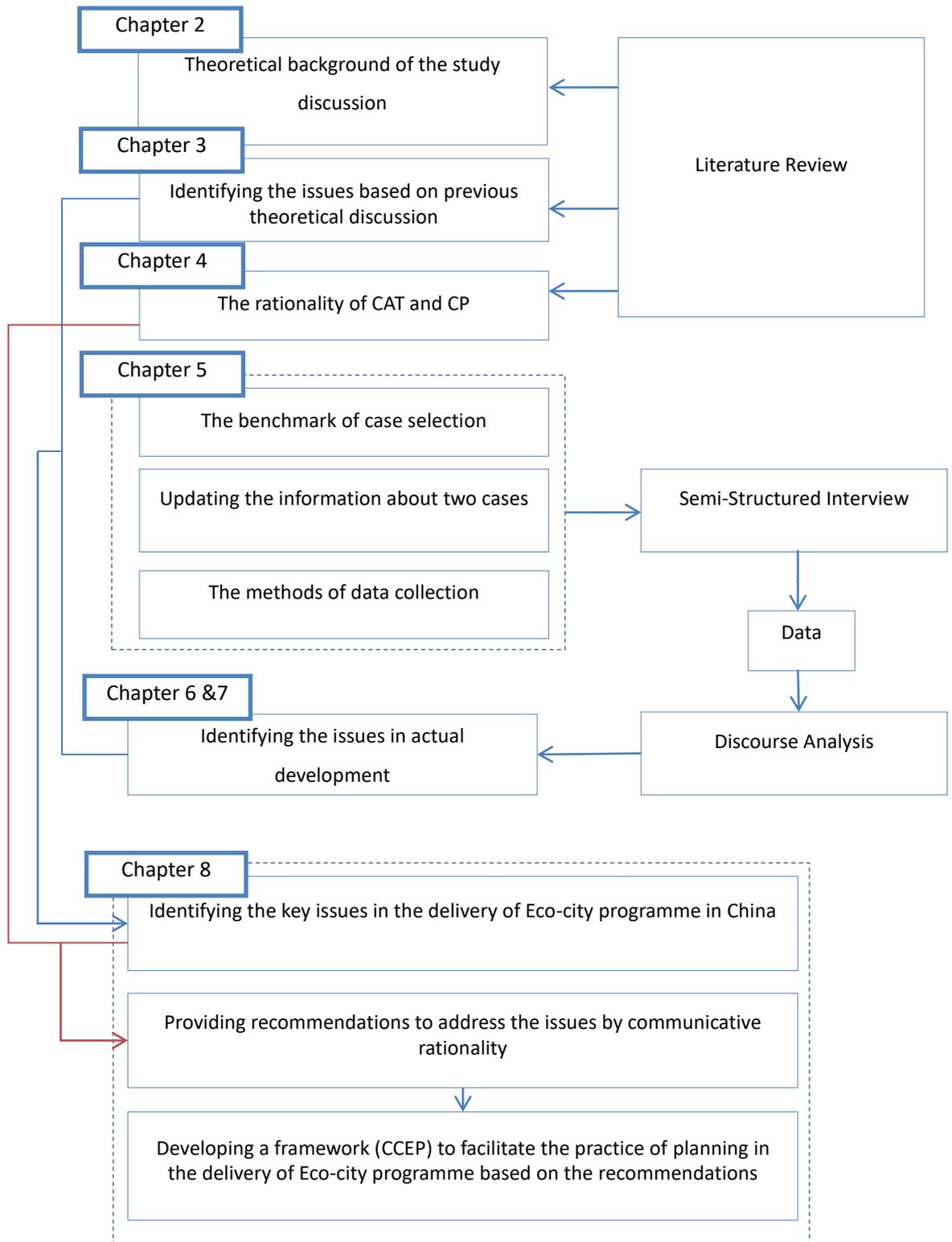


Figure 5.1 The strategy of case study

5.3. Overview of the rationale for case selection

In terms of the eco-city projects in China, more than 200 programmes (including newly built

eco-city and transfer eco-city) were developed as eco-concepts (CSUS, 2011). Therefore, to promote the validity of the research findings, it is essential to discuss the mechanisms of the two case study selection from the plethora of programmes either envisaged or undertaken in China. Across the range of eco-city projects in China, the principles and priorities of eco-cities are contested and diverse (Yu, 2012). In order to explore a framework of delivering eco-city projects in China, the cases selected should be representative of the wider programme and reflect the current situation, as well as the challenges and merits of ecological development in China. As discussed in Chapter Three, there are ten patterns of sustainable development (including *National Civilized City*, *National Hygienic City*, *Healthy City*, *National Garden City*, *Ecological Garden City*, *National Environmental Protection Model City*, *Ecological Demonstration Zone*, *Eco-city*, *Liveable City*, and *Sponge City*) which have been advocated in China since 1980 (Zhao, 2011b; Li and Zhong, 2012; Li and Dong, 2006). By examining the existing investment eco-cities indicated by the literature review (see Chapter 3.3), it is possible to summarize the main features of eco-cities and establish criteria for case selection based on more than 200 ecological programmes.

5.3.1. The criteria of case selection

In China, the different patterns (titles) of sustainable programmes were delivered with similar ideas and visions. Namely, establishing a harmonious relationship between human society and the natural environment (Sun, Liu and Wang, 2013). The research first investigated newly built eco-city programme and thereafter commented on the trend of sustainable development in Chinese urbanization (Chapter 3.5.2). According to the findings of H.L. Li (2012), there had been 58 newly built ecological programmes undertaken by the end of 2011. Unlike ecological tourism programmes, real estate programmes, and industrial parks, these newly built urban areas were usually delivered independently and contained residential areas, infrastructure, and a range of industries. A newly built eco-city programme has less socio-economic constraints than existing urban areas when it comes to implementing the ideas and techniques need to deliver ecological development (Li, X., 2012). It is also different with ecological programmes within existing urban areas which are focused on amending existing living environment, improving energy supply, and re-building existing neighbourhoods to achieve ecological vision (Li, H.L., 2012; Li, X., 2012). Instead of denying the significance of developing existing urban areas ecologically, this research highlights the relevance of new urban areas where growing numbers of urban residents live in a more sustainable urban environment. Secondly, the ecological programmes can, from a developer perspective, be divided into four groups: international collaboration, national

departments motivated, local government motivated, and real estate motivated (Li, H.L. 2012). In order to introduce the technology and expertise of delivering newly built eco-city programme, MOHURD has established collaborative relationships with a range of developed countries including Japan, Sweden, the UK, Germany, and Singapore. These collaborations have been realised through signing memorandums of understanding (Table 5.1). These programmes motivated by national developments, including newly built Eco-city and transformed Eco-city, are delivered by local government but under the supervision of national departments, such as MOHURD. Furthermore, Li, H.L. (2012) suggested that the programmes motivated by local government and real estate investors were contested since many of these programme were delivered using the title “Eco-city”.

Table 5.1 The ecological programmes under international collaboration

(Sources: *Hainan.gov*, 2010; *Cfdxc.gov*, 2009; *United Design Group*, 2013; *Sino-germanecopark.gov*, 2016; *Sneco*, 2009; *Qufu.gov*, 2010; H.L. Li, 2012)

Programme	Co-developer
Sino-Janpan Hainan Lecheng Sun and Water Pilot Area	Japan
Caofeidian New City	Sweden
Sino-Sweden Wuxi Low Carbon Eco-city	
Dongtan Eco-city, Chongming	UK
Sino-Germany Qiongdao Eco-park	Germany
Sino-Singapore Tianjin Eco-city	Singapore
Sino-Singapore Nanjing Eco Hi-Tech Island	
Sino-Singapore Qufu Cultural Eco-city	

The programmes initiated under international collaboration were selected for data collection in this research because they focused on newly built Eco-city projects and gained more financial and political support from national departments than those programmes that were motivated by local government and real estate investors (Li, H.L., 2012). Moreover, the international programmes gained relatively more prominence from international planning professionals than the domestic programmes. This could, therefore, provide this research with more evidence and secondary data, especially with regard to collaboration and communication.

Table 5.2 Ecological programmes under international collaboration

Programme			Proposed Population	Dependent City (Registered Population)	Acreage (km ²)	Timescale
Sino-Janpan Sun and Water Pilot Area	Hainan	Lecheng	110,000	Qionghai (510,000)	13.4	2020
Caofeidian New City			800,000	Tangshan (7,550,000)	73.4	2020
Sino-Sweden Carbon Eco-city	Wuxi	Low	Not Stated	Wuxi (4,810,000)	2.4	2020
Dongtan Eco-city, Chongming			500,000	Shanghai (14,429,700)	86	2020
Sino-Germany Eco-park	Qingdao		60,000	Qingdao (7,831,000)	11.6	2020
Sino-Singapore Eco-city	Tianjin		350,000	Tianjin (1,026,900)	23	2020
Sino-Singapore Hi-Tech Island	Nanjing	Eco	110,000 residents 100,000 jobs	Nanjing (6,534,000)	15.21	2025
Sino-Singapore Eco-city	Qufu	Cultural	Not Stated	Qufu (644,000)	5.53	Not Stated

Sources: Wang, Zou and Li, 2011; cfdxc.gov, 2017; Wuxi.gov, 2013; Ding, Yu and Lv, 2014; *Sneco*, 2009; Zhang, 2013)

Although a majority of the 8 programmes provided 10 to 15 years planning of ecological development, the visions of the eco-city projects are divergent due to their different social, political, and economic background. The ecological programmes in Hainan, Caofeidian, Dongtan, Tianjin, and Nanjing have more dynamic and expansive areas with relation to both population and the scale of the cities. The programme in Wuxi, Qingdao, and Qufu were focused ecological investment on a very small area, where ecological principles could be barely embedded in actual development. Moreover, these 8 programmes are different in

their dependent city, i.e. Shanghai and Tianjin are Municipality directly administrated under the central government, Qingdao and Nanjing are vice-provincial city, Tangshan and Wuxi are prefecture-level city, and Qionghai and Qufu are county-level city (National Bureau of Statistics, 2016). The difference on the level of dependent city could impact on the government investment in newly built eco-city in China (Wei, 2014). Thus, Tianjin and Dongtan Eco-city could relatively have more investment than other 6 cities. In general, the Tianjin and Dongtan Eco-city were chosen as case studies because they gained comparable financial and political support, and international reputation compared with other eco-city projects in China. Also according to the visions and ecological principles of both eco-cities, Tianjin and Dongtan are relatively more applicable for the discourse of sustainable development in this research. Both Eco-city projects could be considered as representatives or flagships of Chinese newly built eco-cities under an international collaboration (Wang, 2008; Caprotti & Gong, 2017). Figure 5.2 provides an overview of the aggregation relationship between both cases and more than 200 ecological programmes in China.

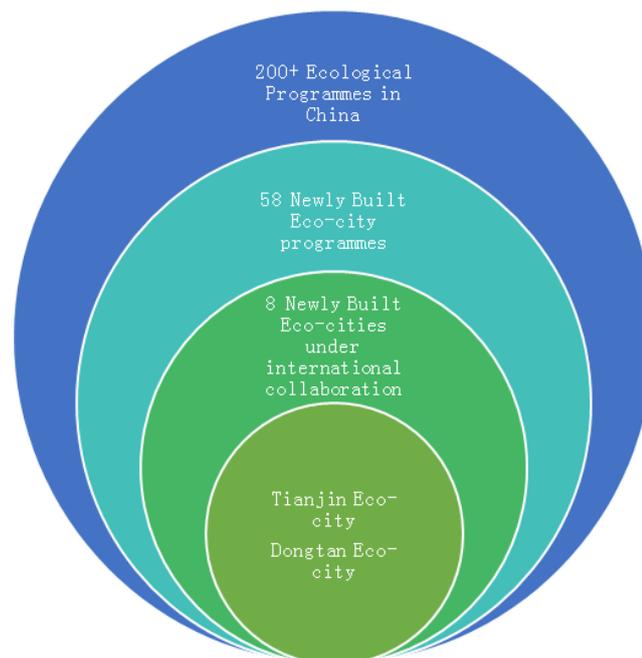


Figure 5.2 The process of case selection

Sino-Singapore Tianjin Eco-city

Tianjin Sino-Singapore Eco-city is located midway between two of China's most historical and bustling cities, Tianjin and Beijing (43 kilometres east to Tianjin and 150 kilometres southeast to Beijing) (*Tianjin Eco-city*, 2014). The eco-city was to be built on brown field land and would have a population of 350,000. Grogan (2013) suggests that the city was to

be built as a vision that would provide a marked contrast from the polluted, overcrowded cities of China's past. It would therefore showcase a proposed future of tranquil living and genuine eco-credentials. The Tianjin Eco-city is located in the coastal area of Bohai Sea and has two rivers, the Yongding New River and the Ji canal, running through it (Figure 5.3).

Since the development agreement was approved at the end of 2007, the programme started construction and it has since become a showcase of leading green facilities (Low, Liu and Wu, 2009). In 2011, Sino-Singapore Tianjin Eco-city Key Performance Indicators (KPIs) were established by more than 100 scholars and researchers from China and overseas, their report stated 26 principles (including 22 quantitative targets and 4 qualitative priorities) which became the blueprint of the Tianjin eco-city development. According to the KPIs, the city would achieve several quantitative targets before 2013, such as, achieving 60% proportion of waste recycling; 50% of employees being from local community, and 20% of housing being affordable housing. The KPIs provided a comprehensive criteria for delivering a modern eco-city in the Chinese context through collaboration between Chinese and international planning professionals. In 2012, the MOHURD identified Sino-Singapore Tianjin Eco-city as one of eight pilot areas of ecological development in China (MOHURD, 2013).

Although the Tianjin Eco-city has been built, to some degree, according to its original plan, there is still some criticism levelled towards it with regard to the urbanisation process (Caprotti, 2014). In terms of local residents, there is concern that the current population is only 12,000 compared to the proposed 350,000, and that the willingness of new migrants to come to the city could be affected by the downturn in China's property market (BBC, 2014). However, the success of the eco-city programme is not determined solely by its possession of an insufficient population in the initial development stages. Indeed, many recent studies have argued that the inadequate population occurred in the early stage of all newly built eco-cities in China (Tan, 2008; Liu, 2014).

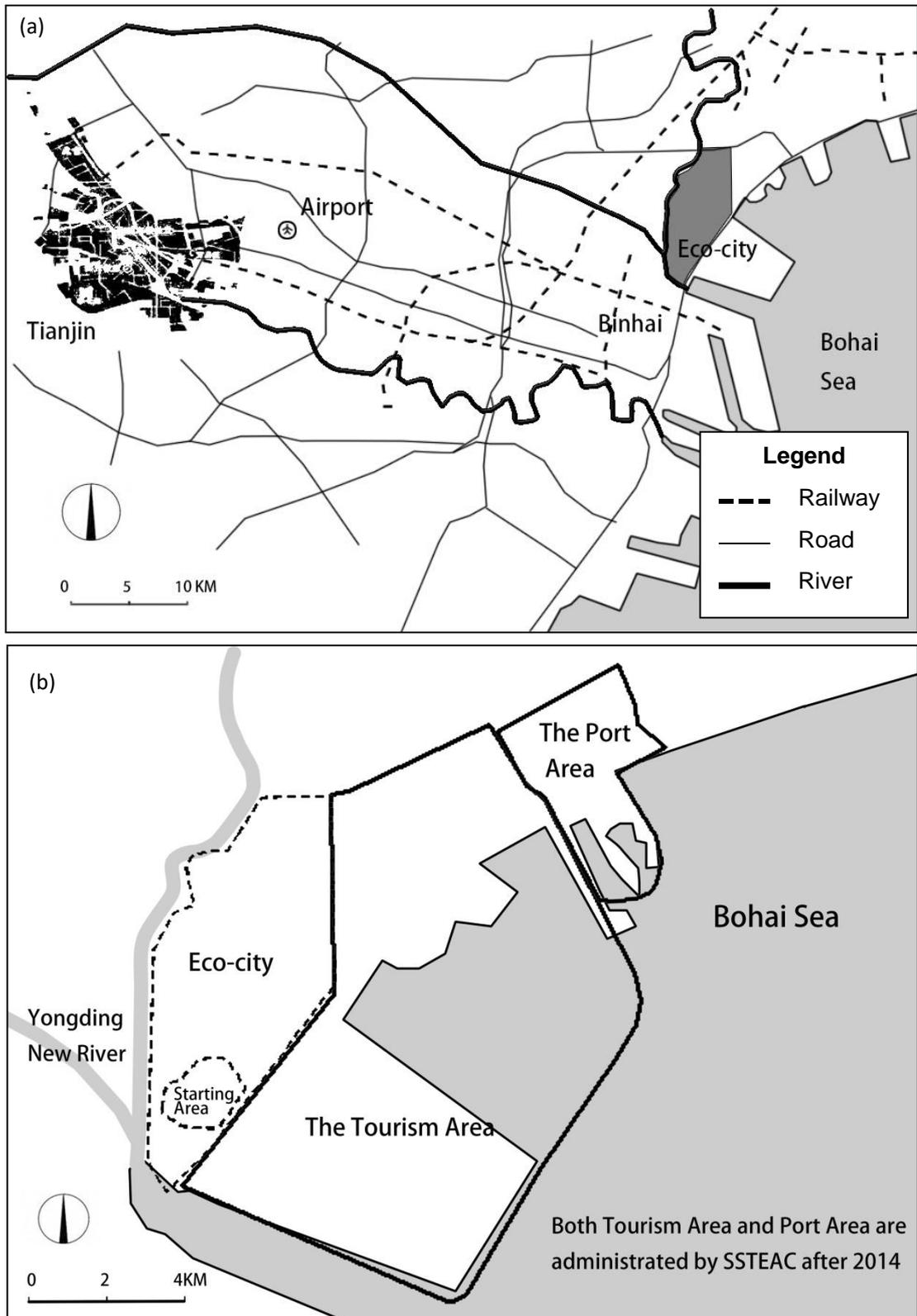


Figure 5.3 Location of Tianjin Sino-Singapore Eco-city: (a) Location, and (b) Tianjin Eco-city
 (Sources: *Baidu Map*, 2017b; edited by author)

Shanghai Dongtan Eco-city

The Dongtan Eco-city programme is located on the Chongming Island 16 kilometres to the Northeast of Shanghai downtown (Figure 5.4). The idea of developing Dongtan was initiated by the Shanghai Industrial Investment Company (SII) (a Shanghai company listed on Hong Kong's Exchange). Work to deliver an ecological port of Shanghai began in 2001. 4 years later, the programme was praised as one of the most influential programmes in China by the North American published *Business Week* (Wang, 2008). Between 2005 and 2007, the project broke ground with work in the south part of the proposed area being undertaken through the collaboration of SII and ARUP (a British planning and engineering firm) (Wang, 2008). The development of Dongtan Eco-city came to prominence and received praise from politicians and planning academia at the beginning of the programme (Wang, 2008).

According to the conceptual plan of Dongtan (ARUP, 2007), the Eco-city programme was initially proposed to be built with 8 development objectives: environmental protection, social and economic benefits, a low ecological footprint, water and flood management, agricultural production, energy issues and emission reductions, waste management, and accessibility and transport. The experiences and lessons of delivering Dongtan Eco-city were extensively discussed, and were used to guide subsequent programmes in China (Cheng and Hu, 2009; Chang and Sheppard, 2013; Wang, 2015).

However, the project was suspended in 2008 and not restarted in 2017. Then, the SII and local government transferred their original goal of delivering an eco-city to that of delivering an ecologically agricultural pilot area. This change was because of a series of complex issues involving political support, land use, environment, and the local economy. Therefore, despite the fact that the Dongtan Eco-city has made limited progress in terms of its actual development, it was selected as a case study because it enabled the author to explore the merits of the programme, especially those relating to the establishment of criteria for delivering eco-city projects. It also worthy of study as it raises questions as to what issues were, and could, critically impact upon the delivery of eco-city projects in China.

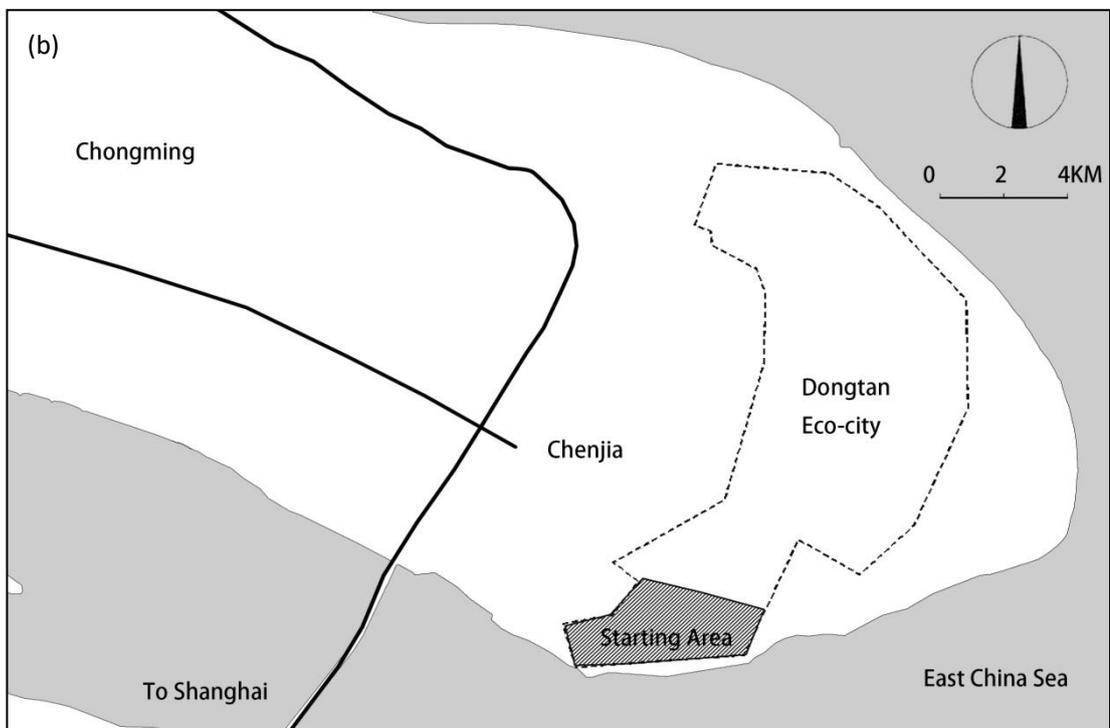
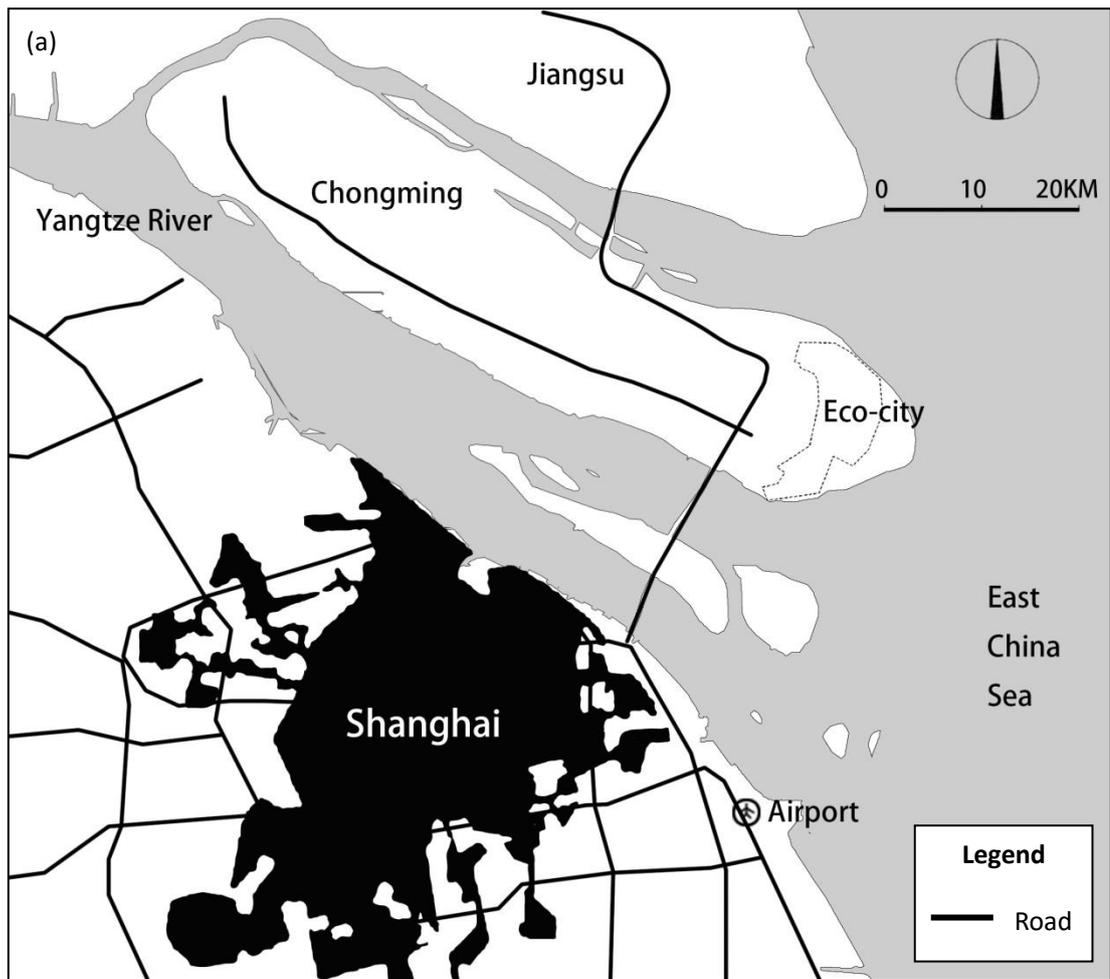


Figure 5.4 Proposed Area of Dongtan Eco-city: (a) Location, and (b) Dongtan Eco-city

(Sources: *Baidu Map*, 2017b; edited by author)

5.3.2. A comparison of two selected cases

This section provides a comparison between the two cases in Tianjin and Shanghai to illustrate the rationale for the two case selections at a theoretical level. It first compares similarities between the two cities with respect to their geographical, demographic, and political features. Then it examines the principles and priorities of delivering both eco-city projects based on the planning documentation submitted in order to illustrate the in-depth reasons for selecting the two specific cases.

In terms of geographical and demographic features, there was a close relationship between the two programmes. Table 5.3 provides an overview of the general information of the two cases. Both eco-city projects are located near mega-cities, Shanghai and Tianjin, on the east coast of China. When the size of the city was considered it was proposed that the Dongtan Eco-city should house roughly half a million people (2050) which is slightly more than the programme in Tianjin (350,000), probably because Shanghai (24.1 Million) has a larger population than Tianjin (14.1 Million). Both eco-city projects were charged with lessening the population burden of the two mega-cities (Cheng and Hu, 2009; Shi, 2013).

Despite the similarities in geographic and demographic dimension, there is a significant difference between the two programmes in respect of the status of the proposed land. Dongtan Eco-city was proposed to be built near a national ecological wetland with rich natural resources. In contrast, Tianjin Eco-city is located in a barren area formally home to the salt industry. Opponents of the Dongtan Eco-city pointed out that the development programme might bring negative influences to the ecological system of the natural wetland (Zhang and Dai, 2009a; *ifeng*, 2012). Moreover, there was concern about the natural environment, including the poor environmental conditions and the quality of water resources in Tianjin Eco-city (Cong, 2011). It seems difficult to seek common ground for choosing a proper place to deliver eco-city projects in China. Therefore, selecting Tianjin Eco-city and Dongtan Eco-city could provide an opportunity for scrutinising whether the original environment conditions of the two sites significantly impacted upon the actualisation of the two development programmes.

Table 5.3 General Information of Dongtan and Tianjin Eco-city Programme

	Dongtan Eco-city	Tianjin Eco-city
Starting Date	2008	2007
Proposed Population/Town Acreage	500,000(in 2050)/86 km ² (including agricultural land and green space)	350,000/23 km ²
Original Land status	Ecological wetland, cultivated land	Brown field, Salt pan (abandoned)
Dependent Metropolis (registered population)	Shanghai (14.43 Million)	Tianjin (10.27 Million)
Co-operators	Shanghai Industrial Investment Company (SII) (China) ARUP (UK)	Tianjin Eco-city Administrative Committee (SSTEAC) (China) Ministry of National Development (MND) (Singapore)
Timescale	2020	2020

(Sources: Ifeng, 2012; National Bureau of Statistics, 2016; Tianjin Eco-city. gov, 2014; Singapore.Gov, 2014)

In the terms of political environment, the two eco-cities were proposed to be built in 2007 and 2008 respectively. Both were affected by the 11th Five Year Plan to some degree. As discussed in Chapter 3.4, growing attention was paid to ecological developments in the process of decision-making during this period in China. Both eco-city projects therefore have a similar political environment at the strategic level. Moreover, Tianjin Eco-city was initiated by political government, which was conducted by SSTEAC and MND. It had more political implications than the programme in Shanghai, since Dongtan Eco-city is a programme that has been undertaken by two business companies, SII and ARUP, forged under a strategic political collaboration between China and UK. It thus provides the study with an ability to examine the influence of different levels of political collaboration during the delivery of eco-city projects.

This section examines the principles and priorities of delivering eco-city projects by scrutinising the planning documents written by ARUP in Dongtan and SSTEAC in Tianjin. Both eco-city projects established a comprehensive framework for plan-making. Instead of delivering an ecological programme focusing on the relationship between urban development and environmental protection, both eco-city projects paid attention to the delivery of an independent and self-sufficient city in economic, social and environmental terms (ARUP, 2007; SSTEAC, 2008A). Moreover, the Dongtan programme delivered a relatively detailed plan with higher standard criteria than that of the Tianjin Eco-city. There are more than 22 subsets of objectives for delivering Dongtan Eco-city in the arenas of environment, social, economic, and natural resources (ARUP, 2007). In contrast, Tianjin Eco-city set up 12 subsets of achieving ecological balance in the natural environment, as well as social harmony, economic cycle, and regional co-operation (SSTEAC, 2008A). Dongtan Eco-city aims to collect and manage 100% of waste. It is only 60% in Tianjin Eco-city. It seems, therefore, that Dongtan Eco-city had a greater intention of achieving ecological development than Tianjin Eco-city. This is another reason for comparing two similar cases; to explore why an eco-city programme that contained more considerations in the field of urban ecology was delivered less successfully.

Table 5.4 Key Principles and Priorities of Dongtan and Tianjin Eco-city projects

	Objectives
Dongtan Eco-city	<ul style="list-style-type: none"> ● Long-term objectives: <ul style="list-style-type: none"> Water and Flood Management: Water consumption 16,500 T per Day (down by 43%); Water Consumption 80 lt. per person per day; Water Discharge 4,300 T per Day (down by 88%) (2020) Energy Production, Use and Emission Reduction: Energy Demand 600 GWH/year; No carbon emission from energy for power and heat (2020) Waste Management: 100% Waste collection; 5000 T/year to landfill (2020) Accessibility and Transport: vehicles daily travel distance 0.6 million km; zero carbon emissions; average trip length 6 km (2020) Construction impact: twice the volume of materials; balance of cut and fill; consolidation centre for management of deliverables; bunds to manage water and pollution; off-site manufacture and pre-assembly to reduce waste; local sourcing where possible; sustainable housing for workers. (2020) ● Short-term objectives: <ul style="list-style-type: none"> Environmental Protection: Zero emission transport; water treatment and recycling; low traffic noise; light pollution control; no landfill; biodiversity in landscape Social and Economic Benefit: 80,000 residents; More visitors daily; 51,000 jobs Low Ecological Footprint: 2.3 gh/person Agricultural Production: no loss of productive land
Tianjin Eco-city	<ul style="list-style-type: none"> ● Long-term objectives: <ul style="list-style-type: none"> Percentage of Green Building: 100% Rate of Renewable energy utilisation: ≥20% (2020) Unconventional water utilisation: ≥50% (2020) Rate of Green Transport: ≥90% (2020) Carbon footprint Per GPD: 150 T c/million \$ Maintain existing wetland ● Short-term objectives: <ul style="list-style-type: none"> Green area per capita.: 120 sqm Daily generation of waste: 0.8 Kg Rate of Recycling, Percentage: ≥60% Percentage of affordable house: ≥20%

(Sources: ARUP, 2007; SSTEAC, 2008A)

Foremost, this research attempts to explore whether the plan-making and implementation could be affected by local actors who may or may not have engaged in communicative planning. It aims to discover the universality of communicative rationality in Chinese sustainable development, especially in the process of plan-making and implementation. Furthermore, although there are various similarities between two eco-cities, the two programmes were divergent in terms of their implementation in practice. This research therefore proposed that whether the process of plan-making and implementation in such eco-city projects is varied and subject to the variation of communicative activities during the delivery of eco-city projects. The universality of a set is inevitably included in individual cases within the set (Feng, 2013), that is to say the data collected in Tianjin and Dongtan in respect of communicative rationality contains evidence that can be used to advance the case for adopting communicative planning in sustainable development in China.

5.4. Methods of Data Collection

To investigate the intersection of political, economic, cultural, environmental, and collaborative influences on the development of eco-cities, a comparative analysis of Tianjin and Dongtan was undertaken.

A three-stage data collection process was conducted to facilitate this process:

- 1) Documentary analysis of planning documents for each eco-city;
- 2) Interviews with key decision-makers; and
- 3) On-site observation of both eco-city projects (Tianjin Eco-city: July 2013 and January 2015; Dongtan Eco-city: January 2016).

All three stages sought to facilitate a triangulated understanding of what issues practitioners are facing in the current delivery of eco-city programmes, and what potential issues could hamper their future development. This section illustrates the rationality of the methods of data collection employed in this qualitative research. It explicitly indicates how semi-structured interviews can contribute to data collection and also illustrates the rationality that was deployed in the selection of interviewees. The approach of questioning, as well as the content of the interview questions, is also discussed.

5.4.1. Documentary analysis

As shown in Table 5.5, planning documents and maps were reviewed, including published documents, such as Master plans and developers report, as well as unpublished/internal agency documents which were provided by interviewees, such as the Sino-Singapore Tianjin

Eco-city Administrative Committee (SSTEAC). The outcome of the documentary review was a set of design, funding, implementation and management criteria that was used to:

- 1) Frame the focus of interviews question; and
- 2) Evaluate the gaps between these reported assessments of eco-city development in documents and those provide in interview testimony.

Table 5.5 List of key reviewed documents

Programmes	Document Type
Tianjin Eco-city	Master Plan of Sino-Singapore Tianjin Eco-city (2008-2020)
	Master Plan of Binhai New District (2005-2020)
	Master Plan of Tianjin (2005-2020)
	Regulatory Detailed Planning of Sino-Singapore Tianjin Eco-city
	Government Report of Sino-Singapore Tianjin Eco-city (2008)
	Land Use of Binhai New District (2009-2020)
	Map of Sino-Singapore Tianjin Eco-city after joining together three areas
Map of Position and Industrial Features of Binhai New District	
Dongtan Eco-city	Master Plan of Chongming Three Islands (Master Plan of Chongming County Level District) (2005-2020)
	Master Plan and General Land-use Plan of Chongming District, Shaghai (2016-2040) (Draft)
	Master Plan of Shanghai (2016-2040)
	Land Use Plan of Shanghai Smart Island Information Industrial Park
	Shanghai Dongtan Eco-City Final Report
	Functional Structure Plan of Chenjia Town, Chongming, Shanghai
	Land Use Plan of Chenjia Town, Chongming, Shanghai

The review of documents, especially the planning documents relating to the eco-city projects, provided a baseline of understanding pertaining to the investment that underpinned both eco-city projects. Moreover, the documentary sources provided evidence through which it was possible to explore the nuances within planning documents and how these reflected the different stages of planning work. The documentary review also revealed that there was a gap between the planning work and actual development.

Furthermore, the documents were utilised to provide a triangulated understanding of the key barriers to delivering eco-city projects. Thus, the analysis of these documents was

integrated with the narratives of each case that were collated through interview data and site observation to substantiate the arguments of a linkage between eco-city development and communicative activities.

5.4.2. Semi-Structured Interviews

To explore what the key issues were that constrained the delivery of the two separate eco-city programmes in Tianjin and Dongtan, certain face-to-face interviews were conducted with local actors in Tianjin and Dongtan. They took the form of semi-structured interviews and consisted of standardised and open-format questions (Walliman, 2006).

The interviews sought to identify the pros and cons of the testimony of the interviewees on the process of decision-making and implementation. These were then analysed with respect to the political, economic, cultural and environmental dimensions in accordance with the framework established through the literature review.

Interviews took place in informal but quiet venues, such as cafés, parks, the green space near the participants' offices, or in other locations where the interviewees felt comfortable. Semi-structured interviews were used as they can help to establish a more comfortable and relaxed atmosphere than structured interviews because interviewers have no pressure to keep checking the interview agenda and interviewees can provide more flexible answers based on the type of the questions asked. As Walliman (2006) posits, a face-to-face interview can be carried out in a variety of situations.

The interviews were conducted in a face-to-face manner as it enabled one to observe and compare the expressions of the interviewees when they were confronted with different questions and comments. Walliman (2006) claimed that a face-to-face interview could capture visual signs and that this was a valuable tool by which to assess the integrity of the responses. A face-to-face interview can also give the author an opportunity of accessing data, such as the experiences and knowledge of the interviewees, which may be difficult to obtain from other sources of data such as document analysis (Kenawy, 2015).

Interviewees were asked to preview the list of the structured questions, so that they had a general idea of what the interview would address before it started. Starting with a series of warm up questions, the interviews explored issues in detail using probes, prompts and flexible questioning styles (Henn, Weinstein and Foard, 2009). The structured questions focused on interviewees' perceptions as to the performance of the eco-city development,

the nature of communication and collaboration during the planning work, and the willingness of stakeholders to communicate with others. Acknowledging that the responses to structured questions may predominantly base upon the opinions of the participants, some open-ended interview questions were used to explore the in-depth reasons that impacted upon the perceptions of the interviewees. Open-format questions were asked depending on the responses of the individual interviewees and provided data for in-depth analysis. These responses were elaborated upon by asking the interviewees to provide examples, such as the actual contribution made by local government, the methods of attracting investments, and the patterns of public participation within the Eco-city. The data was continuously analysed and compared to assess whether there were more effective ways to ask questions after each interview (Walliman, 2006). The ideas raised by the first tranche of interviewees were integrated into the questions in latter interviews in order to promote the depth and relevance of the data collected.

The process of contacting each potential participant was considered an essential part of the interview in data collection. A full list of interviewees is presented in Table 5.6. They were selected from a sample of contacts representing politicians, planners, and planning academics in the Tianjin and Dongtan Eco-city projects. A total of 6 face-to-face interviews were conducted. This number excludes a participant who only received the invitation to answer the research questions via email. Unfortunately, neither the government of Chongming, the location of Dongtan Eco-city nor the municipal government of Shanghai engaged in this study. A small number of participants declined to be interviewed raising questions over whether the political implications of the less successful programme in Dongtan had an impact on their willingness to participate. It is presumed that the limited success associated with Dongtan made it a sensitive topic for local politicians and planning professionals. Moreover, the eco-city programme in Dongtan was suspended until 2012 and then changed its original vision which meant the original team of planning professionals had been dismissed. The developers of Dongtan Eco-city programme were also unwilling to comment on the programme. This research attempted to overcome this limitation by interviewing central decision-makers in Dongtan Eco-city programme, as well as by using secondary data and observation data to support the testimonies of the interviewees. The emailed responses of staff from SII were adopted into the research to contribute to the data analysis. The limited engagement with the research process by key stakeholders hinders the development of a transferable commentary, however, it also highlights key issues regarding engagement, communication and transparency in the development of eco-cities in China.

The following section discusses the positionality of interviewees:

- In terms of the local authority, the government officers who are/were responsible for urban construction were targeted because they have more opportunity of having been involved in the delivery of Eco-city programme;
- For the investors; the staff of the company which invested in the programme were targeted as potential interviewees. In Dongtan, the staff of SII were targeted since SII plays the role of investor and key decision-maker simultaneously;
- Planning professionals; those who were directly involved in the process of plan-making, including the strategic planning, master plan, and detailed planning, and
- Although the individual and local residents were stakeholders in the eco-city programme, the perspectives of public and local community were not collected. These people were omitted because that the study aims to provide a modified practical framework based on the current top-down process of decision-making. Moreover, it was impossible to conduct data collection with local residents at the current stage of the eco-city programme, especially in Dongtan Eco-city, because of the limited population size of both programmes.

By combining the different perceptions of interviewees, a wider set of issues pertaining to the delivery of the eco-city projects was generated.

Table 5.6 The code of interviewees in Tianjin Eco-city and Dongtan Eco-city

Departments	Roles	Location	Interviewee Code	Interview Document Code
SSTEAC	Local government officer	Tianjin	L	I
Tianjin University	Local planning scholar	Tianjin	C	II
Singapore SCP Consultants PTE. LTD	Singaporean planner	Suzhou	T	III
Bluepath City Consulting Co. LTD.	National Planner	Beijing	D	IV
Shanghai Botanic Garden	Local scholar	Shanghai	Z	V
Tongji University	Foreign scholar	Shanghai	H	VI
SII	Investors	Shanghai	N/A	Data I*

*This participant only received an invitation of answering research questions via email.

Two rounds of data collection were undertaken. The first round entailed field trips in Tianjin and Beijing, and focused on the Tianjin Eco-city, as well as the Dongtan Eco-city but to a lesser degree. The second round focused on the stakeholders in Dongtan Eco-city only. In total, there were 3 participants each for the Tianjin Eco-city and Dongtan Eco-city, and an interviewee who took part in both Eco-city projects. Three additional stakeholders from Shanghai did not accept the invitation of engaging in the data collection, including a local government officer of Chongming Island, a local scholar from Tongji University, and staff from SII. There were no replies from government officers and university scholars via email or text messages. The staff from SII refused to engage in a face-to-face interview because of stipulations placed upon them by SII. They did, however, answer the interview questions via email.

5.4.3. On-site Observation

A series of on-site observations were made in both Tianjin and Dongtan Eco-city. These

evaluated the access to each eco-city programme as well as cultural and green facilities. Observation provides visual assessment and “becomes a quick method of gaining knowledge” of the state or condition of objects (William, 2006: 92). The data is presented as figures and images which were directly taken on site, as well as certain records, i.e. the time cost on transportation/amenities associated with each site. The observation data identifies the existence of gaps between the actual developments of eco-city and the content generated from the planning documents. It also identifies whether individual interviewee’s testimony was different from what actually occurred in the delivery of the eco-city programme. This indicates where disadvantages or advantages to implementation are visible.

5.4.4. Ethics of data collection

With reference to ethical issues; ethical principles were fully applied in the process of data collection. First and foremost, the purpose of the interview was relayed to the interviewee in advance to establish a relationship based on honesty. Since only a limited number of local actors were willing to talk about Dongtan Eco-city, the research attempted to engage local actors in Shanghai by inviting them to talk about the ecological development in Shanghai, with Dongtan eco-city being referred to in the unstructured part of interview. Then, the secondary data, including planning documents and reports, were referenced. Copyright permission of maps and images has been checked to avoid ethical issues. All interviews were recorded by the author where consent was given. Thirdly, all data collected during the interviews was coded and anonymised (Table 5.6) to protect the identities of the interviewees. Finally, all research questions were submitted and approved based on the ethical assessment of the University of Liverpool in August 2014. The process of the interviews was deliberately conducted to comply with relevant regulations and laws in China.

5.4.5. Question Design

The use of semi-structured interviews was informed by the previous literature review and the data collected through 3 ways (Figure 5.5). The questions attempted to examine the role of each stakeholder in the top-down process of decision-making, and what issues hindered the delivery of the Dongtan Eco-city and the Tianjin Eco-city. The questions also sought answers to issues relating to what the key factors were for achieving a Collaborative and Communicative eco-city, and what factors could promote the implementation of the rationality of CAT and CP in Chinese eco-cities.

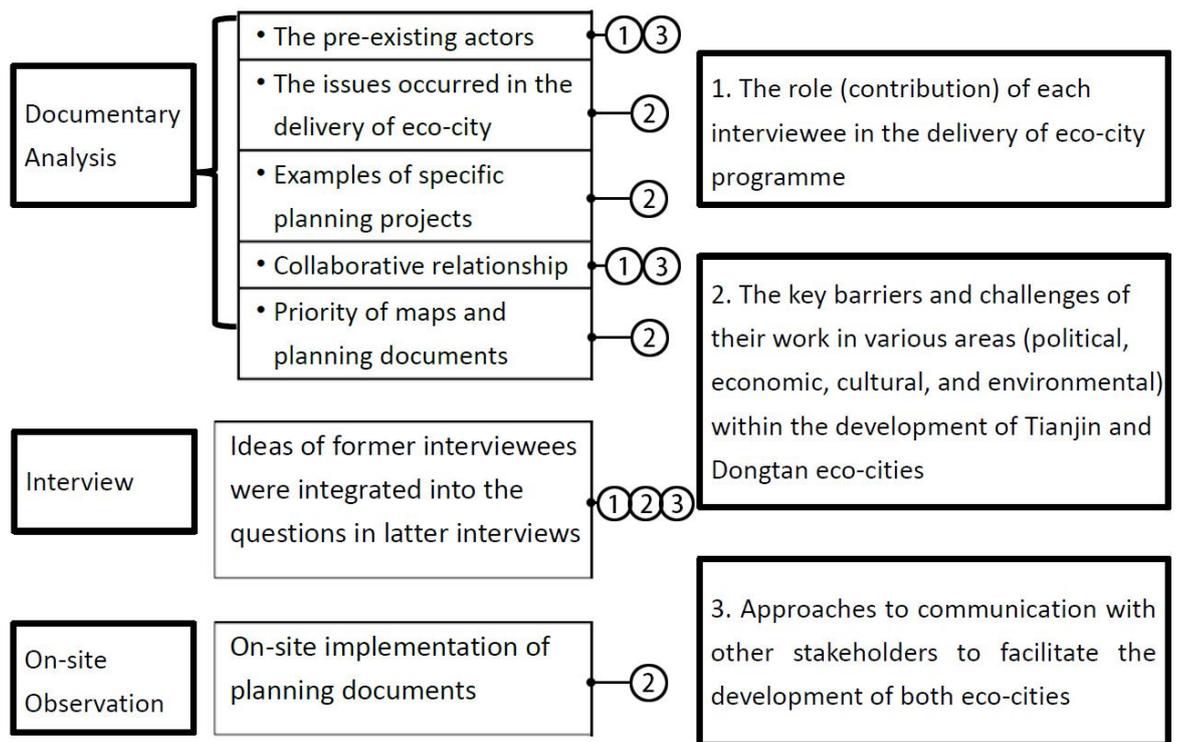


Figure 5.5 How the different areas of investigation fit together in the interview questions

The structured questions were designed to identify each specific statement of communicative activities during the planning process (see Appendix). Questions were carried out through a progressive approach, as follows:

- What was the major responsibility (role) of the interviewee in the planning work of eco-city development;
- What specific urban projects has the interviewee engaged with;
- Who did the interviewee work with in the above projects;
- What are the major barriers of delivering the above projects;
- What are the key issues of eco-city projects; and
- What are the key obstacles of adopting a collaborative and communicative approach in Chinese eco-city planning and implementation.

Questions about the individual interviewee's roles and responsibilities helped them to step into the discussion of eco-city development after the warm-up questions. Then, the questions relating to specific urban projects were aimed to clarify document sources and site observations whilst also providing insights into the eco-city programme which might not have been available from these secondary sources alone. The questions surrounding the key issues of eco-city development provided important evidence to contextualise the discussion

according to the conceptual framework. The five key themes (political, economic, cultural, environmental, and collaboration) were not directly discussed to avoid potential researcher influence and bias impacting on the narratives of the interviewees. The last topic address in the interviews paid attention to the collaborative and communicative approach of plan-making and its implementation on the eco-city programmes in order to provide evidence that could contribute to the establishment of a practical framework of promoting the development of Chinese eco-cities.

The questions were designed without preconditions and bias from the author. For example, in the Tianjin Eco-city, interviewees from local government were asked pen-ended questions, 'What do you think of the role of other stakeholders' and 'what was the most effective/less practical way to communicate with other stakeholders in Tianjin Eco-city?' instead of 'Is it possible to deal with the key obstacles of delivering Eco-city programme by adopting a collaborative and communicative approach in Tianjin?'. In general, the questions were formulated to explore the rationality of collaborative and communicative planning by examining the actual development and existing practice. The unstructured questions, as an essential part of semi-structured interviews, provided flexibility which allowed responses to become more diverse and specific. The semi-structured interview strategy also allows interviewees to answer questions other than those thought of by the author (Mason; 2002).

With reference to language issues; a majority of interviews were conducted in Mandarin, which allowed the author to discuss issues with the interviewees without any barriers of language. Moreover, the structured questions were naturally phrased with plain language, in order to set up a basis for interviewees to formulate their opinions of the actual development and keep the answers relevant.

5.5. Evaluation of Findings

All interview recordings were transcribed in Chinese before analysis, including the interruptions and words of both the interviewer and the interviewees. A number of statements were not translated in the usual/common manner of English since the data was directly translated from Chinese, that is, verbatim translation, to avoid changing the original opinion of the interviewees. The responses of interviewees used were not reproduced, which could avoid adding exact meanings against responses of interviewees (Magnusson and Marecek, 2015).

Discourse analysis was employed as the method of evaluating the data produced in this

study. Jorgensen and Phillips (2002: 2) argued that discourse analysis can be applied to explore “the role of language use in broad societal and cultural developments”. This research attempted to link language use, oral communication, and other patterns of communicative activities with the delivery of eco-cities in China. Moreover, the relationship between planning practice and collaborative and communicative planning were examined by gaining insights into the power behind the language or communicative rationality. Thus, it was considered to be appropriate to use discourse analysis as the method by which to assess the role of communicative activities during the delivery of eco-city projects in China.

Selective coding was adopted as the coding method in this research. The conceptual framework established five key themes of coding; political, economic, cultural, environmental, and collaboration and communication. These became the five boxes of collecting files of the testimony of interviewees. The themes of the files may be in line with the key issues highlighted in the literature review, but they may also raise new issues. An axial coding method can lead to in-depth reflection on the key themes and their relationships with data (Feng, 2013). Moreover, Feng (2013) suggests that it helps in the exploration of new problems in the field of key themes.

All testimony in the discourse analysis was then divided into files. The topic of the file was generated by combing the different perspectives/angles of interviewees. Figure 5.5 illustrates the approach of coding, as well as the relationship between data, files/key issues, and box/key themes. “As you work through a file of excerpts, you will probably notice that some elements occur many times” (Magnusson and Marecek, 2015: 92). Therefore, the importance of topics highlighted in this research could be reinforced by quoting the responses given by different interviewees.



Figure 5.6 The approach of coding and data classification

In this study, the issues of delivering eco-city projects were synthesised by referring to the four key features of the communicative approach (*where, when, who, and how*) raised in CAT and CP. Based on the synthesised deficiencies that exist in the Chinese eco-cities, this study provided a series of recommendations to guide the process of problem-solving. Finally, a framework of Communicative and Collaborative Eco-city Planning was established by combining the key notions of communicative rationality and the recommendations. It is suggested that greater progress in achieving collaborative and communicative planning could be achieved by providing greater inclusivity and further opportunities for stakeholders in the process of decision-making, implementation, and monitoring.

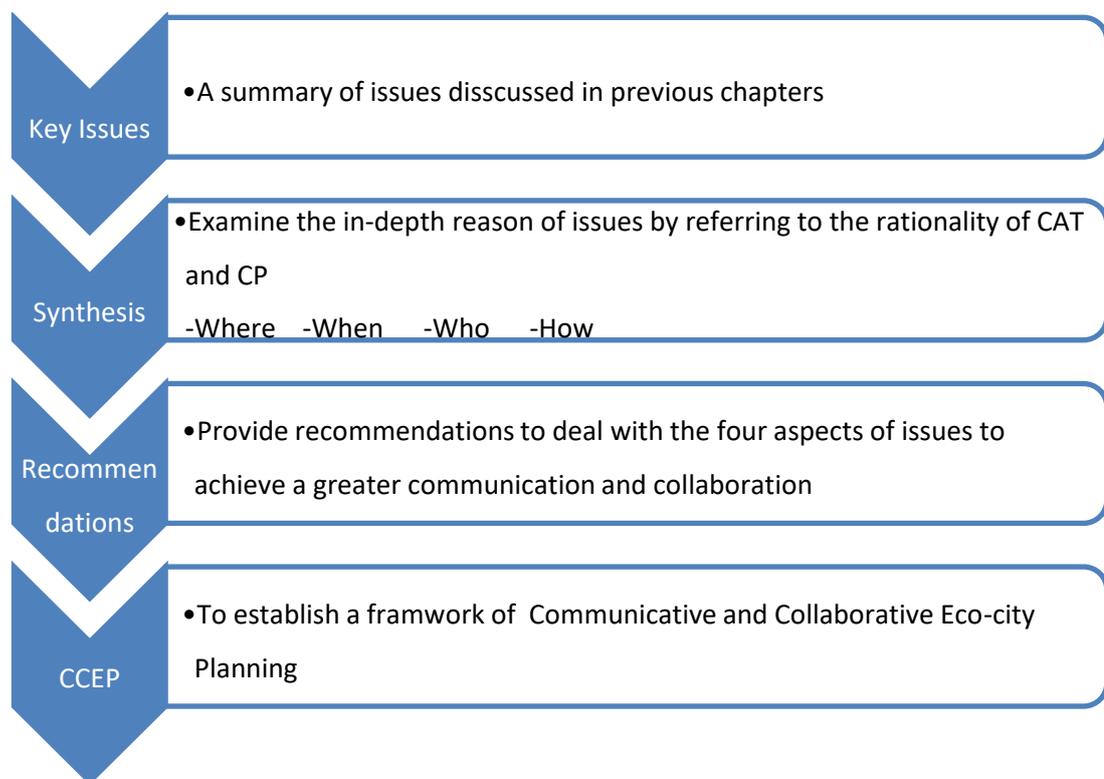


Figure 5.7 The Approach of Problem Processing

5.6. Conclusion

Chapter Five has illustrated the plan of research, the methods of data collection, and the strategy of data analysis. It first illustrated the rationality of employing a case study approach. The research was conducted through a case study strategy based on two cases, Sino-Singapore Tianjin Eco-city and Shanghai Dongtan Eco-city. Cases were selected according to the statements contained within the respective eco-city projects with regards to location, reputation, ecological principles, developers, and other socio-political factors.

This research adopted a three-way method of data collection, including secondary data, interview data, and on-site observation data. The documentary analysis provided evidence by which to frame the focus of the interview questions. Semi-structured interviews were employed as the major method of data collection. This research interviewed 10 persons directly involved in the delivery of Tianjin Eco-city or/and Dongtan Eco-city in respect of local government, planning professionals, and developers. The participants of Tianjin Eco-city were more willing to engage. Dongtan Eco-city was a sensitive topic for interviewees in Shanghai. Through on-site observation the researcher gained direct data on the delivery of both Eco-cities and this provided him with a triangulated understanding of the issues practitioners are facing in the delivery of eco-city programmes, and well as the potential issues that could hamper future development.

Finally, it illustrated the methods of evaluating the data. Discourse analysis was utilised in this study to directly interpret the viewpoints of the interviewees. In addition, quote analysis helped the researcher to synthesise the key issues that occurred in the actual developments in Tianjin and Shanghai. These are presented followed with the evaluation framework of eco-city projects in next two chapters.

Chapter 6 Case Analysis: Sino-Singapore Tianjin Eco-city (SSTEC)

6.1. Introduction

The first case study is the Sino-Singapore Tianjin Eco-city (SSTEC). Proposed as a new build city in 2008, it has had some successes and also encountered some challenges. To analyse the statement of the Tianjin Eco-city programme, data was categorized into five dimensions based on the conceptual framework of evaluating the development of eco-city established in the literature review (Chapter 3.6). Key notions in each dimension were generated based on the suggestions of interviewees who were, or are, working in the Tianjin Eco-city.

6.2. The performance of Tianjin Eco-city

This section illustrates the challenges and experiences of developing the Tianjin Eco-city by quoting the statements of interviewees directly.

6.2.1. The political performance of the Sino-Singapore Tianjin Eco-city

Based on the interviews in Tianjin Eco-city, it was noticed that political performance can be seen in three aspects of the eco-city: planning and decision-making, implementation and construction, and monitoring and assessment.

Planning and decision-making

In terms of planning and decision-making; interviewees mentioned the following points frequently: the importance of the composition and professionalism of members of the decision-making team, powers in decision-making, and the purpose of planning. It was noticed that the government officers in Tianjin Eco-city Administrative Committee (SSTEAC) were all assigned by the upper-level municipal government, Tianjin Municipal Government, at the initial stage of the Tianjin Eco-city programme. Based on the requirements of an eco-city development, the background and professional skills of the staff could not provide sufficient support for the practical work of plan making. However, local researchers and planners were barely involved in the initial decision-making and planning work in SSTEC. According to the statement of Officer L from the eco-city committee, the SSTEAC was established by Tianjin Municipal Government immediately after New Year's Day 2008. Most of the staff were transferred from the Tianjin Municipal Government. Officer L stated that

he did not have any planning background and skills ('knew nothing about planning' as he stated) before joining the planning team. D, as a member of research group of Tianjin Eco-city Indicator System³, also stated that officers in Tianjin did not have planning background, but learnt from academics and scholars: *"Just like Tubalu⁴, learning by doing"* (Interview IV, 2015). As a programme motivated by national government, the planning work of the Tianjin Eco-city was informed through national planning institutes and thus showed little confidence in the local professionals. For example:

"The Master Plan of Tianjin Eco-city was established by China Academy of Urban Planning and Design (CAUPD), as well as Tsinghua University, the top planning institutes in China. We did not participate in the planning work in the first stage"
Professor C, from the University of Tianjin (Interview II, 2015).

It was also stated in the Master Plan that the planning consultant team consisted of CAUPD, Tianjin Urban Planning and Design Institute, and the Singaporean planning team (SSTEAC, 2008b, *Chapter 1, section 1*). Professor C, as a local planning scholar with a variety of different experiences in local culture and urban design did not have an opportunity to contribute to the initial work of plan-making. The planning institutes, as C mentioned, are home to the best planning professionals in China and they could have provided a series of suggestions for eco-city development in China. However, it is noticed that the original planning team neglected the relevance of local planning professionals and their academic background in Tianjin, since there was an absence of local planning professional involvement in the strategic planning.

People who could contribute to the final decision were the key persons from government. The Head of the Government and Authority plays the most essential role in the implementation of planning. According to T, a Singaporean planner who was involved in the preparation work for Tianjin Eco-city, political status in China has a certain similarity with Singapore in the 1960s; planning work was dominated by one political party. Additionally, there has to be political leadership to lead and drive the process of the planning programme.

³ Tianjin Eco-city Indicator System: A system indicates the criterion of development in environmental, social, economic, and regional collaboration dimensions (Research Group of Sino-Singapore Tianjin Eco-city Indicator System, 2010).

⁴ *Tubalu*: a nick name of irregular Chinese Army in World War II. Soldiers in the troops are untrained and coded but led by the Communist Party. *Tubalu* is relatively good at learning from battle. (Edited by Author)

“Like the role of Lee Kuan Yew⁵ in Singapore. We cannot expect that there is always a person like him” announced T (interview III, 2015). As the statement of Professor C suggested, it is a process of top-down governance where government leaders have the power to choose one planning proposal from a number of options. Professor C also claimed that a change of personnel is needed if plans are to be adopted, as to *“communication with the chairman of SSTEAC instead of the specific planning department could be the most important mechanism to adopt a new planning proposal”*. Generally, the eco-city planning system, and the broader Chinese planning system contains a problem that individuals, instead of legislative systems, have significant influence on decision-making.

It was stated that the purpose of planning, including the building of eco-cities, relates to *‘vanity projects’* (Interview II, 2015) instead of being primarily motivated by a desire to build sustainable eco-cities. Tianjin Eco-city is known as a programme that was undertaken through collaboration between the Chinese and Singaporean governments. However, there was a different story in the initial stage of the eco-city proposal, as stated by D: *“the Eco-city programme was proposed by central government”* (Interview IV, 2015). Yet, in a statement from L, it was alleged that the Chinese government was convinced by the Singaporeans, who showed great confidence in building Eco-city on a barren place in Tianjin, by state proposing:

“In fact, Singaporean was trying to copy the success of Singapore to Tianjin. That is too arrogant, since every city is unique with own characters.” criticised by T, as a view of Singaporean (Interview III, 2015).

At the beginning of the plan making process, several places submitted proposals for the eco-city programme. The proposal put forward for Tianjin was originally located in a barren area (*‘a saline and alkaline land’* in the opinion of L, 2015) (Figure 6.1). This resulted in much criticism from the Singaporeans. Afterwards, the Singaporeans showed their willingness to overcome the challenges in Tianjin, as Singapore is also a place without various natural resources. D discussed this point stating that

“Tianjin was chosen by the Singaporeans because the land in Tianjin was poorest (compared with other proposed areas)” (Interview IV, 2015), which means it could be a

⁵ Lee Kuan Yew: (1923-2015) Singapore’s founding leader, prime minister of Singapore from 1959 to 1990 (edited by Author)

good place to demonstrate the ideas, or ambitions, of Singaporean developers.



Figure 6.1 The original condition of land for Tianjin Eco-city.

(Recourses: SSTEAC, 2013)

D enlarged upon the reasons as to why the Singaporeans accepted the eco-city programme being built in Tianjin. They stated that

“Although it was a place under poor condition, the Singaporeans have the ownership of a place for building villas within the Tianjin Eco-city” (Interview IV, 2015).

Additionally, before the Tianjin Eco-city proposal, the Singaporeans tried to develop an industrial park in Suzhou⁶. D stated:

“Singaporean quit the programme of Suzhou Industrial Park without making profits. But Chinese people made profits afterwards (after Singaporean left Suzhou)” (Interview IV, 2015).

Therefore, it was anticipated that the Tianjin Eco-City would become a programme through which to demonstrate the business ambitions of the Singaporeans. Furthermore, Professor

⁶ Suzhou Industrial Park, or China-Singapore Suzhou Industrial Park (SIP). Aiming to build a competitive hi-tech industrial park, it is a pilot zone of international cooperation between China and Singapore since 1994 (SIPAC, 2016).

C commented on transportation planning. It was originally proposed that there should be a huge overhead transportation platform with vehicle roads and pedestrian walkways; a model inspired by the ideas of Le Corbusier. However, as discussed by C, *“It became a vanity project of building the first three-dimensional transportation system in the world. However, the idea of transportation system was not adopted”* (Interview II, 2015). In China, eco-cities are not only motivated by political purposes, they may also be motivated by business. T was critical of a real estate developer from Kunming who wanted to develop an ecological smart city near to Kunming Airport. T commented that: *“He is keen on using the name of Eco-city without having any ideas of what Eco-city is”* (Interview III, 2015).

In general, and compared with ordinary cities, the construction of an eco-city significantly promotes the physical environment of an urban area by building green infrastructure. This helps to increase the prices of properties within eco-cities. The name Eco-city symbolises a well-developed environment in China. As a brand, “Eco-city” has become a means to improve the reputation of government and/or make a profit. The programme could bring benefits for each stakeholder and this could help to bring everyone involved together. However, there is also abuse of the title ‘Eco-city’. It has been used in schemes that have not had sufficient green facilities or infrastructures.

Implementation and construction

Having discussed the decision-making process in the Tianjin Eco-city, the reasons behind the less than effective implementation and construction of the plan need to be analysed. Two aspects are highlighted; the executive force of adopting planning, and planning documents. It was noticed that planning was not implemented after extensive stakeholder participation within the Eco-city, but by the leader. The status of implementation, namely, executive force, is an indicator of how collaboration between different stakeholders performs during planning work. An issue focused upon at this stage is the inefficient implementation of planning as a result of insufficient communication and collaboration between relevant departments, as noted by C, *“There is a certain conflict between decision makers from different departments”* (Interview II, 2015).

Professor C also stated that the light rail system in the Tianjin Eco-city is hampered by a lack of departmental cooperation. In fact, the light rail system had reached only a few kilometres beyond the Eco-city before the proposal for the Eco-city was developed; it could have been

extended further in the 7 years of development since the Eco-city started (Interview II, 2015). When it comes to the local authority, Officer L argued that there is a plan in place for the delivery of better transportation in the Eco-city. However, issues pertaining to land use and difficulties in the implementation of planning are problems as the latter is conducted by two upper-level departments, MLR and MOHURD⁷. Unfortunately, this limits communication between government officers as it is based on a single annual meeting between the Beijing and Singapore government, as well as a few seasonal meetings between SSTEAC and the Singapore Ministry of National Development (MND). Effective communication could, therefore, not be established and this has negatively impacted the progress of actual work at the local level. Furthermore, as the local authority SSTEAC has to show greater confidence in conquering the barrier of land use for delivering new projects. As L noted, they met difficulties when communicating with MLR and MOHURD: *“I’m not telling that it is ‘an issue’, but there is a difficulty (of communicating with the upper-level government) indeed”* (Interview I, 2015). It seems that the local authority has worries about providing negative comments on the upper level government and criticising the challenges that surround the issue of communication.

Due to the decreased efficiency of communication between MLR and MOHURD, SSTEAC could try to draw more attention from the officers of the two ministries in the hope that they will address the challenges that occurred with regard to land use. It is suggested that the local authority could play the role of a gatekeeper to facilitate communication between the officers of the two ministries in practice.

During the implementation process, it became clear that there is/was less flexibility in planning. Due to the Chinese planning system, land use in planning documents cannot be changed readily after the License of Land Use has been granted. L said that land use is required to be stated in the application for the license in China. Moreover, officer L claimed that, due to limited knowledge, planners met difficulties in estimating land use requirements in advance. Consequently,

“Such as a place, (it is) proposed to build a residential area in blueprints, but required to

⁷ MLR, Ministry of Land and Resources, take the responsibility of permitting the license for the land use and construction.

MOHURD, Ministry of Housing and Urban-Rural Development, play of role of proving the planning for the land use.

be a commercial area based on the actual development” said L (Interview I, 2015).

Compared with other stakeholders in the Tianjin Eco-city, the Singaporeans looked at the scale and place of the land rather than stating the details of land use in the Master Plan, as announced by L,

“According to the process of plan-making in Singapore, they (Singaporean planners and decision-makers) paid less attention on land use (of specific sites) in the stage of Master Plan, like the strategic planning in China” (Interview I, 2015).

Under existing conditions of development, land use is more flexible and complex than the divisions of land use based on the theories and practices of traditional planning in China. As Sun and Peng (2010) note, the three major functions of land use are: residential, industrial, and commercial. These three uses cover most parts of land use as discussed in the Master Plan. T extended this point by stating that the scale of blocks in China is bigger, relatively, than those in Singapore, and that each block has only one single dominant function. There is less concern as to the accessibility and permeability of the block. This brings negative impacts to bear on the service area of public services as well as to commercial facilities. Some reasonable requirements of local residences and businesses such as, a grocery store, a supermarket, or a gym, could not be fulfilled, and such issues may, in fact, be made worse by adopting planning. Planning, therefore, appears to be less flexible in its ability to cope with the changing requirements of a development. Fortunately, new methods of land development have been conceived and brought forward in the 11th National Five Year Plan, which, in turn, guides local planning making processes. It is proposed that the development of land can be divided into four classifications based on the development intensity. Namely, Promotion Area, Expanding Area, Limited Area, and Protection Area (Sun and Peng, 2010). However, it is suggested that the proposals of land development should be adopted in some pilot areas for analysing the feasibility instead of staying merely ‘on the drawing board’. Monitoring and assessment is an essential component of the work undertaken by local authorities. Compared with the monitoring of ordinary cities, Eco-cities require CP to be assessed against the operation and development of the given eco-city’s essential targets. Given the suggestions of IEN Consultants, T argued that Chinese eco-cities have to establish an annual assessment system for the delivery of infrastructure if they are to keep their respective eco-city in line with its original vision. T, as a Singaporean planner, also suggested that the green license for an eco-city would only be renewed based on the annual

assessment carried out in Singapore. In contrast, L, who was from the local authority noted the difficulties that the local authority faced when trying to evaluate ecological efficiency in China, by asking:

“How do we cope with it? Demolish it or fine for the extra parts? It (Demolition or Penalty) is not the initial purpose of the policy(-makers) (because the inappropriate architecture already brought negative impact on the urban environment)” (Interview I, 2015).

A bonus system, as a common way of rewarding developers in Chinese cities, was adopted to encourage developers to achieve high standards in green buildings⁸. The bonus extra plot ratio⁹ would be rewarded according to the outcome of the evaluation of the planning proposals. However, problems arose because there was a gap between actual construction and the proposals with regard to the ecological standards attained. Meanwhile, extra buildings have already been constructed under the bonus system. In general, effective methods and assessment systems are required to support monitoring because of the policy failures that have occurred in the eco-cities.

Monitoring and assessment

Despite the limited success of the development of an effective monitoring policy, there is also concern that monitoring has become a process that occurs without the active participation of either the public or other stakeholders. Although it is specified in legislation that planning proposals should be publicly displayed after peer review, according to C, it is difficult for planning documents to be accessed by the public or scholars after the public notification period or even within the period, as *“Based on my experiences, planning documents and blueprints are immediately approved after peer review”*. (Interview II, 2015). Professor C also criticised the local authority for not being willing to announce planning proposals for public assessment, or accepting the feedback that they received from the public. Officer L argued that the purpose of public participation could not be fulfilled since there is a conflict between the interests of the government and those of the public. L stated

⁸ The standard of green buildings divides to three levels, 1, 2, and 3 stars, namely, minimum standard, average standard, and maximum standard (Interview I, 2015).

⁹ According to the Chinese planning legislation system, plot ratio of construction should follow the criterion set up in the Regulatory Detailed Planning: planning documents focusing on the urban detailed plan and zoning code with legal validity (Yin & Yang, 2014).

that: *'People who only have short-term interests will not care what we want to do'* (Interview I, 2015). Based on the commentary of L, local authorities may pay greater attention to the long-term visions of eco-city development, whilst the public may focus more on short-term interests. With regard to issues of public interest, T suggested that the data collected from public consultation is essential for planning an eco-city, as *"This information directly reflects the requirements of the residences"* (Interview III, 2015). Moreover, to achieve effective governance, extensive research focusing on public interest should be undertaken to provide quantitative and qualitative data that can support the process of decision-making. This is critical since the activities of local residents reflect the development of any given eco-city.

6.2.2. The economic performance of the Sino-Singapore Tianjin Eco-city

The establishment of a self-sustaining economy is one of the essential principles of the development of an Eco-city. In this section, the economic performance of Tianjin Eco-city is evaluated with regard to two specific aspects: industries in the region, and investment and returns.

Developing industries in the region

In terms of economic development, Tianjin Eco-city witnessed a series of challenges when it attempted to attract capital, maintain investment, and diversify. The development of an eco-city cannot deny the function of industries which underpin the local employment market and provide the bulk of revenue which supports the local economy. Local authorities need to attract capital to support local economic development. According to the statement of L, at the beginning of Tianjin Eco-city development no companies chose the eco-city as a result of a lack of basic business infrastructure. Indeed, industries prefer to migrate to areas with mature supply chains or a developed environment rather than newly built areas. On the other hand, L stated that *"the majority of revenue comes from the real estate construction and the sale of land in the first couple of years of Eco-city development"* (Interview I, 2015). Professor C criticised the fact that a number of residential spaces were proposed to be built for investment return, stating: *"an excess of 14,000,000 m² of residential space were proposed (to be built) within the eco-city (30 km²)"* (Interview II, 2015). D extended this view noting that it is an unsustainable process of economic development to rely on real estate and land sale even if it brings initial windfall profits.

Consequently, the Chinese government made profits from selling land and real estate development rather than conquering the difficulties associated with attracting investment. Moreover, real estate companies invest in moving teams of sales and construction agents to the area instead of contributing to the local job market. Furthermore, the economy and industries may be less considered at the initial stage, as stated by D:

“Actually, the first version of the criterion of Tianjin Eco-city did not indicate the vision of economic development, which hampers the delivery of local industries. The criteria of developing industries were added in the planning documents in 2012” (Interview IV, 2015).

D also commented that the Tianjin Eco-city should provide more support (‘soil’ as interpreted by D, (interview IV, 2015)) to small companies and help these companies to grow stronger. Furthermore, if local authorities paid greater attention to short term interests they might not be able to achieve the long-term development of local industries. Moreover, attracting mature or big companies from other cities to the given eco-city is unpractical. As suggested by D,

“Companies will feel grateful to the local government and area where they grow strong. Also they would suffer unpredictable risks by moving to new places” (Interview IV, 2015).

It is inevitable that attracting these industries becomes increasing difficult as it is neither sustainable nor economical for them to choose a brand new urban area that has an undeveloped business infrastructure and lacks a positive environment.

Additionally, T suggested that there is already a mature industrial park near Tianjin Eco-city: TEDA MSD¹⁰, which draws in business investment. In addition to TEDA MSD, there are other business centres and industrial parks such as Yujiabao Business District, Xiangluowan, and Jiefang Road and Tianjin Business District, within the Binhai New District, within the upper level government area of the Tianjin Eco-city (TEDA, 2015). Getting insights from the Strategic Planning of Binhai New District (Figure 6.2), Tianjin Eco-city was located near a central business district which focused on the development of commerce and business.

¹⁰ TEDA MSD: TEDA Modern Service District, including more than 20 business buildings (1,340,000 sq metres), plays a role of commerce for international trade in the Tianjin Binhai New District (TEDA, 2015)

Moreover, there are certain areas adjoining or near to the eco-city which, it has been proposed, should focus on various specific industries. The economy of Tianjin Eco-city should be developed with a view to coordinating with other areas in the region (SSTEAC, 2008b, *Chapter 5, section 1.3*). The role of the Tianjin Eco-city has, therefore, to be scrutinised as it is not planned to be a business or industrial district, but a district for tourism, exhibition industry and hi-tech ecological industry at the strategic level (BH, 2015). To promote local industries it is important e for SSTEAC to maximise the advantages of the eco-city and help the Tianjin Eco-city remain competitive especially when it is faced with the challenges that arise through the adoption of a new strategic planning in the Binhai New District. L argued that SSTEAC had a plan to facilitate the development of the above industries and develop relationships with additional technical innovation companies, technical research institutes, and new energy and resources industries. Nevertheless, C stated there is only one animation cultural industry established in Tianjin Eco-city after 7 years of development.

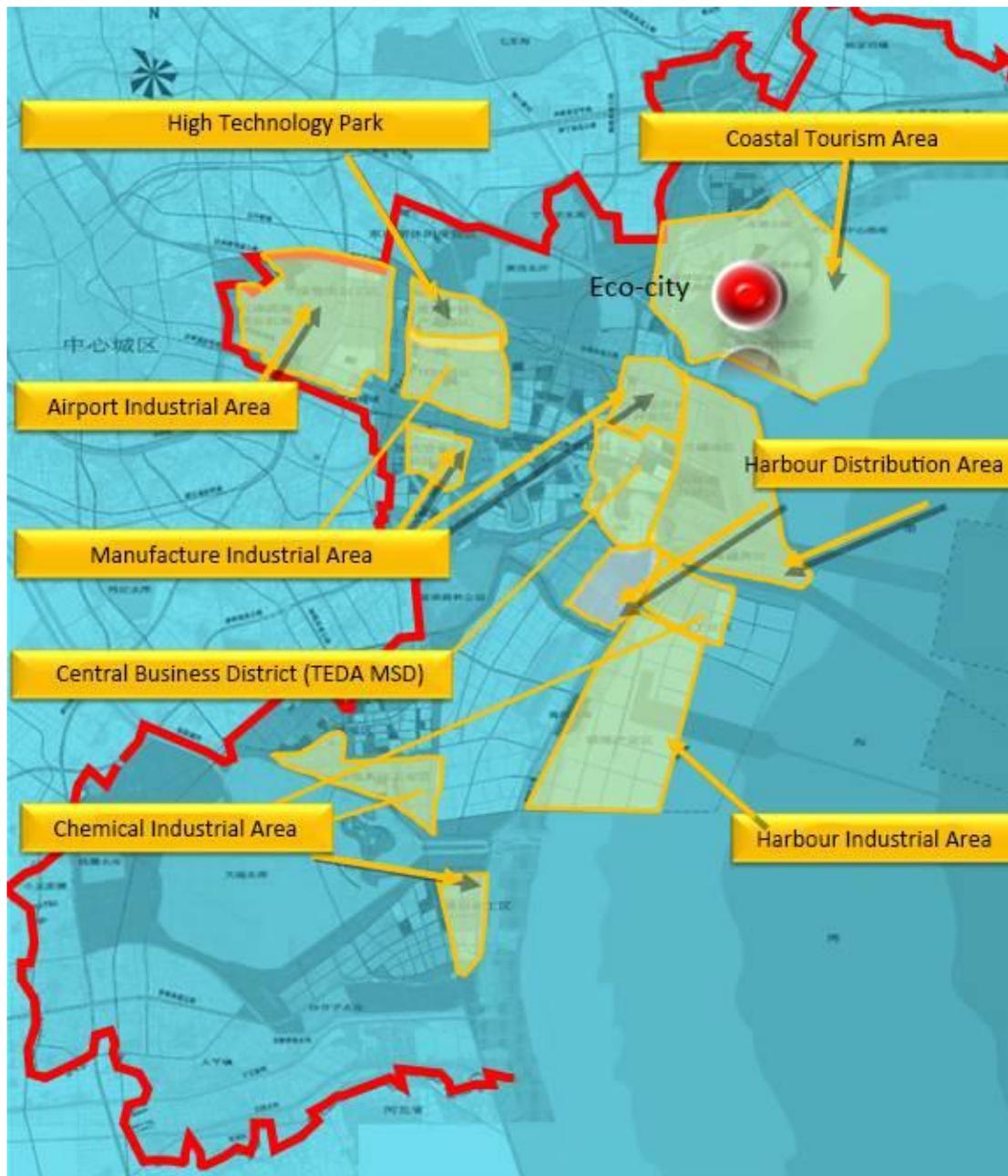


Figure 6.2 Strategic Development of Binhai New District

(Resource: *Tianjin Municipal Government, 2005b; People, 2015*, Edited by Author)

Additionally, SSTEAC has a plan of developing educational industries in the eco-city. As stated by L, it is planned to build a university park, including a medical school, a cooperative university with Columbia University (USA) and other educational infrastructures. C extended this point stating that the local authority has tried to invest in primary schools and middle schools such as the 2nd Nankai primary school. Nevertheless, he insisted that it would be difficult to attract higher education institutions into the eco-city due to the lack of supportive public transport. Based on my own investigatory field trip to Tianjin, it is concluded that it is not convenient for a student to access Tianjin Eco-city by public

transport. In fact, it takes more than an hour to travel from the Binhai New District to the Tianjin Eco-city by public transport (about 13 Km). In contrast, it takes only an hour to travel from Tianjin downtown to Binhai New District by public transport (about 52 km). Therefore, it is necessary for the local authority to show a greater willingness to promote an effective transport system if it is to attract education industries as well as other enterprises to the eco-city.

Investment and returns

To develop methods for maintaining investment in eco-cities, it is necessary to analyse the motivation of investment and profits. In Tianjin, the motivation of a number of investors was tax avoidance. According to the statement of L, the Tianjin Eco-city set up an attractive investment package focused primarily on refunding the investment made after 3 years. Although L announced that local authorities provided investors with the prospect of investing in the vision of eco-city development, D, a CEO of a planning consultancy, suggested that

“the industrial policies were set up to alleviate burdens of tax for companies, however, a number of well-run companies would not mind the tax policy (which provides limited discounts)” (Interview IV, 2015).

He also directly criticised those investors who choose eco-cities for tax funding reasons and withdrew their investments after 3 years. Unfortunately, it was difficult to verify the diverse motivations of local authorities in the initial stage of development.

In addition, local authorities should try to target companies with the advantages and resources to fund and support eco-cities. Getting insights from the diversification that exists within the field of finance¹¹, it would be beneficial for local government to encourage a variety of companies to develop their operations in an eco-city. According to L, local authorities aimed to attract various enterprises, however, the target enterprises were mainly large companies. For instance, an A-share listed video company. Having discussed strategic planning previously, D stated that it appears to be relatively impractical for the Tianjin Eco-city to contain a large number of big enterprises and industries. He commented:

¹¹ Diversification in finance: investing on various assets to reduce non-systematic risk (Sullivan & Steven, 2003).

“Big companies would face a bulk of issues during the breaking-in period if they tend to move in the Eco-city, which is very risky. Big companies may bring more profits, but bring bigger risks as well. Some big companies were bankrupt unexpectedly in nowadays” (Interview IV, 2015).

In other words, there are bigger risks for the local economies if they rely on one or two big companies compared to if they develop an eco-city which is home to a greater number of small and medium-sized enterprises (SMSEs). Furthermore, D claimed that local authorities could meet difficulties when evaluating the operating conditions of big companies in advance. The local economy, and especially that of an eco-city in its initial development stage, would suffer increasing risks through the involvement of any big company. The system of permitting companies to register in an eco-city should not only evaluate the amount of financial investment that they will make, but also the contribution that the firm would make to the local economy, for instance through creating jobs for local residents. Such an evaluation would strengthen the relationships between the companies and local economic development especially if the companies have local employees, local fixed assets, and financial relationships with local banks. With better established relationships, there are more reasons that can be provided to investors to encourage them to stay and undertake long term developments in an eco-city.

Additionally, according to national policy, a package of supportive policies for SMSEs, including tax breaks, bank loans, and special funding, was launched in 2016 (SME, 2014). D supported the development of SMSEs by stating:

“It is necessary to grow local small and medium-sized enterprises rather simply bring big companies into the Eco-city. The policy and local market should be provided for some target enterprises which could not be big, but should be suitable to stay in the Eco-city” (Interview IV, 2015).

He argued that although big companies are used to monopolising markets and human resources, the national government has provided more support and resources for SMSEs in recent years. Generally, it is considered to be a good time for confronting the challenges that exist in the development of local industries since the feasibility of developing SMSEs is being supported and manifested in political and academic dimensions.

6.2.3. The cultural performance of the Sino-Singapore Tianjin Eco-city

The culture of a city includes, according to C, *“the unique urban atmosphere, cultural public service facilities, ocean culture, local folk-customs, and local products”* (Interview II, 2015). Paying attention to culture is essential for keeping the unique local characters of a city, as stated by D, *“Culture is the soul of a city”* (Interview IV, 2015). This section examines the willingness of stakeholders to protect local culture, i.e. original neighbourhood, customs, and other tangible and intangible local features, by analysing the academic study of local culture, local traditional culture, and cultural appropriation.

Academic study of local culture

As discussed previously (Chapter 6.2.1), local government shows less confidence when it comes to trusting local professionals. Moreover, because of the decreased level of involvement of local professions, there is less concern as to the exploration and adoption of local culture. Indeed, local authorities have a notable lack of consideration for local culture – only inviting local professions to join in with the process of planning work at a late juncture. As C noted,

“After the (approval of) Master Plan (by Tianjin Municipal Government), we were invited to make a plan of ecological culture of Tianjin Eco-city, which is not an essential part of Plan-making” (Interview II, 2015).

Although culture was noted to be a part of eco-city development, there are still only a limited number of local cultural resources and collaborations to underpin research into the effect of culture. According to the interview with officer L, less emphasis was paid to the cultural dimension, because *“There were originally only two local villages in the Tianjin Eco-city, which are demolished eventually”* (Interview I, 2015).

However, based on interviews with scholars and planners, there is still a certain culture worth exploring. C showed interest in developing the local cultural conservation areas of the two villages to provide a memorable place of original culture for local residents and migrants by stating:

“Compared with the heritage conservation in Western countries, it is more difficult to maintain the buildings of both villages (for political and cultural reasons). Although both villages were (demolished for the reason of) the poor condition of the buildings,

the buildings are still the symbols of original residents” (Interview II, 2015)

Moreover, according to the Master Plan of Tianjin Eco-city, both the villages of *Qingtuozi* and *Wuqi*, including the road system and historic landscape, need to be conserved (SSTEAC, 2008b, *chapter 11, section 2.4.2*). Unfortunately, the two villages were not preserved. The planning was rejected, or changed, to a large extent, as stated by C: *“Local authority has only built the Ecological Valley¹² with some historic sculptures, which are proposed in the culture planning.”* (Interview II, 2015). C also explained the reason why it is a loss that Tianjin Eco-city demolished the two buildings, stating:

“The function of the two buildings is same as the salt culture, what the Eco-city lacks the most – the opportunity to experience the original life and culture of local residents. It’s gone.” (Interview II, 2015).

Local traditional culture

Research and plan-making in the cultural dimension experience difficulties in the face of the different interests that exist between planners and government officers, as stated by C: *“The process of cultural research did not go so well and eventually finished hastily”* (Interview II, 2015). In fact, Tianjin Eco-city, as a coastal city, has a culture that is related to fishing, the maritime industry, and coastal defence heritage to a large extent (Figure 6.3). The culture in Tianjin Eco-city was recognised as a part of the culture of the wider region, namely *Hangu* and *Tanggu*, and this is derived from the *Qing Dynasty* (SSTEAC, 2008b, *Chapter 11, section 2.6.1*). It would be easier, therefore, to conduct the research within a broader area, for instance, the Binhai New District (which comprises Hangu, Tanggu, and Dagang after the adjustment of administrative division in 2009). As C’s statement indicates, since Tianjin Eco-city is located within the Binhai New District, which is also a coastal city, there is some local culture, such as a maritime heritage, ocean-folk customs, and salt culture.¹³ However, the local authority considered seeking something unique in the Tianjin Eco-city, as C stated, *“They [the local authority] intended to avoid outside culture to intrude into the planning of local culture”* (Interview II, 2015).

¹² Ecological Valley, the name of a park in the Tianjin Eco-city (edited by author).

¹³ Salt culture: according to C’s interpretation, salt culture is derived from a traditional salt industry, for instance, obtaining salt by evaporating brine (Interview II, 2015).



A. Caijiapu Fishing Port



D. Shell Bank



B. Ancient Cannon of the Chengtougou Fort



C. Remains of the Chengtougou Fort, built in 1840



F. Oyster Reef

Figure 6.3 The tourism resources, fishing industry, and heritage in or near Tianjin Eco-city

(Sources: SSTEAC, 2013)

Indeed, there is a limited unique local culture to be explored in Tianjin Eco-city. The culture related to the ocean could be similar to that of counterpart areas nearby. In order to make the local culture more distinguishable, it would be better to appropriate and develop the similar culture of neighbouring areas.

Cultural appropriation

With regard to strategic planning in Binhai New District, Tianjin Eco-city was planned to develop tourism and the exhibition and convention industries. Compared to other places that focused on large-scale industries, Tianjin Eco-city has the potential to play a role in exhibiting the culture of the whole of Binhai New District, including salt culture, harbour culture, and other navigation-related cultures, instead of being limited to solely a local culture. Especially after the planning documents were published in 2014, the Coastal Tourism Area (100 Km²), to the east of Tianjin Eco-city, became one of the areas under the operation of SSTEAC (Yu, 2015) (Figure 6.4).

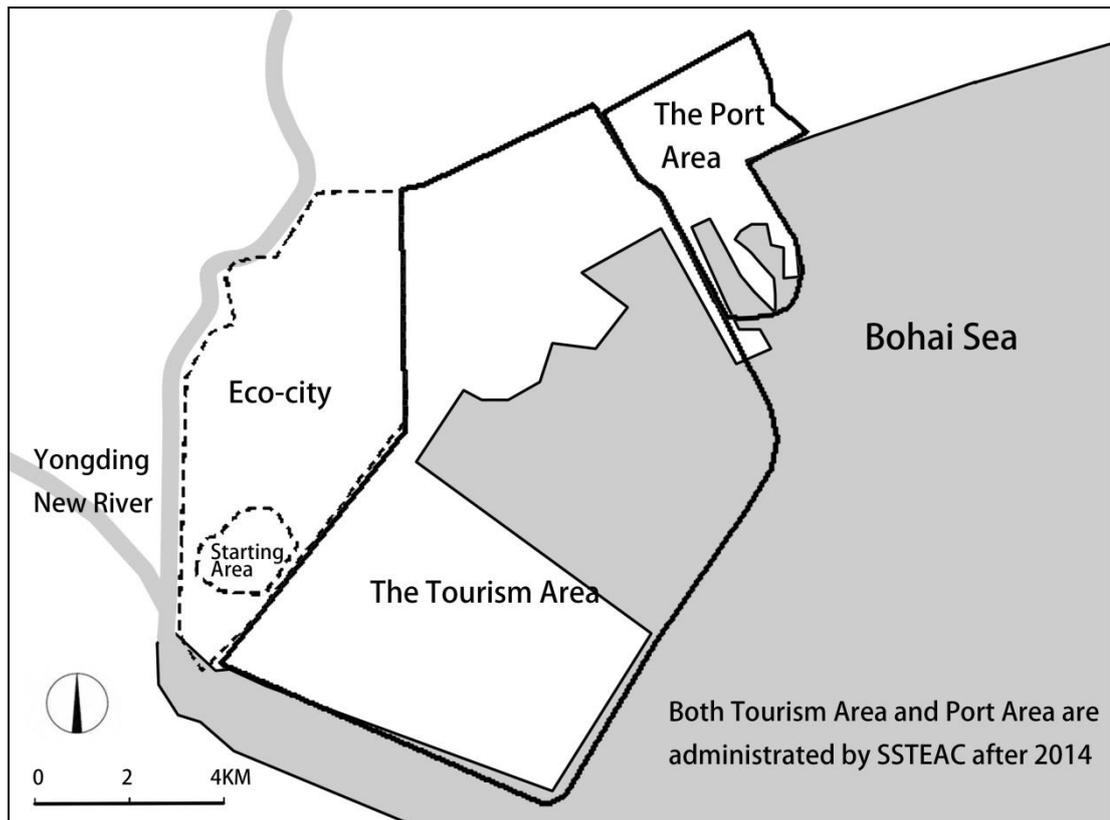


Figure 6.4 The adjustment of administrative division of Tianjin Eco-city in 2014

(Sources: *Tianjin Daily*, 2009; *Tianjin Municipal Government*, 2005b, *Baidu Map*, 2017a, map edited by author)

According to L, the new administrative district of SSTEAC contains the original Tianjin Eco-city, the Coastal Tourism Area and a fishing port area. Therefore, the Eco-city will take greater responsibility for developing tourism based on the local resources of the ocean and the harbour. Under the context of modified planning, therefore, it becomes more important to appropriate and integrate the culture of Binhai New District rather than just focus on the culture within Tianjin Eco-city.

6.2.4. The environmental performance of the Sino-Singapore Tianjin Eco-city

In Tianjin Eco-city, significant attention was paid to the promotion of the environment and green infrastructure. As C stated, a large amount of investment (200 to 300 billion CNY, or 20 to 30 billion GBP), was made in the field of delivering local infrastructure, including green facilities (Interview II, 2015). The willingness of local government to develop green infrastructure can be inferred from D's statement

"In the view of the local authority, companies would be attracted if they promote the

physical environment.”

Although the green infrastructure and techniques has been built in Tianjin Eco-city, there is limited measure dealing with the extreme air pollution (Figure 6.1 and Figure 6.5a, b, 6.5d). The following section presents an in-depth examination of Tianjin Eco-city’s environmental performance and the costs of environment protection, including the adoption of green technology, and the relationship between developing green infrastructure and local economy.



a.b. The green facilities in Tianjin Eco-city (Author, 2013)

c.d. Foggy days in Tianjin Eco-city (Author, 2015)

Figure 6.5 The environment in the Tianjin Eco-city

The adoption of green technology

Hi-tech green facilities and infrastructure play an essential role in achieving Tianjin’s sustainable vision. The adoption and performance of green facilities directly reflect the physical environment of Tianjin Eco-city. Along with technology development, a ‘sustainable vision’ could be achieved by acceptable methods in the future, even if such a process presently costs a great deal of money and some aspects of implementation appear to be

uneconomical. L announced that the efficiency of green facilities is a significant problem that has been discussed in Tianjin Eco-city, as well as worldwide. However, L showed confidence in the implementation of expensive green technology with the illustration of the photovoltaic system (PV) in Tianjin Eco-city. The price of installing the photovoltaic system was about 20 to 30 *yuan/watt* (2.1 to 3.1 £/watt) before 2012, which dramatically fell to 7 to 8 *yuan/watt* (0.7 to 0.8 £/watt) in 2013. L also indicated that the implementation of such green technologies was underestimated in previous planning and that it should be further promoted in the future because of cost reductions. Indeed, according to a report on photovoltaic usage, the level of production in the PV industry in China including Taiwan has significantly increased from 2009 (Figure 6.6) (Fraunhofer, 2015), which is one year after the proposal for the Tianjin Eco-city. It was suggested by C that a barrier to implementing the transportation system that is needed in the eco-city is the high cost of construction. In the statement of A¹⁴, the facilities of waste water management that were installed in the Tianjin Eco-city were not always functional due to the high cost of the electricity. In general, the adoption of hi-tech green facilities and infrastructure is not simply a technical issue, but a battle between the competing needs of environmental protection and economic efficiency.

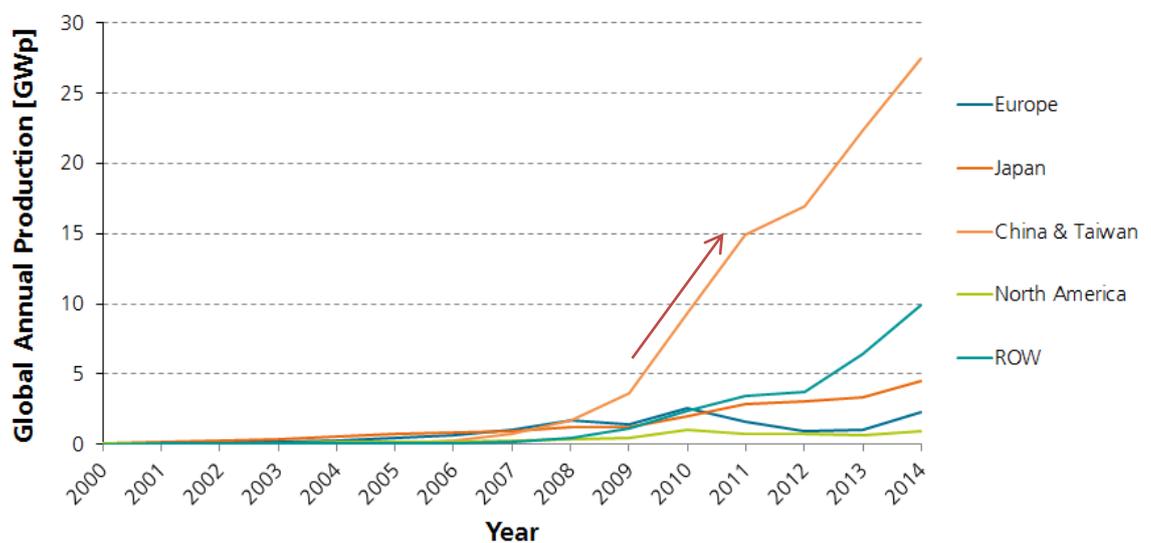


Figure 6.6 Annual Production PV Industries by Region 2000-2014

(Sources: Fraunhofer, 2015, Edited by Author)

¹⁴ A, a person takes the responsibility of the installment of waste water utility, agreed to provide some information anonymously but did not take the invitation of a formal interview.

GI development vs. Economic development

Certain green utilities are not functional due to issues of economic efficiency. Based on the criticism of T, green facilities in Tianjin, were turned off after examination because:

“It (Economic efficiency) is a common issue in both planning proposals and implementation. For instance, the models of TOD¹⁵ were set up for exhibition or political purpose” (Interview II, 2015).

Furthermore T reflected that the lack of supervisory mechanism on the maintenance of green facilities is because the local authority both builds and assesses GI. Generally, green facilities can significantly improve the physical environment whilst also benefitting the reputation of the local authority. It is necessary to set up a long-term supervisory mechanism to avoid inefficiencies developing with green facilities after their first assessment, and in order to keep the green facilities functioning thereafter. In fact, the importance of maintaining green spaces was stated in the master plan (SSTEAC, 2008b, Chapter 9, section 3.2).

The externality in economics analysed in this stage focused on the negative effects that can impact upon the environment of an eco-city. As discussed in Chapter 3.6, the vehicle industry is a pillar of Chinese economic development, but it is also responsible for a series of social and environmental problems. There is a growing argument that planning should follow the progress of using private vehicles.

“China has stepped into the age of using private vehicles for 20 years which is a very short time compared with Western countries”, claimed by L (Interview I, 2015).

T supported this view stating that it *“It is unfair to deprive the rights of owning a car for Chinese people”* (Interview III, 2015). However, China has to seek ways to reduce the negative externalities of the vehicle industry such as air pollution. Moreover, planners paid attention to the use of vehicle in the planning of road system, as stated by T,

“The traditional method of road design is to calculate the traffic flow (capacity of road), which is obviously coping with the requirement of vehicle use” (Interview III, 2015).

¹⁵ TOD, Transit-oriented development.

Although it is difficult to avoid the negative externalities of economic development, greater attention should be paid to the negative impacts of vehicle usage on the environment, since eco-cities were initially proposed to be liveable cities with specific criterion for commuting distances and carbon emissions. Certain existing vehicle technologies can reduce the harmful effects of vehicular travel but these were not mentioned by the officer in the local authority of Tianjin Eco-city. Eventually, a mechanism of environmental protection, including an assessment system, should be established to reconcile the diverse interests of different cohorts of stakeholders.

6.2.5. Communication and collaboration in the Sino-Singapore Tianjin Eco-city

To discuss the rational of CP and CAT in the Tianjin Eco-city, it is necessary to examine the merits and demerits of existing communications and collaborations between and within the four major groups of stakeholders (Chapter 4.5.2): decision makers and politicians, investors and developers, planning professions (planners and scholars), and the public and local communities. The following section first seeks to review whether CP and CAT have been adopted unwittingly. Thereafter it assesses where the process lacks communication and collaboration. Finally, the major challenges of facilitating communication and collaboration in the Eco-city are discussed.

Communicative activities in the political system

At the end of 2012 and after 4-years of development of the Tianjin Eco-city, the MOHURD identified eight pilot areas of Eco-city development in China, including Tianjin Eco-city, (MOHURD, 2013). It was anticipated that the delivery of the eight pilot areas could provide certain practical experiences of developing eco-cities to support the goal of establishing 100 green and ecological urban areas in China during the period of 12th Five Year Plan (NPC, 2011). In general, the delivery of the eight pilot areas shows the positive attitude of national government in facilitating communication and collaboration in the field of Chinese eco-city development.

In the Tianjin Eco-city, the SSTEAC played the role of local decision-maker. It is therefore important to examine the opportunities for communication and collaboration that existed between SSTEAC and other stakeholders under various scenarios. Since the Tianjin Eco-city was a programme initially developed through a collaboration between China and Singapore, there is concern as to how information is interpreted by several different levels of

government authority. As the statement of L confirms, a conference will be hold annually *“with the attendance of Vice Prime Minster from China and Singapore”* (Interview I, 2015), which focuses on the progress of development within Tianjin Eco-city. It is anticipated that the annual conference will pay more attention to development and investment at a strategic level rather than focusing on the practical work or implementation of planning in detail. On the other hand, since the Singapore government is investing in the Eco-city and are shareholders in the Eco-city, it is also the case, as T noted, that, *“The share of Singapore government investment in Tianjin Eco-city decreases from 65% to 35%”* (Interview III, 2015), and that, as a consequence, the conference *“becomes a negotiation between two countries”* (Interview I, 2015). The strategy of investing in the Eco-city may be changed based on the consensus established through the negotiations.

The SSTEAC and the Singapore Ministry of National Development (MND) takes responsibility for achieving the vision made by the upper government. L stated that meetings between SSTEAC and MND were held quarterly, *“a working meeting at the level of local government”* (Interview I, 2015). Moreover, L claims that they could not communicate with the Singapore government beyond MND. It is anticipated that the meeting is also not for assigning work in detail, since they are meetings between different groups of individuals who are concerned with different aspects of the development such as *“water management, planning making, transportation and so on”* (Interview I, 2015). However, according to L, *“Meetings between the groups were held irregularly”* (Interview I, 2015). Therefore, a clear hierarchy exists in the planning work for the Tianjin Eco-city. The departments or groups in Tianjin Eco-city have to communicate with their counterparts in Singapore. However, there is ambiguity as to how to realise the vision that has been made by national level government. Furthermore, the vision and priorities of developing an eco-city have been set up in the Master Plan and Regulatory Plan of the eco-city but there is a gap between items delivered in the plan and the actual works in the eco-city. D supported this point stating that:

“The staff of SSTEAC asked a question about how to relate each item of the plans to their practical work. But no one can answer the question immediately. Subsequently, we translated each item and priorities set up in the plan, and connected the priorities to the practical work in the SSTEAC.” (Interview IV, 2015).

In addition, the words and items in the planning policy/master plan are difficult to understand for people who do not possess a planning background. It is considered that a

common language has to be built for a clearer understanding of planning, and that there is also a need for a more effective process of communication and collaboration between planners and other stakeholders. A translation from planning to a recognised work schedule is required since there is a gap between the Master Plan and the priorities of the eco-city. In general, the data from the interviews shows that there are two major difficulties which hampered the implementation of planning: staff of SSTEAC have insufficient experience to support practical work based on planning documents, and the information in these blueprints may not be understandable for governance purposes.

The communicative activities between government and non-government stakeholders

After discussing the status of communication and collaboration within national and local government, the relationships between politicians and other stakeholders need to be examined. According to L, the major work of SSTEAC contains three aspects:

“Organise the plan-making and implementation work, the direction of urban development, and the process and details of development in each dimension.”
(Interview I, 2015).

He also specified that SSTEAC conduct the work of planning and construction, the application of land use, and oversee aspects of funding. All work should involve other stakeholders, such as planners, investors, and developers.

L suggested that the relationship between SSTEAC and planners and scholars was only set up based on the planning programme:

“For scholars, consultancy, and planners in the planning work, they were hired through contract to contribute to the (process of) decision-making” (Interview I, 2015).

In other words, groups of scholars and planners should have an opportunity to illustrate their opinions but this has tended to happen only when local authorities invited them for consultation rather than being an integrated part of the planning programme. Moreover, the existence of a relationship between the success of the Tianjin Eco-city and the extent of collaboration with planners has been noticed by local authorities. L supported this point stating that:

“In 2008 when I just started to work in SSTEAC, I had no planning background but relied

on the help and communication with planning experts.” (Interview I, 2015)

T also suggested that the attitude of staff to engage with the educated planning professions is an advantage for Tianjin Eco-city, and also a reason as to why this eco-city has performed better than other Chinese eco-cities. However L also noted that

“In fact, the (actual) development of Eco-city could not keep in line with the imagination of planners” (Interview I, 2015).

It follows that collaboration with planning professions is still required, even when planning has proceeded into the stage of implementation. D supported this viewpoint stating that

“The plan-making work in the Eco-city should be continuously preceded. The (team or people of) consultancy changed after finishing a part of planning work, which causes a big difference in the (following plan-making) programme” (Interview IV, 2015).

Indeed, if a long-term relationship between SSTEAC and local planners is established, it would help to increase the nature of the development and its sustainability. Such a relationship would also tend to lead to better working habits. To keep changing the process of consultancy brings negative impacts to the principles and priorities of eco-cities. C extended this point stating that the consultation work should be launched along with the development of the programme since feedback would be received and contribute to the adjustment of the planning.

“We really want to build a long-term relationship with local authority and communicate with them (local government) regularly” (Interview II, 2015).

Although the motivation of planning professions to build a long-term relationship could be a request for more income to some extent, it is still a reasonable request to seek a long-term collaboration between planning consultants and government C supports this point stating that

“The Eco-city development is a gradually evolutionary process, that is, it requires adjustments and modification according to feedback” (Interview II, 2015).

If consultation from planning professions suddenly stops after the approval of planning, planning would become irrelevant with an increasing gap occurring between the theory and design of the eco-city development and the actual development of the eco-city. In the

Tianjin Eco-city, a long-term collaboration and communicative relationship could provide assistance in the actualisation of all subsequent modifications to the original plans for the development. This would be especially beneficial as the local authority may not have sufficient professional skills to address specific difficulties that occur during the process of development. Fortunately, as the statement of D recalls, there is a history of long-term collaboration, and this help to ensure the delivery of long-term collaboration and communication in the field of evaluating the green buildings in the eco-city. The Tianjin Eco-city Green Building Research Institute (GBRI) was established by SSTEAC, with the cooperation of the China Academy of Building Research (CABR), the Tianjin Architecture Design Institute (TADI), the China Building Material Test & Certification Group Co., Ltd (CTC), and Bluepath City Consulting (GBRI, 2014). When examining all the co-operators in GBRI, it can be noted that there was a powerful combination of expertise forged between the local authority and local and national professionals.

“It is a revolution to have 100% green buildings in Tianjin Eco-city. It requires an institute to continuously examine the green building in this scenario” said D (Interview IV, 2015).

D also admitted that even where challenges were met in the practice of planning work, for instance, the policy failure discussed in the Chapter 6.2.1, the GBRI took responsibility for providing technical assistance in the assessment of green buildings and solved certain problems in the development of the eco-city. In fact, the policy failure has been addressed to some extent, as L stated,

“We adopted a new measure that rewarded the developers in cash based on the evaluation of constructed buildings” (Interview I, 2015).

Consequently, it is suggested that a long-term collaboration in the field of planning and design could benefit policy making as it enables the latter to more effectively address any subsequent problems that arise in the implementation process. However, there is still a long way to go to achieve sufficient communication and collaboration between all the departments involved in the Tianjin Eco-city development.

During the investigation, interviewees frequently mentioned that there was insufficient collaboration and communication between the local authority and investors/developers, and that this hampered the economic development of the eco-city. As L stated, the

Investment Department tried to attract investment by visiting the developers and investors personally since no company would locate itself in the eco-city without encouragement. Moreover, there are other ways of communicating with investors and developers, as L states,

“We (government officers) tell potential investors about the policy and business prospects of investing in the Eco-city by video meeting. They (staff in the Department of Attracting Investment) often hold a video meeting” (Interview I, 2015).

The methods of communication adopted in the initial stage of attracting investment were less effective but time consuming, although these did show the willingness and eagerness of the local authority to attract more companies to the developing eco-city. It is suggested that more attention should be paid to the existing advantages of the eco-city when attempts are made to attract investment. D pointed out that the local authority has not identified the role it plays in the Binhai New District, as D stated, *“They did not find the right way and target for attracting investment”* (Interview IV, 2015). At the suggestion of the Tianjin Eco-city indicator research team and *Bluepath City Consulting*, the development of hi-tech industries and tourism should be highlighted in the Eco-city. Moreover, the eco-city should also collaborate with the companies and organisations that produce green technologies to take the existing reputation of the technologies forward as a means of attracting further investment. It would not only help the local authority to have more specific investment targets, it would also benefit the development of local green technology initiatives as well as the local economy.

Further in-depth collaboration between local government and investors could also result in more investment being forthcoming. As suggested by Li and Zong (2006), the work of attracting investment can be facilitated through help from existing industries. Moreover, the related industries situated in the eco-city could benefit each other to contribute to the development of a sustainable economy.

Additionally, and as a result of the methods of seeking funding adopted in the eco-city, concerns were raised by the interviewees about the lack of a platform or organisation for information sharing. L argued that it is difficult to attract companies into the eco-city because investors do not have sufficient information about business development opportunities in the city. As D noted, all information related to the business should be delivered in more effective ways, such as official websites, applications on mobile phones,

and other related consultancies and organisations, instead of simply relying on the interpretation of staff in the Investment Department in the city, especially when the staff have less experience of attracting inward investment. There is insufficient evidence to show that local authorities have considered establishing a platform for exchanging information to facilitate effective communication between local government and investors and developers.

Public participation

As discussed in Chapter 3.6.5 there is a growing demand for greater public participation in academia and the nation's Five Year Plans. The Master Plan of Tianjin Eco-city also stated that "*encouraging the public participation to improve social justice*" is important (SSTEAC, 2008b, *Chapter 10, section 3.1*). However, it is difficult to facilitate communication between local government, the public and local communities in Tianjin Eco-city. When the willingness of the local government to have more communication with the public and local communities was examined, L provided an ambiguous answer:

"It is a good idea to collect the requirements from the public in the initial stage. But there are couple of issues, as I concerned, in the practical work of public participation" (Interview I, 2015).

Accordingly, although planning professionals suggested that public participation could bring about a series of benefits to the governance of eco-cities, a lack of confidence to launch a process of public participation has been shown amongst local government officers. Furthermore, as previously analysed (Chapter 6.2.1), local government shows less willingness to engage in public participation when it comes to the latter having an ability to scrutinise planning policies. L argued that there is a key reason for a lack of public participation being carried out in Tianjin Eco-city; the gap in interests between the public and local government. L stated that the public and local community pay more attention to their related interests and that these are short-term. Moreover, there is a view that the knowledge and understanding of the public is too limited to make their contributions useful within the wider planning context (Interview I; Fu, 2013). According to an annual report of central government, Chinese citizens are achieving higher levels of education; in 2012, the average number of years that Chinese people (over 15 years of age) spend in education was 9 years, compared to 6.4 years in 1990 (JYB, 2013). Research into the population of Tianjin Eco-city also shows that about 61% of the population had achieved a college degree or

above (Shi, 2013). In contrast, according to a report by the Ministry of Education (MOE, 2013), 34.5% of the wider Chinese population have had the opportunity to be educated at a college level or above. In Tianjin Eco-city, the residents are better educated and this could benefit the delivery of public participation. Meanwhile, the voices from less educated residents still need to be considered. Although there is an opinion that the public should have a more positive attitude to public participation (Shi, 2013), the local authority needs to first show the public that the feedback from public participation plays an essential role in the development of the eco-city.

The communicative activities in planning profession

In an eco-city, it is necessary to analyse the communication and collaboration that occurs between planning professions since there are more criterion for delivering an eco-city than an ordinary city. C supported this point. He stated *“To delivery an Eco-city, it is especially important to collaborate with planning professions in each aspect”* (Interview II, 2015). In fact, the initial vision of delivering an eco-city seeks to achieve a higher standard in green facilities, transportation, and other related social issues in urban areas. Consequently, it requires certain technical professions to support those aspects of the ecological development that are beyond the ability of traditional planners and scholars who are focused on physical planning. C pointed this out by stating that the development of eco-city contains a series of specific techniques, such as micro-grid, Distributed Energy Resource (DER), and waste recovery. He also admitted that

“As traditional planning scholars, we have insufficient knowledge of these specific (emerging) techniques (in an eco-city)” (Interview II, 2015).

Furthermore, the planning of an eco-city has to pay a great deal of attention to economic development since a self-sustained economy is one of the priorities of developing sustainability. However, the research of traditional planning professions has paid less attention to the economic development of cities. D criticized the current planning education in China stating

“(In China,) some planners were considered as trained planners because they have skills of drawing blueprints. (However, I suggested that) They have to learn economy, industry, and other related professional knowledge. In China, there are only a few planners qualified to address the challenges of developing Eco-city” (Interview IV,

2015).

Having more relevant knowledge could help planners to contribute to the development of an eco-city. It follows that there is a need to work out how to integrate traditional planning with new emerging techniques in eco-cities, and how to facilitate greater collaboration between all planners.

The lack of transparency in the sharing of planning information significantly hampers the implementation and modification of planning. According to Officer L, in the initial stage, some planning data is highly classified such as hydrological, geological, and meteorological data. Consequently, the feasibility of eco-city planning could not be discussed and analysed widely in academia, but only amongst a few selected scholars and planners. However, as the statement of L suggests, the privileged information is focused on the physical condition of the eco-city to a large extent. In fact, the critiques on less transparency of information, i.e. socio-economic and cultural data, which was not referring to privileged data. This data is not legally classified and is required by planning professionals and investors to underpin the research programme and investment projects that are inherent parts of an eco-city.

Additionally, the planning documents, including the master plan, regulatory plan, and local action plans, will have been published by the responsible local government. When examining the published online planning documents it can be seen that the official website provides a clear index of those documents that can be downloaded for the Tianjin Eco-city. Though the planning documents and maps from 2008 could be examined online, some pictures and maps were relatively blurred, and the text within the maps could hardly be read. In Tianjin eco-city, there are certain exhibition halls presenting the policies, planning, and design of the Eco-city that are accessible to the public, (Figure 6.7).



Figure 6.7 Exhibitions for public housing in the Tianjin Eco-city

(Source: Author, 2013)

However, there is concern about the validity of data in the reports on eco-city development. T argued that the reliability of government data published should be doubted. In so doing he stated that *“You will never know whether the information published has been tampered with or not”* said T (Interview III, 2015).

In addition, as mentioned previously, local professionals are not satisfied with the information and planning documents published and feel it is difficult to deliver relevant research based on the documents provided by the SSTEAC.

Generally, in the Tianjin Eco-city, there are some merits in the field of communication and collaboration, such as the support that is received from central government, the collaboration with Singaporean planners, and with regards to the availability of online information. However, there are still certain aspects that have to be improved to resolve misunderstandings between stakeholders, to enable the authorities to take into account the interests of the public and local communities, and to facilitate the adoption of both CP and CAT into the development.

6.3. Conclusion

Overall, the Sino-Singapore Tianjin Eco-city has achieved some successes in its development after seven years. Indeed, it has been praised as the most successful eco-city in China. However, it is not a perfect or ideal eco-city since there remain a series of challenges to its development as a true eco-city.

From a political dimension, rather than that of professional planners and scholars, the

leader of the local government authority has significant power to directly shape the decision-making process of planning. In addition, the local authority has less confidence in local planning professionals; even the staff of the local authority has less of an educational background in planning.

An eco-city would improve green facilities and the living habitats in urban areas. It would also enhance the reputation of the government. However, it should not be blamed that government gains political reputations from building Eco-cities, but the people who apply the name Eco-city to a real estate project.

The implementation of policy and planning could be hampered by insufficient communication between relevant departments at both national and local government levels. The local authority should, therefore, facilitate communication between relevant departments.

An issue arose in the adoption of the plan for the eco-city due to the fact that planning is less flexible and could not cope with the requirements of the eco-city development in practice. This is related to a common problem in the Chinese planning system, and consequently, some scholars suggest that a revised planning system, especially in the field of land use, should be adopted in some pilot areas.

In terms of monitoring, it was suggested that an annual assessment system should be established to evaluate the functioning of each dimension within the eco-city. Furthermore, more stakeholders, especially the public and local communities, should be involved in monitoring the work of the Eco-city, which is not only a requirement of achieving democracy, but also underpins effective governance.

In the economic dimension, the SSTEAC has encountered difficulties in attracting and maintaining investment and companies in the eco-city. This is a result of three major factors: relying on the development of real estate or big companies; less confidence in small and medium sized enterprises; insufficient understanding of the role played within the Binhai New District.

It has, therefore, been suggested that the SSTEAC should pay more attention to growing small and medium sized enterprises in the eco-city instead of counting on big companies. Moreover, local authorities should target the companies based on the advantages of the

eco-city, and collaborate further with the targeted companies to attract more investment.

The underlying difficulties for developing culture in the eco-city focused on the fact that there was an insufficient consideration of local culture, including local authorities providing less support on exploring local culture, and there being a limit to local cultural resources.

According to the Strategic Planning of the Binhai New District 2014, the SSTEAC could consider the eco-city as a place in which it could play a role of integrating and presenting coastal culture within the District.

With regard to the development of the environment, the physical environment in the eco-city is better than counterpart areas outside the eco-city. This is primarily due to the large amount of investment that has been spent on green facilities and the infrastructure of the eco-city.

The green facilities are not always functional during the development of an eco-city, especially after assessment or supervision work. The cost of adopting green technologies decreases with the development of technology. This could benefit the wider usage of such technologies and reduce the budget of maintaining both the green facilities and the green infrastructure.

The negative externality of economic development can have a direct impact on the environment of an eco-city. It is not a positive and there is also a need for the economy to become less dependent upon vehicle production. Promotion of the environment in an eco-city should pay greater attention to the design of walking and cycling systems as well as the use of green energy. Adoption of such approaches would help to reduce the negative externalities of economic development and the vehicle industry.

The status of existing communication and collaboration between agencies was examined to see whether CAT and CP has been, or should be, adopted in eco-cities. The central government set up 8 pilot areas for developing eco-cities, including the Tianjin Eco-city, to encourage the exchanging of experiences with regard to implementing policies and planning ideas to achieve sustainable urban development. There is a clear hierarchy for communication within Chinese government. There is a need to ensure that information communicated between different levels of government is delivered sufficiently and efficiently.

The quality of communication and collaboration between local authorities and planning professions directly impacts the adoption and realization of planning ideas. Local authorities gain certain benefits from communicating with planning professionals. However, the collaboration between the two groups of stakeholders was established based on the needs of planning programmes in the short term. It is suggested that a long-term relationship should be built to address those issues that emerge during the implementation of a planning scheme.

With regard to communication and collaboration between local authorities and investors/developers, the data suggested that local authorities should pay greater attention to developing projects that focus on tourism, green technology, exhibition industry and other industries related to the advantages of the eco-city. An in-depth collaboration between a local authority and investors/developers should be built to attract more inward investment from existing companies. Furthermore, a more effective information exchange platform should be established for investors and developers to calculate the profits and business prospects that can be gained from operating in an eco-city.

Public participation in the development of the specific eco-city was seen as insufficient for two reasons: lack of confidence as to the importance of public participation from the local authority, and the gap that exists in the interests of the public and the local authority. It is suggested that local residents have a better educational background to support the process of public participation. The local authority should first show their willingness to engage with the public by communicating and collaborating with both the public and local communities.

Collaboration between planners and scholars is inevitable in eco-cities. This is because the priorities of delivering an eco-city help to increase existing techniques beyond those that exist within the scope of traditional planning. Collaboration and communication between traditional planners and new technical professions should be encouraged. This would be more effective than asking planners to become all-knowing.

Finally, it is considered that the lack of information transparency in the eco-city hampered effective collaboration between different stakeholders. Although the local authority published information about planning and policy both online and offline, planning professions and the public did not have enough confidence in the validity of the information published.

Chapter 7 Case Analysis: Shanghai Dongtan Eco-city (SDEC)

7.1. Introduction

Shanghai Dongtan Eco-city (SDEC) is the second case investigated in this study. It was proposed as a newly built city with an ecological vision. The SDEC was initiated as collaboration between a Chinese state-owned enterprise and a UK planning firm, namely Shanghai Industrial Investment Co., LTD (SII) and ARUP, in 2005. In the same year it was praised as one of the most influential programmes in China by *Business Week (USA)* (Wang, 2008). The development of Dongtan Eco-city drew political attention and received praise from politicians and planning academics. The eco-city not only drew attention from the local government of Shanghai but also from the central governments of China and the UK. It was discussed by Gordon Brown, the former Prime Minister of UK, who visited Shanghai and announced that Dongtan Eco-city was a world leading programme being undertaken cooperatively by China and UK (Wang, 2008). However, the 'first low-carbon Eco-city' (Urban & City, 2009) has made limited progress since it was proposed; and by 2011, the SDEC was extensively known as a suspended programme (Urban & City, 2011; Liu and Yu, 2011). Until 2016, a number of areas in Dongtan remained undeveloped with blue billboards containing the words "the area on demolition and construction", (Figure 7.1). To explore the merits and demerits of the eco-city programme, four interviews were undertaken – this included local and national scholars and planners from China and the Netherlands. One participant from SII was unwilling to accept the invitation of a face-to-face interview but agreed to answer the interview questions via email.

Chapter Seven discusses the planning work of Dongtan Eco-city before its suspension. The chapter analyses the in-depth barriers to achieving visible success, and the feasibility of adopting CAT and CP in the programme. The framework for evaluating the eco-city programme is the same as that which was employed in Chapter Six. That is, the presentation of the interview data into 5 major aspects: political, economic, cultural, environmental, and communication and collaboration in the city.



The content on blue billboard: “The area required to be developed”, “The area on demolition and construction”

Figure 7.1 A number of places remain less developed in Dongtan

(Sources: Author, 2016)

7.2. The performance of Dongtan Eco-city

According to the framework of Dongtan Eco-city and the plans of land use (adopted) in Dongtan (Figure 7.2), the proposed area for Dongtan Eco-city was a former area of agricultural land. The foundational difficulty of delivering Dongtan Eco-city was the application of the certificate of land use (*Urban & City*, 2011; Liu and Yu, 2011; Mo and Qin, 2014). The certification was difficult to obtain because of the land use regulation that no agricultural land can be used for residential or other purpose unless an equal amount of land is dedicated for agriculture elsewhere (Ying, 2009; Premalatha et al., 2013). Despite this, the case study attempted to discover the in-depth reasons for the problem whilst addressing other issues that had hampered the delivery of Dongtan Eco-city. Although the SDEC is considered to be a less successful programme (Liu and Yu, 2011), the data gathered from the interviews related to Dongtan Eco-city was not dominated by critical comments. According to a former planner of Dongtan Eco-city, the principles of delivering the eco-city set up in Dongtan were of a far higher standard than those in Tianjin. Praised as the first low-carbon eco-city in the world (*Urban & City*, 2009), the ecological concept and planning methods employed in Dongtan have been continuously discussed in Chinese academia, where the focus has been on spatial planning (Mo and Qin, 2014), intelligent transportation (Peng and Jiang, 2014), and the water environment (Jiang, 2015). The following illustrates the initiatives of Dongtan eco-city, and shows the reasons why Dongtan is considered to be a less successful programme.



Figure 7.2 A comparison of the land use of eco-city area in different planning documents

a) ARUP's plan of eco-city; b) The land use plan of Dongtan proposed by local government
 (Sources: ARUP, 2007: 14; Chongming Economic Commission, 2011-online; edited by Author)

7.2.1. The political performance of the Shanghai Dongtan Eco-city

With regard to the political dimension, it was anticipated that two different levels of government authorities, i.e. Shanghai and Chongming, would be engaged in the programme before its instigation, because the government of Shanghai owned the investor SII and the Eco-city programme is located within the administrative district of government of Chongming. However, there is a bifurcation between the conclusion of the field investigation and the desk-based research in the field of stakeholder engagement. The analysis of the political performance in Dongtan Eco-city undertaken within this study pays special attention to the participation of the local authority in plan-making. This includes addressing the role of local authority, the potential link between political participation and the adoption of the programme, and how political actors impacted on the delivery of the eco-city. Furthermore, the study examined the priorities of planning and the assessment system for planning work that was used during the process of plan-making in Dongtan.

Government participation

The investigation shows that government participation was different from the political statement of Tianjin Eco-city, the SDEC was proposed to be a business branding eco-city by SII with less participation from the local authority at the beginning of the programme. As interviewee D noted, the programme was conducted under cooperation between SII and ARUP without the participation of local government.

“In fact, in the programme of Dongtan, McKinsey & Co took the invitation of consulting the industrial development planning at the beginning (of Dongtan Eco-city). Afterwards, ARUP was involved since McKinsey & Co met difficulties of carrying out the work. However, the developer SII showed less confidence in ARUP because of a shortage of domestic human resources to control the programme in China. Finally, I was employed by ARUP with a title of Senior Architect” said D (Interview IV, 2015)

Based on the statement of D, local government was not mentioned in the list of participants within the planning team during the preparatory work undertaken for Dongtan Eco-city. The majority of planners came from SII and ARUP, as well as McKinsey & Co. Furthermore, the preparation work of plan-making was also conducted by ARUP, who played a similar role to that of the SSTEAC in Tianjin. D, as a former employer of ARUP, stated that:

“I joined the planning work from 2005 and finished the work of Regulatory Plan in 2006. The major work (responsibility) of my planning team was to translate and transfer the principles established by ARUP to keep in line with the Chinese planning system. The programme was dominated by engineering consultancy (ARUP). The SII took the place of Chongming local government in plan-making. That is one of the key reasons that the programme caused a range of criticism.” (Interview IV, 2015)

D was committed to the idea based on the statement of the programme in 2008, However, in 2015, the SII representative suggested that *“the development in Dongtan is a process of urbanisation in a newly built area, where government and related departments are involved”* (Data I, 2015). It seems, therefore, that there is a gap in the statements between planners and developers. Indeed, the majority of planning work in the beginning stages was conducted by SII and ARUP. Local government held only a supervisory role. According to the statement of the developer, the role of the local authority was *“planning, consulting, research, finance, supervision, construction, tourism”* (Data I, 2015). In short, the local authority made a limited contribution to the work of plan-making in the beginning stage of the programme but played an increasingly important role in the subsequent work that was undertaken in Dongtan. Moreover, the data shows that SII gradually realised the necessity of inviting the local authority to participate in the programme.

D also indicated the potential link between the participation of the local authority in the plan-making and the lesser success of the programme. He suggested that the participation of local government in the process of plan-making was limited and this caused criticism:

“Actually, the land used for Dongtan Eco-city is a property of SII, and has no relationship with the local government of Chongming. The local government of Chongming were not involved in the programme. The Dongtan Eco-city was considered as a real estate programme, which is the key issue being criticised” said D (Interview IV).

The key challenge for Dongtan Eco-city that was mentioned most frequently during the interviews related to, and came from, the political dimension. The SII representative admitted that *“the biggest challenge is from the political system”* (Data I, 2015). H supported this view by suggesting *“it is a very political issue”* (Interview VI, 2015). D argued that *“in contrast, Tianjin Eco-city could be supported with a bulk of funding because it is a pilot programme initiated by the central government.”* In other words, Dongtan Eco-city would have gained increased support from political actors if it had been initiated by either

local or central government. D stated that *“the programme was not proposed by MOHURD, but the cooperation between two companies”* (Interview IV, 2015). His suggestion implies that such programmes should be proposed by central government and planning authorities if they are to maximise their chances of success. Although it was announced that the programme in Dongtan would be delivered through collaboration between the governments of China and the UK, it drew less attention from the local governments in Chongming Island and Shanghai. Compared to Tianjin (collaboration between China and Singapore) (see Chapter 7.1), the Eco-city in Dongtan was neither a politically motivated programme, nor a programme that benefitted from the extensive participation of the local authority. Both eco-cities discussed within this thesis gained prominence by being framed as examples of projects that involved international cooperation and encompassed Chinese and overseas elements in their development. Nonetheless, the limited participation of the local authority is probably one of the key reasons that led to the current situation whereby the planning of Dongtan Eco-city shifted to an agricultural project (Figure 7.2). Thus, a question is raised with regard to how the lack of participation of the local authority impacted on the delivery of Dongtan Eco-city.

Political implication

Given this, this study has attempted to illustrate how political sector impacted on the programme. Interviewee D indicated that *“the programme did not take a further step because of the issue of the former mayor”* (Interview IV, 2015). He stated that the main problem (the approval of land use certificates) was caused by a political corruption of the former mayor. The difficulties of land use, have been extensively discussed in Chinese academia (*Urban & City*, 2011; Liu and Yu, 2011; Mo and Qin, 2014). Nevertheless, there were no doubts with regarding to transferring the agricultural land to construction land from the political sector as the Regulatory Detailed Planning was approved by the local authority at the beginning stage of the plan-making in Dongtan (Interview IV, 2015). Subsequently, the application to transfer agricultural land was rejected by the local government sector. D believed that the difficulty experienced in transferring agricultural land was not the only reason that hampered the development of Dongtan. H also suggested that another reason was related to inconsistent governance. He stated, obliquely, *“I don’t know the detail about this because this is a very political issue about the former mayor. People are not very willing to talk about this”* (Interview VI, 2015). According to him, therefore, the inconsistency of governance was probably caused by changes in the Shanghai

Municipal Government. Thus it was suggested that the current government officers, who take responsibility for land use approval, could be worried about the effects on their political careers (after the launch of the programme in Dongtan) due to the change in leadership in Shanghai.

Moreover, the governments at local and regional levels had limited participation in the programme within Dongtan. Thus, there was no obvious reason for the local authority to continuously support the delivery of Dongtan. The limited participation of government officers in the plan-making may have hampered the approval of the programme (such as a certificate of the land use), and also impeded their ability to understand the purpose of the planning. It can also be argued that if the merits of delivering an eco-city programme are shared with the local authority, then the officers therein would probably provide opportunities for the application of land use certificate, and the subsequent development.

Regarding the priorities that exist within the planning process, it is suggested that this process is dominated by the need to reconcile multiple stakeholders' interests in the city. Z argued that it is not simply a consideration of political reputation that results in support being obtained from government, but also the in-depth concern of the advocates from the public and the local community, as: *"it is not fair to blame the decision-makers. The process of decision-making not only involved the consideration of political reputation, but also the requirement of the public"* (Interview V, 2015). Z illustrated this point using the example of the Shanghai Gongqing National Forest Park:

"It was mentioned by a nickname, that is, park of 'Shai Pi Gu'¹⁶, by the public, and because the trees planted in the park was too small for shade at the beginning of the park's construction. Now, if blueprint was implemented in the same manner as the case above, it would certainly receive harsh criticism" (Interview V, 2015).

The politicians in Shanghai considered both the benefits to their political reputation and the feedback from the public in the process of decision-making. In general, the priorities of decision-makers pay more attention to feedback from the public and the local community; this provides a feasible environment for employing CAT and CP in an eco-city.

The delivery of Dongtan Eco-city highlighted a question - what is a successful eco-city? The

¹⁶ *Shai Pi Gu*: a Chinese phrase with similar meaning of "Rise and Shine", which extends to the a place where sun directly opposite people (edited by Author).

lack of an assessment system or an indicator system for planning work was a concern highlighted by D. He stated: *“The indicator system (of delivering an eco-city) was determined by MOHURD, while there was no specific indicator system for Dongtan when I was working on the programme”* (Interview IV, 2015). He also declared that the delivery of an eco-city is relevant to a series of disciplines, but that there is no assessment system to examine whether these disciplines have achieved their goals. In addition, Z argued that *“there is a number of theoretical research slides on ecology while less has been adopted into practical work”* (Interview V, 2015). Since scholars participated less in the practical work, there is a gap between the research of ecological developments and their governance. Commenting on this further Z stated that:

“I was taking part in a research of ‘Chongming Ecological Island’, which required establishing a set of 24 targets in economic, social, ecological and environmental dimensions. Finally, the majority of the targets are suggested by government officers in related departments, for instance, protecting and developing urban and rural greenbelt, wetland, suggested by Department of Water Management, Department of Green Infrastructure; targets of economic development suggested by Development and Reform Commission.” (Interview V, 2015)

In fact, the targets of eco-city development and the indicators were mainly suggested by political officers who were expecting planning professionals to provide them with some advice with regard to undertaking plan-making. However, planning academics provided insufficient support for the establishment of the principles and priorities of planning in practice. Elucidating further on this theme Z suggested that

“The targets government officers suggested made sense. However, it is difficult for scholars to propose without sufficient data and practice. The goals of developing Eco-city would become meaningless if it was suggested without enough supportive evidence” (Interview V, 2015).

The indicators employed to develop the Dongtan Eco-city were delivered through the practical experience of the government officers; they did not necessarily have a planning background. Local planning scholars require opportunities to put their academic results of indigenous study into practice. Z advocated that an extensive collaboration between government and planning school should be set up, especially with regards to technologies and methodologies of ecological development. This is especially important because local

scholars lacked opportunities to participate within the eco-city development. Interviewee Z asserted that local scholars have fewer opportunities to join in the work of plan-making and that this resulted in them being able to provide only limited support in practical plan-making. The establishment of an indicator system required collaboration between the local authority and planning scholars. Z was committed to the idea that the academic analysis on Dongtan eco-city requires substantial evidence collection in practice. To this end it is the opinion of this thesis that more opportunities should be provided for planning professionals, especially scholars, to participate in eco-city projects.

7.2.2. The economic performance of the Shanghai Dongtan Eco-city

During the investigation, interviewees provided limited comments on the economic development that had taken place in Dongtan. This was due to the fact that the eco-city programme was suspended and, as a consequence, limited evidence can be provided with regard to any economic discourse that may, or may not, have taken place. In the limited discussion of the city's economy, the analysis of Dongtan Eco-city presented a view very different from Tianjin. Due to the fact that the Dongtan Eco-city was proposed by the developer instead of the government there was a need to examine the nuances of the priorities of the business branded eco-city including the motivations for developing local industry, and the issue of funding. In this section, the economic development in the city is discussed in two specific ways: industrial planning and funding resources.

Industrial planning

In Dongtan, an ambitious vision of economic development was proposed. Interviewee D argued that the industrial planning conducted by McKinsey & Co. at the beginning of the programme focused on expecting big companies and industries to choose the eco-city as a place to develop but did not take account of the feasibility of industrial development. It was an unrealistic planning approach with a macroscopic view according to D. He stated that

“The industrial planning, or I preferred the word ‘strategic planning’, was conducted by McKinsey & Co. It was an impractical planning by counting on the companies in the market and indicating the direction of the industrial development. The vision of industrial planning was stated without suggesting the practical methods. It was unachievable.” (Interview IV, 2015).

The programme of industrial planning established by McKinsey & Co. in the initial stage was not an appropriate plan since it was less relevant to the context of the Dongtan Eco-city. Furthermore, D indicated that another key reason why the industrial planning was not adopted was that *“the planning could not help SII to make a profit directly”* (Interview IV, 2015). For SII, the investment return was a key motivation for their engagement in the delivery of Dongtan Eco-city. However, SII would not show interests on the planning of industrial development, if it is a planning document without providing practical methods of attracting companies and developing industries for Dongtan. Thus, D strongly argued that planners or planning consultants are required to indicate the practical methods of investment return by stating *“you have to indicate the amount of investment required and the expected (investment) returns”* (interview IV, 2015).

According to D, the planning of industrial development was revised by the planning team in ARUP, but could not be implemented in such a way as to realise the vision. *“It might make some progress if the planning of Dongtan was adopted”* noted by D (Interview IV, 2015). The statement of D shows that he was optimistic that the plan would make some progress but that revision would be needed. Unfortunately, the programme was suspended for the reasons indicated in the previous section (see Chapter 7.2.1). However, 3 years after the programme of Dongtan was proposed, it had drawn some attention around the world, as illustrated by D,

“Just before quitting the programme of Dongtan Eco-city, I received a mail from an American company, who shows the willingness of establishing a branch in the city. However, I can but say sorry to them for the suspension of the programme in Dongtan” (Interview IV, 2015).

Although the vision for industrial planning was not realised due to the suspension of the programme, it cannot be denied that the Dongtan Eco-city was an influential programme worldwide.

Funding resources

As with the previous suggestion, the planners considered investment returns as a key factor in examining the feasibility of the planning during the plan-making. D commented that *“there is no plan of attracting investment. Existing Investors did not know the amount of investment needed. All budgets calculated by ARUP were based on the cost of engineering*

work (or construction)” (Interview IV, 2015). Moreover, there was no effective mechanism for budgeting established in Dongtan; this hampered the scheme’s ability to attract investment. As a result, a lack of funding became one of the key problems with the development. Furthermore, and in direct contrast to the situation that prevailed in the Tianjin Eco-city, Dongtan Eco-city did not have economic support from local government. Rather it was initiated by SII and ARUP.

Within the course of the primary research interviews carried out for this thesis, D raised a different perception on attracting investment with the engineers and consultants from ARUP. He criticised the approach used noting that *“it is interesting in Dongtan that spatial planners attempted to attract investment by simply promoting the physical environment in the city”* (Investment IV, 2015). Indeed, urban areas would become more attractive through the enhancement of, and subsequent promotion of, the physical environment. He strongly argued that it is not possible to attract sufficient investors without providing evidence as to the long-term and short-term benefits of such investment.

7.2.3. The cultural performance of the Shanghai Dongtan Eco-city

The protection of culture in Dongtan Eco-city was of less concern in the initial stage of the planning according to the commentary provided by the interviewees. This section discusses the cultural performance of Dongtan Eco-city with regard to the attitude of stakeholders towards the protection and presentation of the original culture of Dongtan on Chongming Island.

Attitude to developing culture

In the Dongtan programme, the cultural discussion primarily involves questions about a society's culture, social life, and the public sphere. The protection of local culture was important as interviewee D indicated *“the culture is the soul of the planning”* (Interview IV, 2015). He argued that it is inevitable to discuss culture in the eco-city development since the nature of ecology includes the discourse of culture. Planners were required to find and deliver the original culture of Dongtan in the planning of the eco-city. D criticised the fact that, in his opinion, insufficient attention had been paid to the cultural dimension in the planning conducted by ARUP *“The first planning (or version of blueprint) handed over to me was dominated by a certain planner who focuses on technology and functions without any consideration about culture.”* (Interview IV, 2015). This was also a key reason, as D indicated,

as to why SII had limited confidence in ARUP to work on the plan-making without Chinese staff. Commenting further, D pointed out that one of the functions of their planning team was to focus on the culture in planning: *“indeed, my team worked out a cultural planning, and added it to the whole planning document”* (Interview IV, 2015). Z also stated that the delivery of ecology is not limited to technical developments, but should also involve ecological culture, suggesting *“some people said that ecology lies in philosophy, which likes the traditional Chinese metaphysics”* (Interview V, 2015). Yin (2015) suggested that culture is one of the key elements in the development of Chongming. The value of culture was highlighted by all the scholars who have written on Chongming such as Huang (2013) and Gong (2014).

Original Culture

Although cultural development was discussed in the planning of Dongtan Eco-city, the depth of cultural analysis and exploration of existing culture was insufficient. According to Gong (2014), there is a distinctive coastal culture in Dongtan. It includes material and spiritual culture in Chongming, for example, longevity, traditional kitchen, dietary habit, homespun, and local accent (Gong, 2014), as shown in Figure 7.4 below. The culture of Chongming has been discovered, organised and exhibited in a series of museums on Chongming Island. However, although the revised planning of Dongtan Eco-city (ARUP, 2007) considered the importance of cultural development in the city, the cultural analysis neither encompassed the distinctive coastal culture, nor included examining local culture as sources of cultural study. Based on the framework of the cultural planning of Dongtan (see Figure 7.3), the development of culture was initiated based on the philosophy of Chinese culture instead of paying attention to the specific local culture of Dongtan and Chongming Island. As a result, the cultural planning of Dongtan Eco-city neither explored nor reinforced the local culture of Dongtan. It also failed to engage with the cultural appropriation of the migrants from other areas on Chongming Island.

哲学VS战略 Philosophy vs. Strategy

哲学 Philosophy	战略 Strategy
天地与万物 The universe	
<ul style="list-style-type: none"> •天地万物一体（程颢）——平等意识 The integration of the universe (Chen hao) – the sense of equality for every life •“生而不有”——师法自然 Giving life without owning it – learning from nature 	<ul style="list-style-type: none"> •以物为友 Treat all of nature as our friend •海纳百川——体现自然界的生命意义和内在价值（多元文化） Nature in all its diversity reflects the significance and intrinsic value of all life
自然与生命价值 Nature and the value of life	
<ul style="list-style-type: none"> •民胞物与（张载）——自然界的生命意义和内在价值 Practice humanitarianism: all living things are our companions; each life is significant with intrinsic value •生生不息——宇宙万物是一种活泼的、循环不止的强大生命体 Nature is vivid and thriving – life circulates in everything and is ever-continuous 	<ul style="list-style-type: none"> •沧海桑田与生生不息——体现人是自然界生命价值的承担者 Despite the vicissitudes of the world, life endures – we are guardians of the intrinsic value of life and nature •宛自天开——体现师法自然的崇高德行 Though made by man, our project must respect nature, which demonstrates the great virtues of learning from nature

Figure 7.3 Cultural Planning of Dongtan Eco-city

(Source: ARUP, 2007: 26)

Furthermore, the scenery projects could have provide limited opportunities for local residents to learn the original culture to a deeper extent. In contrast, near the proposed area of Dongtan Eco-city, there is a constructed programme, Yindong Ecological Village, which provides a variety of ways to experience and learn the essential marrow of local culture. With a similar culture to Dongtan, the village delivered the local culture through participatory projects of angling, weaving, and goat fighting. Moreover, the museums provide opportunities for visitors to join in some activities, for instance, the process of making wool. Such ideas suggest that original culture should be delivered by encouraging residents and visitors to feel and learn the culture in the city personally rather than feeling it solely by sight. Furthermore, these participatory projects could further develop local tourism.

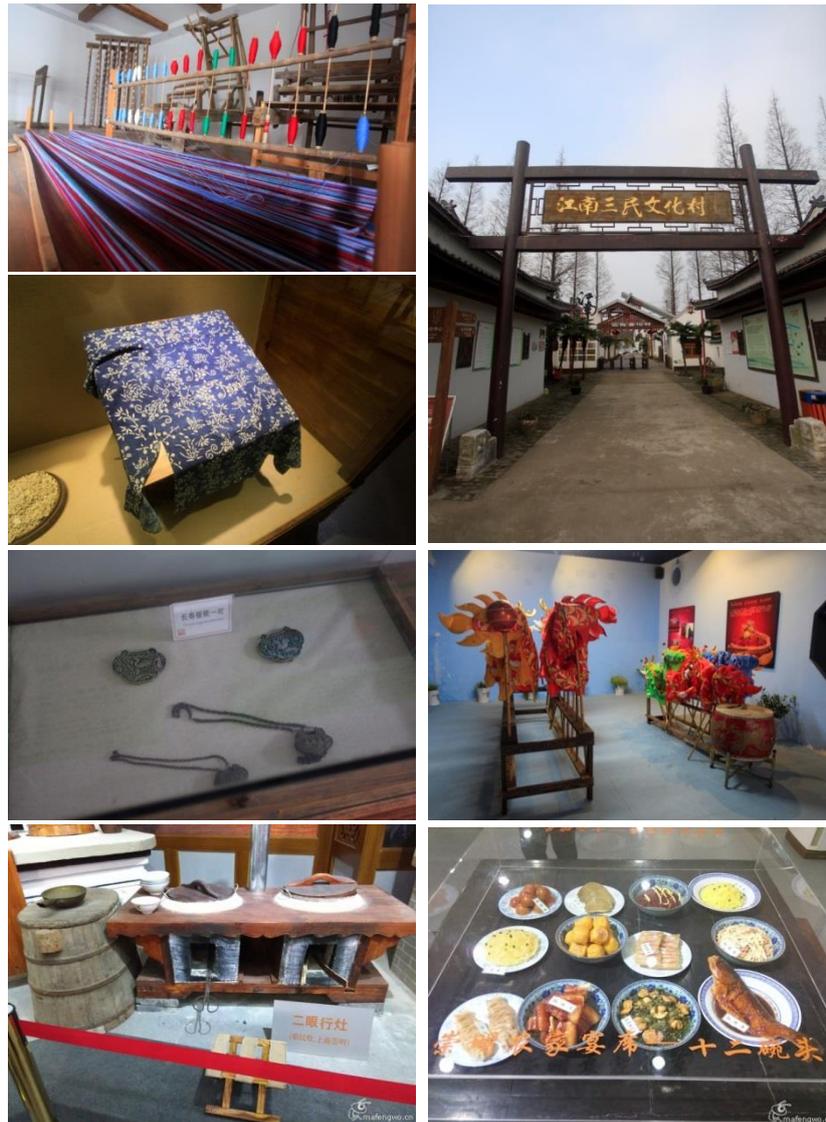


Figure 7.4 The culture of Chongming

(Sources: Author, 2016; Geming, 2015)

7.2.4. The environmental performance of the Shanghai Dongtan Eco-city

The environment of the Eco-city in Dongtan was discussed most frequently by developers and planning professions. In this section, the performance of the environment in the city is analysed with a focus on four specific aspects: public transportation and pollution, the natural environment, the debates surrounding the ecological concept, and green infrastructure.

Public transportation and pollution

As shown in Figure 7.5 Dongtan Eco-city is located in the southeast of Chongming Island, 40

kilometres from downtown Shanghai (Wang, 2013). However, according it takes visitors more than 3 hours to travel from Shanghai Hongqiao Railway Station to Dongtan Eco-city by bus, and 90 minutes by car. Moreover, according to the long-term plan of Shanghai, the extension of the No. 19 metro to Chongming Island and Chenjia Town has not been approved (Zhu, 2015). Therefore, the public transportation that is available from the urban areas of Shanghai to the new built urban area in Dongtan is inconvenient. This is especially true for the eco-city residents who would work in downtown Shanghai. It was discussed in Chapter 3.7 that the establishment of a local job market and sufficient public transportation could reduce the requirement for private vehicles in an eco-city. Similar to other new towns in Shanghai, the new built urban areas in the Dongtan Eco-city aimed to be self-sustained with regard to employment. Interviewee H supported this idea by illustrating the differences in the role of newly built area in China compared to those within European countries:

“For Europeans, they used to live in the city and then they want to live in a suburban area, or not in the downtown. People sleep there (or suburban area), come to work by car, or by train every day. They commute every day to the city for work. But in Europe, the new town is usually nearby, like in Netherland or the UK. In the case of Shanghai, or a majority of new towns in Shanghai, they are independent city” (Interview VI, 2015).

Interviewee H indicated that Dongtan Eco-city is an independent city where local residents need to live and work with a local job. Ma, Dong and Li (2008) suggest that the planning of Dongtan Eco-city attempted to balance the relationship between the local job market and residents to achieve a self-sustained employment market. Despite this there remains a concern that a great number of people still commute to work in Shanghai. As illustrated by H *“They do a lot of commuting from new town to downtown. Then at the same time, many people commute from downtown to new towns, such as the new high-tech park in Songjiang, but they just live in downtown”* (Interview VI, 2015). H raised concerns about the weaker consideration of job opportunities compared to other factors and the difficulties that remain relating to modes of commuting in newly built areas especially in the early stages of development. As stated by H,

“Like other new towns near Shanghai, to be self-sustaining it should generate its own local employment opportunities. They will not commute, that is the best idea. But it not always happens now. They do a lot of commuting from new town to downtown. Then at

same time, many people commute from downtown to new town” (Interview VI, 2015)



Figure 7.5 The location of Dongtan Eco-city

(Sources: *Baidu Map*, 2017b; edited by author)

Natural environment

Interviewee D suggested that the natural environment with its rich resources of animals and vegetation is a key reason for choosing Dongtan as the location to develop an eco-city. Wang (2013) also supported the idea that the national wetland park and the undeveloped areas on Chongming Island could provide the eco-city with a variety of natural resources through which to achieve its ecological vision. H supported this view stating *“For the Dongtan Eco-city, the ecological park is very nice. Like the green belts, there are 30 metres wide, with a bulk of trees”* (Interview VI, 2015). The ecological park that H mentioned is the Chongming National Geopark which contains Chongming Xisha National Wetland Park and was established in 2005 (Ministry of Land and Resources (MLR), 2012). It is shown in Figure

7.6. In the opinion of H, the natural environment could provide a number of natural resources through which to promote the landscape of the Eco-city. Moreover, the natural environment around the Eco-city could benefit from the development of ecological technologies, such as the zero-carbon emission, waste recycling, and energy saving, whilst also enabling the city to become a pilot area in which a harmonious relationship could be established between urban development and nature protection (Wang, 2013). Although the delivery of the eco-city could be positively affected by the local natural environment, including trees, clean water, and the existing eco-system, and result in less money being spent on energy and transportation by using local resources, the exact location of the Dongtan Eco-city with the national wetland park located nearby has been a source of criticism.



Figure 7.6 Chongming National Geopark (Xisha National Wetland Park)

(Source: MLR, 2012)

Contested ecological concept

H criticised developers stating that they did not pay enough attention to the protection of the local environment *“some of them announced that they will be ecological, but they don’t protect the environment or the animals”* (Interview VI, 2015). H further suggested that the

development programme was taking advantage of the natural environment, but not using and protecting the natural resources by failing to integrate them with ecological concepts. He commented on the ecological park that *"It looks nice, but it is not ecological"* (Interview VI, 2015). With regard to the natural eco-system in Dongtan, there is an emerging concern about those human activities that could negatively impact on the natural environment and its bio-diversity (Zhao, 2008). Moreover, ARUP did not provide sufficient evidence to support the vision of low impact development in the development programme for Dongtan. The ecological footprint of the construction of the Dongtan Eco-city programme is only 7% less than projects in normal urban developments (ARUP, 2007: 69). Furthermore, Z suggested that the true ecology is the natural environment without human behaviour, arguing that *"If the vision of development is only ecological, it (the natural environment) would not require you doing anything. In China, we called it 'Feng Shan Yu Lin' (Close hillsides to facilitate afforestation), which could achieve a better ecology than planting trees"* (Interview V, 2015). In the view of Z, 'ecological development' is a pseudo-proposition since human activities inevitably impact upon the original ecosystem and the living habitat of wild animals. The concept of ecological development discussed in this study is not, however, a narrow understanding of protecting the natural environment, but a mechanism whereby the development of human society could bring less negative influences to bare on the natural world to achieve a long-term sustainable relationship between the two.

Green infrastructure

Despite the natural environment of Dongtan, the delivery of green facilities has played an important role in the ecological development of the city. After the 2 year suspension, the SII restarted the programme in 2012 and proposed to invest 4.5 billion CNY (about 450 million GBP) on basic infrastructure; roads, bridges, public facilities, lakes, and green spaces in Dongtan (SII, 2012). In 2016, a visible improvement in the field of green facilities, including green spaces, cycling path, and open spaces, was observed along the main road in Dongtan, (Figure 7.6). However, the development of green infrastructure drew the attention of critics because of the time needed for construction, the interests of stakeholders, the difficulty of construction, and the funding levels envisaged for completing the green infrastructure.



Figure 7.7 The green facilities along Dongtan Avenue

(Source: Author, 2016)

With experience of participating in other new town programmes, H indicated that the green facilities do not work as expected. H stated: *“There are many problems with the infrastructure, which are not in use, missing facility, and the building centre is empty”*¹⁷ (Interview VI, 2015). He felt that there was already a bulk of green facilities implemented in the newly built urban areas; however, certain green facilities were not functional and suffered from ineffective maintenance. Therefore, H believed that maintaining the functions of green infrastructure is essential to the ecological development of an eco-city. Additionally, H pointed out the reason why green infrastructure was ineffective indicating that *“they are building too fast with many problems. I don’t know whether they are sustainable, but I think they need some adjustments.”* (Interview VI, 2015). Developers paid more attention on how to build more new green infrastructure rapidly rather than addressing the issues that accompanied the development such as maintaining the existing ecological infrastructure efficiently. H also noted that *“Because of the high pressure of the development, this happens”* (Interview VI, 2015).

¹⁷ According to the site observation of the author, the existing green facilities were functional to a large degree. However, it was probably because no one was using these limited facilities.

In the planning academia, the study of green infrastructure construction focuses on the importance of low impact developments as well as the cost of construction (Liu, J., 2014; Li, H. Y., 2015). Having participated in the limited practical work in Dongtan and Chenjia Town, Z supported this view by stating *“ecology should be generated gradually. The vision of ecological was well determined initially, but afterwards became less effective through a fast adoption period in practice. There is a big gap between theoretical vision and practice”* (Interview V, 2015). In the view of Z, green facilities such as trees, bushes and plants, were developed over the course of time. The physical environment along with the integration of ecological concepts should be delivered through a long-term process. In practice, the construction work tried to transplant big trees to cope with the short-term interests of multiple stakeholders. Z suggested that it could be less acceptable to both decision makers and the public to engage in ecological development by planting small trees at the initial stages of an eco-city programme, as *“it is not acceptable to use small saplings at the beginning since it is in an urban area”* (Interview V, 2015). As previously discussed (see Chapter 7.2.1), the delivery of green facilities also has to take into account political reputations and the public and local communities who will use these facilities. Compared with other construction programmes in the city, developers have to continuously engage with the development of green infrastructure in an eco-city. Additionally, the green facilities can also be affected by developer preferences. Z noted, for instance, that the developer preferred a design with fewer types of trees and bushes:

“The officers of Chenjia Town asked for a sample design to preview. We worked out a draft for them and told them it was just for preview, which needed to be revised. Afterwards, we modified the design with more types of trees according to our understanding of ecology. However, they decided to adopt the first draught in practice since the techniques in the first version of design is much easier than the latter one” (Interview V, 2015).

It was suggested that the construction industry prefers a design which is easy to implement. Z illustrated the reason for this preference amongst developers as follows *“for instance, like purchasing (green infrastructure), it is much easier to buy 500 trees of same species than 500 trees of twenty species”* (Interview V, 2015).

In terms of the costs associated with the design of green infrastructure, it was argued by Z by that increased land prices is one of the key reasons for the increasing budgets of green

infrastructure:

“The land price is at least 50,000 CNY per m² (about 5,000 GBP) here in Shanghai. Why spend more 500 CNY (about 50 GBP) on each tree? By contrast, the land price is not so expensive before, one-tenth of the current price. It is indeed costly to spend 50 CNY (about 5 GBP) on a small tree, and 500 CNY (about 50 GBP) on a big tree” (Interview V, 2015).

The funding for green facilities increased alongside the inflation of land prices. Z concluded that *“if the investment for the green infrastructure is limited, the economic interests (income) would be limited for all stakeholders, including the designers, planning professionals, and the builders”* (Interview V, 2015). He felt that the budget for developing green infrastructure was not calculated economically, but subject to a process of reconciliation and adjustment to reflect the economic interests of multiple stakeholders. In short, the economic interests of stakeholders led to a rise in the budget for developing green infrastructure. It was anticipated that investors were expecting that additional investment returns would be created by the promotion of green facilities. It is inevitable that investors consider the investment income that they may receive from investing in the development of green infrastructure. Additionally, existing studies have identified a range of economic benefits that are created by investing in green infrastructure; rises in property value, promotion of local commerce and retail, less energy usage, and fewer costs involved in waste management (Wise, et al., 2010). In general, the economic benefits identified by local planners and investors are still limited to the direct income of implementing green infrastructure programmes and construction work rather than the potential benefits - after implementation - of the green infrastructure, and the methods of monetising those benefits.

7.2.5. The collaboration and communication in the Shanghai Dongtan Eco-city

When comparing the process of collaboration and communication in the Dongtan Eco-city with Tianjin Eco-city, it was reported that the local government in Dongtan had fewer opportunities to participate. Additionally, as already illustrated, SII and ARUP have played and continue to play key roles in the delivery of the programme in Dongtan. In this section, the process of collaboration and communication in the city is analysed based on the commentary of developers, planning professions, and scholars.

Collaboration between multiple stakeholders

In terms of the collaboration between SII and local authority, D pointed out that *“the programme had not been supported by the government, and failed. SII played the same role of local authority, the government of Chongming was not involve in the programme”* (Interview IV, 2015). This suggestion indicated that the government of Chongming, as the local authority, was not one of the central key co-operators at the beginning stage of planning preparation. In Dongtan, planning was not dominated by local government as it was in Tianjin Eco-city before D resigned from the programme in 2008. The development of the eco-city was, therefore, not supported initially by the government in Dongtan. Policy-makers paid less attention to Dongtan. As D claimed: *“Dongtan Eco-city would not be the subject of (or considered by policy-makers in) economic policy since it is a business programme”* (Interview IV, 2015). According to the commentary of the staff from SII, *“the regional development of urban and rural planning is conducted by the government. The SII played a role in managing and operating state-owned agricultural land from the perspective of agricultural production and environment remediation”* (Data I, 2015). The developer argued that local government had been involved in the programme, and that the process of plan-making was conducted by SII under the supervision of the local government. However, it was anticipated that the developer of Dongtan would bring the local planning authority into the decision-making team because they realised the disadvantages of trying to develop a business branding eco-city without collaborating with the local authority. According to the revised master plan of Dongtan Eco-city published in 2013 (Shanghai Dongtan Construction Development Co. Ltd., 2013), the layout of the master plan referred to the planning of land use conducted by the government of Chongming. Therefore, a collaborative and communicative relationship was, and should be, established between SII and local authority in the plan-making. In the opinion of Chen (2009), property developers should establish a close relationship with local authorities when it comes to issues of urban development in China. Generally, it is essential to identify stakeholders, including political stakeholders, in the delivery of a Chinese eco-city even if it is a programme initiated by business companies

Since the local government authority was engaged in the discussion of plan-making to a lesser degree before the suspension of the development programme in Dongtan, limited evidence can be provided to identify the collaboration that took place between the local authority and other stakeholders, including planning professionals. Interviewee Z, as a local planning scholar, commented on a series of programmes of basic infrastructure, including

road design and green facilities, associated with Dongtan Eco-city. He declared:

“The local authority of Chenjia Town aimed to develop (local environment) ecologically. When examining the road design of Chenjia Town, it is similar to the counterpart in the downtown of Shanghai. They preferred the design of easy construction. Sometimes, we have to make sacrifices on some principles of ecology to some extent for the interests of stakeholders.” (Interview V, 2015).

Z argued that government officers preferred the easier options of construction in practice, instead of being involved in the process of comprehensively considering the efficiency and feasibility of planning. Furthermore, he pointed out why planning professionals could not convince other stakeholders to deliver the programme in accordance with ecological principles:

“The programme was designed to plant variety of types of trees. However, trees are different with architecture which would not grow up (as time goes on). It may turn out that the green facilities perform less successful than our expectation” (Interview V, 2015).

According to Z, the ecological planning and the outcome of the green space was difficult for planners and scholars to predict in detail. The developer and construction companies were concerned with the uncertainty of developing these green facilities. Using a range of trees instead of a simple design of green facilities could increase budgetary costs and also made it difficult for planning professionals to predict the outcome of the ecological development. The uncertainty created by stakeholders could bring negative impacts to bare on the physical environment and economic development of the Dongtan Eco-city development. Furthermore, Z provided a solution to address the concerns of the limited success of creating green spaces, stating *“we visited the programme of Dongtan Avenue every year”* (Interview V, 2015). In addition, Z raised the issue of how local government staff could be difficult to communicate with, stating *“if the invitation of interviews is requested by strangers, the government would not respond the invitation. Because the staff prefers to avoid trouble whenever possible and the invitation from a strange interviewer is none of their concern”* (Interview V, 2015). He suggested that government officials were not willing to collaborate with unfamiliar researchers.¹⁸ Moreover, the local government authority did

¹⁸ Author, as an academic, attempted to contact local authority through the telephone number and

not have an established long-term mechanism to communicate with the public and planning professionals (Wang and Zhao, 2007; Zhang, et al., 2007). In planning academia it is advocated that there is a need to develop long-term dialogues to assist with the development of eco-cities. This should include the long-term development of the local economy and green infrastructure, and should draw attention and expertise from other stakeholders, such as developers and politicians. Chinese planners and scholars did show an interest in contributing to long-term development in the eco-city. However, Z argued that: *“The staff in local authority tried to avoid any trouble when it is possible. Thus, they thought it (academic research) was none of their business”* (Interview V, 2015). It would seem, therefore, that a cultural issue hampered the collaboration and communication between the local authority and planning professionals. In short, the local government staff showed less interest in communicating with scholars and collaborating in academic research to avoid potential criticism from planning academia and the public during their tenure of office.

Collaboration between planning professionals

A collaboration between planning professionals in each research field is required to promote the feasibility of academic results. An analysis of the pre-existing collaboration between different disciplines, therefore, is required. This is because as D states,

“At the time of the programme, no one could define what ‘disciplinary collaboration’ is. The collaboration of multi-disciplines in ARUP was established based on the different groups of engineers instead of an understanding of collaborative planning today” (Interview IV, 2015).

D pointed out that collaboration with engineers could increase the validity of the information provided in the consultation process. Moreover, Cai (2011) argued that disciplinary collaboration has been recognised in Chinese academia in the last decade as Chinese cities have come across diversified problems in various areas, including economic, social, and environmental dimensions. Z supported disciplinary collaboration between scholars and planners by stating *“as my experience in joining the national programmes in Dongtan, the University of Tongji led certain projects, such as green facilities, environment protection, sanitation, architecture, energy saving, and so on.”* (Interview V, 2015). As a

email address published for the public, but was unable to establish contact.

scholar from the Shanghai Landscape Scientific Institute, Z was involved in the planning projects with the collaboration of local university scholars. Z also suggested that *“Ecology is complicated and related to a series of disciplines”* (Interview V, 2015). In short, the interviewees firmly believed that collaboration and communication between different planners and scholars could benefit the development of eco-cities.

Additionally, in the field of decision-making, a synthesis of certain ideas is required in the process of plan-making. Decision-makers need to pay attention to a range of factors, including economic, environment, and political in the development of a city instead of simply looking at one or two aspects such as the feasibility of technology in achieving low impact developments. D supported this view illustrating a case of public bidding for planning proposals that *“not only the quantitative analysis based on the blueprints of buildings and infrastructures, it should also make sense in the field of policy, economy, and other related dimensions. We had worked on the planning in economic dimension closely linked with a political dimension.”* (Interview IV, 2015). In other words, although the decision-makers came from business sector in Dongtan, there is no differences on the process of plan-making which should embed multiple parameters (political, economic, environment and cultural) in the planning documents. In fact, although sustainable development pays more attention to environmental conservation, energy saving and low-impact development, the development of social and economic functions are key to the operation of the ‘city.’ This in turn, inevitably requires collaboration and communication between planners and scholars. Indeed, there is a growing willingness and requirement for disciplinary and departmental collaboration and communication in the field of plan-making.

In the Dongtan investment programme, ARUP played an important role. As a result, collaboration and communication, (including the mechanism of communicating within ARUP), is examined to identify the processes which hampered, or benefitted, the delivery of the planning. D declared that efficient communication is important if we are to adopt planning theory into practice. He stated *“our work was to link the ideas of developers with policy, as well as related national standards of planning, like a hub. It was capability the staff of ARUP don’t have”* (Interview IV, 2015). The comments of D suggest that the planning team employed by ARUP in Shanghai played the role of gatekeepers in facilitating communication between SII and ARUP, as well as to the local authority. According to the statement of D, the main achievement of the team was to help deliver the Regulatory Plan approved by the government. This could not have been made by the ARUP engineers.

Therefore, the involvement of gatekeepers benefitted the processes of communication and collaboration in the city especially in a programme dependent upon collaboration between China and foreign countries.

D also criticised the level of collaboration and the mechanisms of management within ARUP, stating that *“the handicap of our work is the management system in ARUP. There is an office in Hong Kong overseeing the conduct our work, but who did not directly participate in the programme. It (The existing management mode in ARUP) made it difficult for us to carry out the work”* (Interview IV, 2015). It was also proposed that the collaboration and communication of the management teams could be another reason for the limited success of the programme. As D opined, *“by contrast, I managed an independent team in the programme of Tianjin, where I could be free to employ all human resources I personally needed. However, an Eco-city cannot be developed through just one consultancy”* (Interview IV, 2015). In the view of D, the programme of Dongtan should have been undertaken in collaboration with a number of departments including the local planning authority, planning professionals, and the local government in the city. It is anticipated that the mechanisms of management within ARUP provided less authority to engage the team of D in meaningful collaboration and communication with other departments in China.

Public participation

In Dongtan, it is difficult for scholars to collect information and data from the public and local community. Z raised a concern that there are limited methods for academics to research effectively by arguing that *“the usual way of data collection in the public is a questionnaire on the street, or focus group, that is, randomly find a certain people to talk about the research questions”* (Interview V, 2015). According to Z, this is a less efficient way to collect data from the public, especially with regards to issues of green infrastructure in the context of China. H also supported the use of new methods, such as mobile phones, to collect information from the public, but was concerned about the accessibility of classified information. He noted, *“That (new techniques) will be very helpful. Also the people in daily life, the energy consumption, water consumption. But there is still some classified information”* (Interview VI, 2015). Z and H both paid attention to the difficulties of collecting data from – and by – the public, including the limited approaches to access the existing data.

Moreover, Z felt that it was difficult to engage with some specific demographics when it came to conducting academic surveys with the local community. This was especially true, in his opinion, of young and mid-aged people in the street survey. He commented

“We sought to find people with different backgrounds and ages in the research of green facilities. In fact, there were a number of aged people and children, but less young and middle-aged people using the green facilities” (Interview V, 2015)

Z tried to bring different aged people into the survey that addressed green facilities. However, according to the commentary of Z, there were limited opportunities to collect opinions from young and mid-aged people since they are not usually present in parks during working hours. This would, therefore, cause bias within the data. Indeed, the data was heavily skewed toward the views of more mature people and children without the views of young and middle-aged people being fully represented. Z stated that it would be easier to collect the opinion of young and middle-aged people via an online survey since a majority of online participants are young and mid-aged. It was suggested that communication with the public and local community could be carried out through a variety of ways, including computer-assisted surveys which could reduce the time and money on data collection and the infecting of the data with the characteristics of the interviewer (Bryman, 2016).

Commenting further on issues of public research, H suggested that the information provided by the public is less useful for research purposes. H declared that

“Sometimes, they give you the answer, but later, you find it is not a good answer because they don’t want to say they don’t know. They just say something. And sometimes, they told you that you have to go where and where, to talk to who and who. It’s not useful. Not very direct answer sometimes” (Interview VI, 2015).

H pointed out that the public was either unable to provide useful information or that the information provided could be too ambiguous to support further analysis.

7.3. Conclusion

The development of Dongtan Eco-city was less successful than Tianjin Eco-city. However, planners and scholars still praised the principles and standards established in Dongtan Eco-city. Nonetheless, the original vision of the planning by SII and ARUP has not been

achieved after 10 years.

Dongtan Eco-city was initiated by SII in collaboration with the consultants ARUP. The local authority, including the local governments of Chongming and Shanghai participated in the development process but to a lesser extent. Therefore, the programme was considered a business branding eco-city and was of limited interest to the local authority. This also meant that it drew less attention and support from government and policy makers. Furthermore, although it is a business led programme, the programme was suspended mainly for political reasons. The local authority did not allow the original agricultural land to be categorised as construction land. There was no issuing of the appropriate land use certificate. Meanwhile, the central key plan-makers and the planning team comprised staff from SII, ARUP, and other international consultancies. This grouping did not include staff from the local authority. This could, and did, hamper the staff of the local authority in their endeavours to understand and approve the planning of the development programme in Dongtan. It follows that to ensure the successful delivery of an eco-city, initial co-operation must exist between government, local authority, and policy makers.

In terms of governance in Shanghai, including Chongming and Dongtan, the decision-makers have started to consider feedback from the public in the implementation of the Eco-city programme. Although public participation remains insufficient, the shift of priorities in the process of decision-making could provide opportunities for CAT and CP to develop a collaborative and communication climate which would help in the delivery of eco-cities in China. Furthermore, it was a concern that the government and policy makers expected scholars and planners to provide support with regard to the governance of planning. However, the local planning professionals had limited practical experience in the delivery of eco-cities and thus could not generate effective advice, or meaningfully contribute, to the work of plan-making. It was also suggested that an extensive study of eco-cities should be carried out in collaboration between Chinese academics to provide theoretical support for their delivery. Moreover, government officers and policy makers should be prepared to engage in the long-term delivery of eco-cities and sustainable principles.

To promote the feasibility of planning an Eco-city in Dongtan, economic development, including industrial planning, and funding issues should be considered as key priorities. The first version of the industrial planning of Dongtan Eco-city focused on the strategic level with less concern being given to issues of investment return. However, due to the role of

developers and investors, SII regarded the investment return as a priority in its plan-making. The Dongtan Eco-city was an influential programme throughout the world as evidenced by the fact that some foreign investors showed their willingness to establish branches of their companies in Dongtan Eco-city. In general, the programme drew less attention from both local and central government, and from the public sector. The industrial planning should provide practical methods for attracting investment as well as providing estimated investment returns in the Chinese context.

The cultural elements were considered in the plan by ARUP to a lesser degree. It was argued by local planners that culture is key to the delivery of an eco-city. The lack of consideration given to aspects of culture, therefore, became one of the reasons that ARUP collaborated with local planners in the work of plan-making. Interviewee D and his planning team in ARUP conducted the cultural analysis of Dongtan, as well as a range of cultural projects. However, the revised planning of cultural developments in Dongtan was ineffective in two aspects: the lack of consideration given to local culture and the inefficient methods of measuring the culture of Dongtan. The culture of Dongtan has a close relationship with the culture of Chongming Island; the latter is well-organised with a series of cultural facilities (Gong, 2014). In general, the cultural development in Dongtan neither involved a process of cultural exploration in Dongtan nor engaged with cultural appropriation based on the culture of Chongming Island.

As a key factor in delivering the Eco-city, the environment of Dongtan was praised by interviewees in the city. Dongtan Eco-city is located in an area rich with natural environmental resources. However, the level of public transport serving the Eco-city is a concern and was considered inconvenient. As indicated by interviewees, there is a common problem in the newly built urban areas of Shanghai. Namely, existent public transportation cannot support the requirements of commuting. This, in turn, causes a large number of private cars to be used. The issues of public transportation and local job markets could hamper the achievement of the vision of the eco-city in both economic and environmental dimensions. There is also an on-going debate on the concept of ecology in Chinese academia. Protecting the natural environment is a priority within developing eco-cities, but it was suggested that the development of Dongtan would need to reconcile the interests of economic and social development with environmental conservation rather than being a process whereby natural resources were used to improve the living conditions of humans.

Despite the natural environment, the development of green facilities contributed to the achievement of the ecological vision in the delivery of the Eco-city. Clearly, the principles and priorities of developing green infrastructure were adopted to a lesser extent since certain groups of stakeholders, including decision-makers, investors, developers, significantly influenced the delivery of green infrastructure in the fields of construction, funding, and the subsequent work.

In terms of communication and collaboration, the Dongtan Eco-city was a programme based on international collaboration. Less collaboration has been identified between the developer and the local authority since the programme did not initially involve the active participation of the local authority. It is essential to engage local government and policy makers in the work of plan-making to gain certain benefits, such as integrating the development of an eco-city into local and regional policymaking. Levels of communication between local authority and scholars in Dongtan, where the Eco-city is located, were also examined in this study. The principles of sustainable development were ineffective to support the long-term development of the Eco-city. A cross-disciplinary collaboration is recommended in the planning of Eco-city to contribute to the validity and the completeness of the information provided in planning consultancy. The development of an eco-city involves a range of departments in the political, economic, social, and environmental dimensions. More effective collaboration and communication between multi-disciplinary actors and multiple departments is needed if such programmes are to be effectively realized.

In terms of communication with the public and the local community, the public consultancy was examined based on the interviewees' experiences in Dongtan, as well as in the wider area of Shanghai. The existing methods of data collection were less efficient and time-consuming, and could also bring bias into the research process. Additionally, the public showed little willingness to participate in the planning process. In the analysis of the communication and collaboration within ARUP, the interviewees' planning team was noted as facilitating the work between SII, ARUP and local authority, but was limited in its collaboration with the local authority and planning authority because of the management mechanisms that exist within ARUP. To overcome such problems three suggestions were made. First, that data collection in the public and local community should employ a range of methods, including traditional methods and emerging technological methods. Secondly, planning professionals should pay more attention to ways of encouraging the public to

participate in data collection and provide effective information. Thirdly, planners should play the role of gatekeepers in the planning process to facilitate greater communication between different stakeholders, including planners, planning authority, local government, and the public.

Chapter 8 Discussion: Establishing a framework of eco-city planning in China

8.1. Introduction

Since a linkage between the eco-city projects and collaborative and communicative planning has been identified in the previous chapters, the aim of this chapter is to answer the key question proposed at the start of the thesis:

- How can the implementation of CAT and CP contribute to the delivery of newly built eco-city projects in China?

The following sections are formed according to the structure shown in Figure 5.6. The chapter first summarises the findings of previous chapters to indicate the key issues which have hindered the delivery of Chinese eco-city projects. This is then combined with a conceptual discussion from the literature and the field investigation of the actual developments in Tianjin and Shanghai. Then the chapter synthesises the issues with insights from communicative rationality by examining the four features of communicative activity (*Where, When, Who, and How*). Recommendations are provided based on how effective communicative activities could be improved. Finally, based on the established recommendations and ideas, the chapter develops a practical framework for Collaborative and Communicative Eco-city Planning (CCEP) to facilitate the approach of developing eco-city projects in China.

8.2. Summary of Key Notions of Eco-city Enterprise in Literature and Actual Development

This section summarises 12 key issues by combining the literature (Chapter 3.6) with the primary research findings that were found in the actual developments in Tianjin and Shanghai (Chapter 6.2 and 7.2). It includes a discussion of the issues which hampered the delivery of the eco-city programme according to the conceptual framework set up in Chapter 3.6 (political, economic, cultural, environmental dimensions, as well as relationships between key stakeholders). Based on the illustration of these key notions, a table has been constructed which indicates what hampered the development of Chinese eco-cities, and thereafter discusses the relationship between these issues and the role that CAT and CP can have facilitating the development of eco-city projects. As shown in Table 8.1, the implementation of collaborative and communicative planning has been discussed with regard to how they can impact on a majority of the issues that exist in eco-cities.

Political Dimension

a) **Disadvantages and advantages of engaging political government:** existing studies (see Chapter 3.6.1) provide an overview of political engagement and show that the political interests involved in the development and maintenance of an eco-city are contested (Li and Liu, 2011b; Wen, Ni and Bai, 2012). There has been criticism that a larger number of eco-city projects were initiated by government that had political motivations rather than possessing an underlying rationale that encompassed a comprehensive consideration of ecological priorities (Li and Liu, 2011b; Wen, Ni and Bai, 2012). Moreover, there is concern that the political assessment system which determines the political interests focuses predominantly on the economic features of eco-city projects (Yu, 2012). These ideas suggest that there has been a modification of political interests which has resulted in a shift from the economic domain to the relationship between economy and environment. Also, the political assessment system should gain more insight from the reconciliation of interests of multiple stakeholders. Rather than facilitating the Eco-city projects by recognising, guiding, and using the engagement of political interests, in the actual development the programme of SSTEAC was delivered under a process of political collaboration (see Chapter 6.2.1). This included, at a state level collaboration between the central governments of China and Singapore, which provided substantial support to the development programme in political, financial, and technical dimensions. At a local level, collaboration between SSTEAC and MND was established to address various aspects of urban development. In contrast, in the Dongtan Eco-city, there was a significant difference in the level of political engagement, since the Dongtan Eco-city was a business initiated programme with limited participation from political actors (see Chapter 7.2.1). Even though the development programme in Dongtan is a symbol of successful international collaboration between China and the UK, regional and local authorities had limited engagement in the delivery of Dongtan Eco-city (Interview IV, 2015). Consequently, it has been recognised by developers in both cases that political motivations and involvement can lead to Chinese eco-city projects enjoying greater success. However, the engagement of political bodies is, to a large extent, initiated or assessed through economic targets or progress.

b) **The excessive discretion of leadership:** In the UK, discretion is considered an administrative expediency to avoid impeding the approval of necessary planning programmes in the planning system (Booth, 1999). However, in China, the extent to which discretion is defined is ambiguous in the national legal system (Lei, 2001). The growing

exercise of discretion by people who exercise leadership in the process of decision-making is linked to the legislative system which has less ability and flexibility for dealing with the emerging urban and social problems that occur in urban development programmes (Lei, 2001). In contrast, the critique of exercising discretion claims that practitioners may not be confident with deploying planning policies or dealing with the uncertainty and flexibility which occurs in urban developments (Heazle, 2010; Catney and Henneberry, 2012). Therefore, the discretion of the Chinese leadership is criticised because it exercises limited rationality (Lei, 2001; Liu, 2010), or is abused in practice to some extent, for instance, the illegal approval of land use and plot ratio for real estate development in Chongqing (Zhang, 2010). Successful planning requires collaboration and communication between stakeholders as well as input from the multiple disciplines of planning professionals. This is especially important if the rationality of decision-making is to be improved (Yu, 2011; Li, X., 2012). However, as illustrated in Figure 3.6, political leaders dominated the process of decision-making, especially during the period of adjournment of the People's Congress. During this period, a lack of communication and collaboration has been criticized by collaborative supporters (Lei, 2001; Yu, 2012). In the Tianjin Eco-city, the limited planning background of government officers in SSTEAC did not significantly reduce the rationality of discretion in the delivery of the eco-city programme, since an in-depth collaboration was established between SSTEAC and Chinese and Singaporean planning professionals. In contrast, in Dongtan, ARUP, (a planning consultancy), played the role of decision-maker in the development of the programme and provided professional support to the eco-city programme. However, the subsequent implementation of planning documents faced a series of difficulties caused by the lack of an effective communicative relationship between local government authorities and planning professionals. In general, the discretion of leadership is a key component in the successful delivery of eco-city projects in China. Discretion should be exercised through a communicative approach to reduce its irrational side.

Economic Dimension

a) **Gap in understanding economic patterns and funding sources.** Existing economic discourse on delivering eco-cities is associated with community economic development and the need to provide job opportunities for local residents (Roseland, 1997; Pow and Neo, 2015; Sharifi, 2015) (see Chapter 3.6.2). In China, planning professionals placed more attention on the development of the circular economy than on reducing energy use and

carbon emissions (Li and Li, 2003; Li, 2004; Xu, L. Y., 2008; Zhu and Li, 2013). This research suggests that the economic discourse in both community and circular economy was focusing on the externalities of economic development relating to environmental problems. Developing environmentally friendly enterprises is evidently a long-term vision that will lead to delivering a self-sustaining economy in an eco-city. However, there is a gap between the emphasis that is noted within theoretical discussions and the actual problems that arise in the field of economic development. In both the Tianjin and the Dongtan Eco-cities, practitioners faced substantial problems in promoting economic development; such as the lack of companies, the lack of local job opportunities, and the lack of local labour. This meant that there was a conflict between achieving long-term economic perspectives and the measures dealing with short-term issues of local economy in such newly built Eco-city projects. Before achieving the ecological goal of long-term economic development, local government sought to address the actual problems by attracting real estate industry and 'big' companies into the two areas. However, it is argued that small and newly established companies would be more suitable for an ecologically-focused development (Roseland, 1997; Pow and Neo, 2015; Sharifi, 2015; Interview II and III, 2015). Nonetheless, it is necessary for local government and planning professionals to address short-term and long-term economic issues. Moreover, local government should explore new approaches to achieving a sustainable economy by establishing a more open and communicative environment for information exchange, and through seeking potential external investors in order that win-win collaborations might be achieved.

b) Gap in considering the role of Eco-city in Regional Economic Development: It has been suggested that the practice of planning should integrate both local and regional resources, including natural and social resources (Yu, 2012). The importance of linking the economic development of an eco-city with the regional economy has gained increasing attention in Chinese academia (Wu, 2009). This is especially true where the eco-city programme is seen as a dynamic pilot area for developing the ecological economy at a regional level (Zhu and Li, 2013). Although there is growing advocacy for linking local economies with regional economic development, this study found that there has only been limited research that has highlighted the role of eco-cities in regional economic development. In actual developments, the decision-makers in both Tianjin and Dongtan placed limited emphasis on bringing regional comparative advantages into the economic development of the respective eco-city. The marketing department in SSTEAC targeted big companies in order to pursue a great number of investments rather than targeting those

small companies in the field of tourism and green technology which were indicated in the Strategic Planning documents. However, the Strategic Planning of Regional Economic Development indicated the importance of developing the local economy of Tianjin Eco-city with a view to facilitating further growth within the regional economy. Moreover, in Dongtan, the industrial planning of the eco-city placed limited attention on the advantages and features of the local economy. The bias towards attracting big companies for economic development may have been caused by the political assessment system which focused on economic growth (Yu, 2012). It is also likely to have been an effect of the difficulties of transferring the theoretical perspectives of linking local and regional economies into practice.

Cultural Dimension

a) Lack of Attention to Ecological Culture: ecological culture, as an important component of ecological principles, includes public awareness, ecological education, and the promotion of ecological lifestyles (*Urban Ecology*, 1996). In China, ecological culture is identified as a culture of harmonious relationships between human and nature, including ecological awareness, value of energy saving, and green consumption (Xia, et al., 2005; He, 2006; Wang and Xiao, 2009). It is evident that ecological culture highlights the importance of engaging the public and local community in the delivery of an eco-city. However, the discourse of ecological culture has not gained prominence from political bodies in China. Even though the work of Zhu and Li (2013) highlighted that the term 'ecological culture' is not frequently discussed in Chinese academia, some subsystems of ecological culture are frequently mentioned, such as, ecological civilisation. The importance of ecological culture drew limited attention from decision-makers in both Tianjin and Dongtan. Cultural issues therefore played a less important role than economic and environmental issues in plan-making according to the master plan of Tianjin Eco-city (SSTEAC, 2008A) and the Dongtan Eco-city Final Report (ARUP, 2007).

b) Lack of Attention to Migrant and Local Culture: the issues of lack of attention to migrant and local cultures are important especially at the beginning of delivering eco-city projects in the Chinese context. Chinese planning scholars have concerns that rural migrants are facing a number of difficult issues when it comes to them moving to live in an urban environment, such as adapting to an urban lifestyle (Zhou, 1991; Song, 2005; Ye, 2010). According to their work, the major challenges for rural migrants living in an urban area come from difficulties related to employment, the bifurcation of core values between rural

and urban cultures, and rural or geographical discrimination. However, the promotion of the adaptability of rural migrants has drawn limited attention from decision-makers in the developments in Tianjin and Dongtan. The master plan of Tianjin Eco-city placed only a limited emphasis on cultural issues. It stated a general goal of establishing a local community for original residents or migrants with different incomes to achieve harmony and equality in society (SSTEAC, 2008A). Policies regarding affordable housing, original residents, and rural migrants were stated in planning documents. However, when compared with other dimensions in the master plan, such as industrial development (5 pages), green transportation (4 pages), energy saving (8 pages), and environment protection (6 pages), the cultural planning relating to migrant and local culture had only 2 pages in a 53 page document. There have been many criticisms made that the development of eco-cities has spent an excess amount of time and investment on green technology without integrating local customs and traditional culture (Yu, 2012). Li and Liu (2011b) argued that an overwhelming level of attention has been paid to the development of green technology in the field of sustainable development. Chinese scholars were seeking to bring tangible benefits, such as environmental protection and carbon emission into the delivery of eco-city projects (Zou and Zou, 2015). Limited attention was paid to the intangible issues of maintaining the local features and traditional characteristics, such as, space, customs, and history in the process of decision-making (Zhou, 2008; Li and Liu, 2011b). In Tianjin, the maintenance of original residences and culture has drawn limited attention from SSTEAC. In Dongtan, the development programme neither involved a process of cultural exploration, nor engaged with cultural appropriation. In the current stage of development programmes, cultural issues may not dramatically impact on the delivery of a given eco-city. Nonetheless, if such concerns are not addressed by specific measures and policies in the city, the existing discrimination that is faced by rural migrants and the cultural issues that resultantly emerge will inevitably hamper the establishment of harmonious neighbourhoods.

Environmental Issues

a) Environmental Promotion (GI Development) and Its Economic Efficiency: As previously indicated (Chapter 3.6.4), environmental problems have drawn extensive attention from political, social, and public dimensions. The development of an ecological perspective in an Eco-city is hampered by the level of pollution in urban areas. In both Tianjin and Shanghai, air pollution could be observed during the investigation. The importance of building green infrastructure (GI) was highlighted in the primary stage of the

master plan to deal with environmental issues (Du and Yu, 2010). Moreover, the development of GI has drawn great attention from decision-makers, since criticism exists as to the excess of attention placed on green technology during the delivery of Chinese eco-cities (Li and Liu, 2011b; Yu and Ning, 2011, Wen, Ni and Bai, 2012). It is also suggested that political interests have become the driving force for developing GI (Li and Liu, 2011b). It follows, that the decision of delivering GI programmes has not been made by combining the perspectives of government stakeholders and planning professionals.

Furthermore, the economic efficiency of delivering GI programmes has been highlighted in China (He and Liu, 2010). The development of GI gained prominence in the delivery of Tianjin and Dongtan Eco-city according to the investment strategies that were deployed. According to the statement of the local authority in Tianjin, a large number of investments (200-300 billion CNY, or about 20-30 billion GBP) were provided to support the construction of local infrastructure until 2015. In Dongtan Eco-city, the SII also announced an initial investment of 4.5 billion CNY (450 million GBP) for infrastructure in 2012 (Wen, 2012). Although the programme in Dongtan could not be achieved, the developer showed awareness of developing GI in the delivery of an eco-city. However, there is a concern that the existing GI could not be maintained along with progressing the development programme because of the high expenditure required for GI maintenance. For instance, the waste water management machine could not keep running because of the high cost of electricity within the eco-city. Local planners also criticised the fact that some GI programmes in newly built urban areas are insufficiently funded. To overcome this, planning professionals and local government should place more emphasis on reducing the cost of the developments and the maintenance of GI programmes to promote the economic efficiency of investing in GI.

b) Lack of an Environment Assessment System: the existing assessment system could not systematically guide the evaluation of the implementation of the planning documents in the various eco-city projects in China (Sun, Liu, and Wang, 2013; Li, Y. K., 2013). According to existing studies (Li, Y. K., 2013; CAS, 2015), there are two factors which effect the establishment of ecological assessment systems; the gap between the existing system and new problems in urban development, and insufficient supervision and participation from the public and social sectors in the delivery of the given eco-city. It follows, that the measures which exist in current systems may not directly deal with emerging problems in an eco-city. In Tianjin Eco-city, local government officers felt that there was no assessment

system to support the evaluation of the construction of green infrastructure and green buildings. They also felt that it was difficult to invoke relevant laws and to impose penalties on sub-standard green building development programmes. Eventually, these issues were addressed through collaboration and communication between Chinese and Singaporean planning professionals, as well as the establishment of the Green Building Research Institute (GBRI). In Dongtan, the concept of establishing an assessment system was marginalised in the delivery of the eco-city programme. This was due to the priorities and principles being set up according to the perspectives of engineers, or the KPI in green technology (Interview IV, 2015). Consequently, the assessment system in Dongtan gave limited consideration to qualitative features when it came to delivering the Eco-city.

Collaboration and Communication

a) **Lack of Departmental Coordination:** collaboration between diverse government departments is essential if the principles of an eco-city programme are to be achieved (Huang, 2004). To achieve effective governance within an eco-city, shared responsibility and cooperation should be engaged in a range of activities in local authorities, as well as national level departments (Dai, 2009). Mah and Hills (2012) argued that although central government dominates the top-down decision-making process, local authorities could still play a complementary role in China. With this in mind, a collaborative and communicative relationship should be established between central government and local authorities. In Tianjin, the development programme was initiated under a collaboration between the central governments of China and Singapore. This collaboration determines the strategy of the development of the eco-city through an annual conference. At the regional level, governance is carried out through regular meetings. In the field of local governance, and in order to deal with emerging issues in practice, the process of decision making is conducted through meetings between appropriate departments in the local authority. However, it was pointed out that the role of national planning authorities, including MLR and MOHURD, could not be identified during their engagement in the Tianjin Eco-city programme (Interview I, 2015). The lack of departmental collaboration and communication caused a gap in the administrative power to approve land use and implement planning documents.

b) **Ineffective Mechanisms for Disciplinary Collaboration:** As previously indicated, the development of eco-city projects requires collaboration between multiple stakeholders in political, economic, social, and environmental dimensions. There is a growing voice calling

for the establishment of a formal mechanism to facilitate disciplinary collaboration (China Economic, 2015). A study from the Chinese University of Hong Kong (CUHK) reported that collaboration between multi-disciplines could address the limitations within each discipline with regard to the assessment of sustainability in the field of physical and ecological environment (Tsou, et al, 2003). Li and Liu (2012) also suggested that the development of an eco-city and the establishment of a national assessment system should integrate a series of perceptions from different planning scholars in economic, social, and environmental dimensions. However, disciplinary collaboration is insufficient since communicative planning in China remains in its initial stages (Hu, de Roo and Lu, 2013). To improve this situation requires innovation and an evolution of planning methods based on extensive collaboration between planning professionals (Yu and Ning, 2011). Moreover, local scholars in Tianjin and Shanghai supported the idea of disciplinary collaboration to reinforce the effectiveness of the plans. However, they also raised a concern about the mechanisms that exist for disciplinary collaboration with regard to how collaboration could provide professional support to the process of decision-making. Moreover, local government officers argued that it should also identify the appropriate planning professionals to engage in the disciplinary collaboration since some classified information could only be accessed by a small number of people. Generally, although there is an awareness of disciplinary collaboration in planning professions, it comes across problems when attempts are made to try to establish a proper mechanism through which facilitates effective and meaningful disciplinary collaboration.

c) **Lack of Effective Collaboration between Multiple Stakeholders:** The collaborative and communicative relationship between multiple groups of stakeholders is highly encouraged in planning academia (Hao, Zhao, and Wen, 2011; Li, H. L., 2012). According to the study of Qiu (2009), the establishment of a mechanism through which different stakeholders are engaged is a priority for the future successful development of eco-cities in China. Essentially, there is a need to alter the current mechanism and philosophy of governance, as stated by Healey (2006), from one that is controlling to one that is enabling. However, the actual development came across a series of issues pertaining to the actual engagement of stakeholders in collaboration, including lack of a common language, the lack of a communicative platform, difficulties in identifying appropriate stakeholders, and the existence of insufficient opportunities for collaboration. All these problems need to be addressed through the formulation of appropriate responses and measures by local authorities.

d) **Lack of Public Participation:** Public participation is considered a key method of collaborating and communicating with local residents and communities in the delivery of eco-cities. The engagement of the public, including public awareness, ecological education, and public lifestyle, was highlighted as a priority in building an eco-city (*Urban Ecology*, 2016). According to the study of Qiu (2009), urban development is formulated by public awareness, which determines that urban ecology should be underpinned by ecological awareness. He also highlighted the bottom-up pattern of delivering Chinese eco-cities. In China, although a public engagement mechanism is considered an essential method for developing eco-cities within planning academia (Li and Liu, 2011b; Wen, Ni and Bai, 2012), the implementation of public participation came across challenges, including the willingness of decision-makers to implement the mechanism (Hu, de Roo and Lu; 2013), and cultural issues which hinder the ability of local residents to engage in public participation (Leung, 2007). In the Tianjin Eco-city, the approach of public notification, as a major way of promoting public participation, was considered to less effective due to the decreased willingness of decision-makers to engage (Interview II, 2015). Planning professionals in Shanghai raised concerns about the willingness of the public to participate, as well as their ability to provide useful information.

This thesis now turns to synthesising the issues above to illustrate the in-depth similarity between the fields of collaboration and communication. Furthermore, a series of recommendations are provided which, it is hoped, would further facilitate the process of public participation. Finally, a clear and strong framework is proposed (see Chapter 8.4) to support the greater implementation of public participation.

Table 8.1 Compilation of Key Issues Highlighted in Previous Chapter

KEY ISSUES RAISED IN PREVIOUS CHAPTERS		LITERATURE (Chapter 3.6)	Sino-Singapore Tianjin Eco-city (Chapter 6.2)	Shanghai Dongtan Eco-city (Chapter 7.2)
Political	Disadvantages and advantages of engaging political government			
	Excess Discretion of Leadership			
Economic	Gap in understanding Economic patterns and funding sources			
	Gap in considering the role of Eco-city in Regional Economic Development			
Cultural	Lack of Attention to Ecological Culture			
	Lack of Attention to Migrant and Local Culture			
Environmental	Environmental Promotion (GI Development) and Its Economic Efficiency			
	Lack of Environment Assessment System			
Collaboration and Communication	Lack of Departmental Coordination			
	Ineffective Mechanism of Disciplinary Collaboration			
	Lack of Effective Collaboration between Multiple Stakeholders			
	Lack of Public Participation			

	Highlighted; Discussed with CAT and CP
	Highlighted; Limited discussion with CAT and CP
	Not Highlighted

(Sources: Li & Liu, 2011b; Wen, Ni & Bai, 2012; Yu, 2012; Lei, 2001; Booth, 1999; Heazle, 2010; Catney & Henneberry, 2012; Roseland, 1997; Pow & Neo, 2015; Sharifi, 2015; Li & Li, 2003; Li, 2004; Xu, 2008; Zhu & Li, 2013; Urban Ecology, 1996; Xia, et. al, 2005; He, 2006; Wang & Xiao, 2009; Zhou, 1991; Song, 2005; Ye, 2010; SSTEAC, 2007; Zou & Zou, 2015; Du & Yu, 2010; China Economic, 2015; Tsou, et al, 2003; Mah and Hills,2012)

8.3. Synthesis and Recommendations: how deficiencies could be addressed

The issues of delivering eco-city projects in China are synthesised based on the work of Habermas (1984) and Healey (2006), as shown in Figure 4.1. The 9 principles and priorities of the communicative approach can be related to the delivery of eco-city projects by answering four questions. Cumulatively these achieve communicative rationality. The four questions focus on:

- *Where* - The location and the arenas in which all different understandings and perspectives of stakeholders could be integrated
- *When* - The opportunity and duration for stakeholders to communicate and collaborate
- *Who* - The participants of collaboration and communication
- *How* - The methods and content of collaboration and communication

The following sections bring afford readers an insight into the 12 key issues presented in Table 8.1 from the perspectives of these four features. This is done in order to explore whether the existing approach have deficiencies in the field of collaboration and communication. The performance of stakeholders in both Tianjin and Dongtan may be improved if the in-depth deficiencies highlighted can be addressed or mitigated.

Table 8.2 below provides an overview of 12 key issues and their deficiencies in collaboration and communication. It is suggested that each issue hindered the development of the two eco-cities. Justification of each recommendation is provided according to the in-depth deficiencies of each corresponding issue.

Table 8.2 Deficiencies Causing the Key Issues in Collaboration and Communication

Key Issues in Table 8.1	Deficiencies in each aspects of collaboration and communication			
	Location and Venues (<i>Where</i>)	Time and Opportunity (<i>When</i>)	Representatives and Stakeholders (<i>Who</i>)	Patterns and Content (<i>How</i>)
Engagement of Political Government	Government communication was largely preceded in meeting rooms.	The local government was not engaged at the beginning stage of the decision-making (Dongtan Eco-city)		a) The traditional pattern of engaging in the collaboration, that is, ‘controlling’ rather than ‘enabling’ b) The unbalanced relation between political interests and other interests. c) Lack of information transparency
Discretion of Leadership		The improper opportunity of using discretion led to less rational decisions	Failed to engage planning professionals and relevant stakeholders	The ambiguous definition of the scope and limitation of discretion
Economic Patterns and Funding Sources	Internet techniques or other emerging communicative platform has not been adopted as a venue of attracting investment	The gap between academic discourse and the issues occurred in the actual development: Planning professionals placed attention to long-term economic development, while practitioners were facing with certain short-term issues of local economy	a) Failed to explore economic dynamics despite real estate industry b) Potential investors has not be identified based on the existing industries in the city	The link between long-term and short-term economic interests has not been pointed out, which led to an ineffective between local government, investors, and planning professionals.

Table 8-2 continue				
Role of Eco-city in Regional Economic Development	Collaboration was encouraged within the Eco-city rather than the region		<ul style="list-style-type: none"> a) Big companies were targeted as potential investors with limited consideration of Regional Strategic Planning b) The neighbourhood cities within region have not been identified as potential partnership 	<ul style="list-style-type: none"> a) Economic development is dominated by an economic oriented assessment system with limited consideration of the regional context. b) Economic planning has not been delivered based on its role in the region
Ecological Culture		The practitioners neglected long-term influence of cultural issues which has been highlighted in academia		Decision-makers showed limited confidence with the perspectives of planning professionals
Migrant and Local Culture	Lack of awareness of exploring local culture, nor engaging cultural appropriation within the region (Dongtan Eco-city).		<ul style="list-style-type: none"> a) Lack of engagement of local planning professionals and the public b) Decision-makers has not identified potential residents 	<ul style="list-style-type: none"> a) Decision-makers showed limited confidence with local planners b) The potential influence of cultural issues has not drawn attention from decision-makers
Environmental Promotion and GI		Lack of continuous emphasis to the environmental promotion and protection	Lack of involving the perspectives of planning professionals on environmental promotion	<ul style="list-style-type: none"> a) Lack of combining perceptions of political, economic, and academic stakeholders. b) Promote political reputation by using the artistic value of GI programmes
Environment Assessment System	Lack of platform of discussing the emerging issues which should be examined by EAS	<ul style="list-style-type: none"> a) The gap between emerging problems and existing laws and penalties b) The legislative system is irrelevant with emerging issues 	<ul style="list-style-type: none"> a) Lack of engagement of the public and local community b) Lack of engagement of social organisations 	<ul style="list-style-type: none"> a) Lack of social supervisory mechanism b) Focusing on quantitative features with limited consideration of qualitative features (Dongtan Eco-city)

Table 8-2 continue				
Collaboration in Political System	Channels of engaging in national planning authority and local government have not been identified.	The opportunity of collaborating relevant political bodies was not identified explicitly	The insufficient engagement of different national and local departments	The scope of administrative power of national planning authorities was not identified to support the plan-making and implementation.
Disciplinary Collaboration	Lack of communicative platform for planning professionals	Limited opportunity for planning professionals to engage in the process of decision-making	Difficulties on identifying proper planning professionals in disciplinary collaboration	The classified information is only allowed to be accessed by a small number of people.
Collaboration between Multiple Stakeholders	Lack of information exchange platform for decision-makers and practitioners	Lack of mechanism indicating the opportunity and length of collaboration and communication	Difficulties on identifying proper relevant stakeholders	a) Lack of adoption of innovated patterns of collaboration and communication b) Lack of common language
Public Participation	Focusing on the existing ways of public participation without paying attention to emerging communicative techniques	Lack of public participation at the stage of decision-making	a) Lack of willingness of decision-makers b) The ability of the public to provide useful information	a) The traditional culture hindered the public to engage in public participation b) The ineffective patterns of public participation c) Limited confidence with the information in public participation

8.3.1. Explore New Venues

Communicative action, drawn from CAT and CP, is not limited to being an action of language or oral communication; it also includes vehicles of communication such as the internet and social media. Moreover, a collaborative relationship could be established in a tangible place or the physical world (meeting rooms, parks, cafes), as well as in intangible places (internet, social network). It has been noted that communicative actors could benefit from establishing communicative relationships in intangible places, such as social network sites (SNSs), information exchange platforms, and other emerging communicative techniques, to reduce the costs of communication and promote efficiency within information exchange. Additionally, there is an argument as to the need to explore the option of developing new tangible places to reinforce collaborative and communicative relationships. The following sections indicate the existing deficiencies in the location of communicative activities: lack of proper locations and venues, and the lack of information exchange platforms. Recommendations are also provided to deal with the deficiencies.

1) Lack of proper locations and venues: The location and venue of existing collaboration and communication in Chinese eco-cities is, to a large degree, limited to the physical world. It is argued that communication between political sectors, investors, planning professionals, and the public is not effectively delivered in the following locations: meeting rooms, parks, and streets because the patterns of communication in such places are time-consuming and less efficient (Interview II, IV and V, 2015). In fact, communicative activities in the physical world, such as meetings, face a series of constraints relating to both time and location. While acceptable locations of communication could enhance mutual understanding, it may also reduce the cost of communication.

Recommendation: Groups of stakeholders could be enlarged and enriched by establishing collaborative and communicative relationships in intangible locations, such as the internet. This would allow decision-makers and researchers to gather information from stakeholders who have difficulties engaging in meetings, focus groups and street surveys in the eco-city (such as time, opportunity, and physical disability). According to Deng, et al., (2015), collaboration and communication in social network sites (SNSs) should be encouraged because it engaged local residents who were not involved in traditional patterns of data collection in China. It showed that the age groups of those who participated in online investigations were different to those who engaged with surveys in a physical place. Expansion of such platforms could, therefore, contribute, to the rationality and variety of

data collection through engaging diverse groups within a local community.

Despite the intangible location, collaboration and communication should also be carried out in social organisations and local community offices. It has been argued that communicative actions could, and should be, take place within the social world (Habermas, 1984). The establishment of social organisations could provide a place or venue for collaboration and communication because within such organisations there is an enhanced likelihood that social relationships will be formed. As previously discussed, the establishment of Tianjin Eco-city Green Building Research Institute (GBRI) provides a venue for collaboration and communication between local government officers and planning professions. It provides an opportunity for long-term communication between local government officers and planning professionals. It also offers a place and opportunity for establishing social relationships between stakeholders, including local government officers, investors in green buildings, and planning professionals. Additionally, organisations could provide individuals with a place to advocate their interests to address the long-standing issue of there being less active participation in planning by individuals. In local communities, the community officer could play a role of representing native residents. Commenting further, Hu, de Roo and Lu (2013) argued that the community office (*jjedaobanshichu*¹⁹) could play the role of gatekeeper to interpret the interests of the public and local community. It follows that social organisations, community offices, and other communicative mediums should:

- Play a role of venue of communication where people could be linked to establish a social world for collaborative and communicative planning.
- Explicitly indicate the purpose of gathering information, the conclusion of information synthesis, and the use of information to maintain the transparency of information exchange (Sun and Zhu, 2010).

2) Lack of an established information exchange platform: The exchange of information and employment of information was highlighted as an issue during the process of decision-making and the subsequent monitoring of eco-cities in China (Huang, 2004; Qiu, 2009; Zhu and Li, 2013). However, information about eco-city projects (including the economic dimension, local markets, green facilities, and other socio-economic data) and data collection from stakeholders was undertaken in traditional ways which are time-consuming and less effective. There have been limited innovations in the methods

¹⁹ *jjedaobanshichu* is the authority in the level of community and districts (Hu, Roo and Lu, 2013)

used to reduce the cost of collaboration and communication or promoting communication efficiency by establishing information exchange platforms based on the development of internet platforms and other new technologies.

Recommendation: An information exchange platform allows information to be accessed twenty-four hours a day and contributes to the establishment of a free and open environment for communicative actors to gain information effectively and purposefully. It also seeks to facilitate the establishment of a collaborative and communicative relationship between multiple stakeholders. The recommendation that there is a need to establish an information platform replicates the advocacy of existing studies on establishing an information exchange platform led by the government in China (Xiao, 2010; Zhang, L., 2011). This study suggests that an information exchange platform should be created by government and other stakeholders to promote collaborative and communicative relationships between non-government stakeholders. The platform would, basically, be established through the internet, including publishing and conveying a range of prepared information. It would also include a window for gathering information from other stakeholders. For instance, a business information exchange platform could be established to provide beneficial policies in the field of economic development, and to gain information feedback from existing and potential economic co-operators. Moreover, stakeholders would be connected with each other and could establish initial communications via such a platform. In short, the information exchange platform should be a flexible environment or place for stakeholders to use their initiative, and should aim to promote efficiency within information exchange.

8.3.2. Determine Proper Time and Duration

In terms of the timing and duration of collaboration and communication, there are numerous questions that need to be answered relating to when and for how long collaboration and communication could, and should, be carried out. As previously indicated, improper time and duration significantly hampered collaboration and communication within the development of Chinese eco-cities.

1) **The scope of using political discretion:** There has been criticism of the abuse of discretion during the engagement of political state bodies in China (Li and Liu, 2004; Chen, 2010; Li and Hu, 2015). The existing political system and the mechanisms of decision-making ensure that the elites dominate the process of decision-making, as well as the processes of collaboration and communication. Though this may have advantages when

it comes to launching and implementing the planning of an eco-city, there is a concern that political discretion has relatively more influential and impact on plan-making than peer review. Planning professionals believe that the approach of making and planning an eco-city programme should not be dominated by political discretion because it can lead to less successful development programmes being pursued. It can also lead to them being developed purely on the basis of political will.

Recommendation: Build a legal framework to re-define the institutional structure of decision-making. The new framework should include restrictions on when political discretion can be used to avoid the abuse of discretionary power. According to the employment of discretion in current urban developments in China, mistakes and less rational decisions are acceptable (Lei, 2001). The legislation should summarise the previous employment of discretion, and attempt to generalise the experiences in the legal system. For instance, financial reward is more suitable for the development of green buildings than for plot ratios. It is therefore essential to scrutinise discretionary power if one is to deal efficiently with those issues that emerge during the delivery an eco-city programme.

2) **Short-term collaborative relationships:** In the economic and cultural dimensions, the current communicative relationship between local government and planning professionals causes a time lag between events occurring and solutions being proffered. It also results in a gap between the assessment system and the actual development of the eco-city. The planners suggested that a continuous, or long-term, collaborative relationship could maintain an in-depth rationality and logic to planning documents, and also reduce the time and cost involved in their seeking to understand previous planning documents. Additionally, it is suggested that the development of GI is hampered by the short-term nature of collaborations between planning professionals, government, and developers during the period of designing GI programmes.

Recommendation: Establishing a continuous relationship between local government and planning professionals could benefit the process of decision-making and promote the effectiveness of collaboration and communication. Getting insights from planning professionals in Shanghai and Tianjin, it is expected that a mechanism for planning consultancy will be established which could deal with the time lag between an event occurring and the solution to an issue in the delivery of ecological programmes being found. It could also be carried out flexibly based on the changing circumstances that develop within an eco-city development. Despite the flexibility of time spent on collaboration and

communication, the study proposes that the delivery of a long-term collaborative and communicative relationship between multi-stakeholders is required at each stage of planning. According to the findings of Ge (2012), long-term collaboration between stakeholders could facilitate the practice of planning in the delivery of residential programmes. A long-term relationship could reduce the time taken in the preparation of plan-making by avoiding the potential barriers and conflicts that occur at the beginning stage of collaboration and communication, such as bifurcations on decision-making or the difficulties associated with understanding ecological programmes. Indeed, a long-term relationship could be established if consensus can be built regarding the delivery of eco-cities.

A long-term relationship could also support a continuous investigation and study into emerging ecological programmes. Chinese planning professionals, especially those who receive a planning education focused on space-making and urban design, are faced with needing to learn from emerging issues in the economic, social, environmental dimensions of the delivery of an eco-city. It should not be a precondition for decision-making that planning professionals can make proper suggestions to deal with the issues (Chen, 2000). Therefore, decision-making should develop, as well as learn from, eco-city projects by continuously using and developing skills and knowledge together. For instance, the GBRI contributed revisions of planning policy to address the less efficient evaluation of the green building because the planning professionals in GBRI had a long-term opportunity to study the reason for the policy failure that had occurred in the assessment of green buildings in Tianjin Eco-city. Consequently, it is argued that a long-term and continuous relationship between local government and planning professionals should be established to reinforce existing collaboration and communication.

3) Limited opportunity for the public to participate in decision-making at an initial stage:

In the field of public participation there is limited opportunity for the public and local community to engage in the decision-making of the delivery of an eco-city, especially at the beginning stage of decision-making. This has been criticised because it means that the process is too top-down, with limited consideration of public welfare and social harmony (Liu, 2013). The importance of extensive public participation has been highlighted in both theoretical discussions and actual developments (*Urban Ecology*, 2016; Interview II, 2015). The participation of the public during the process of decision-making could gain support in the fields of land use and attracting investment. It could also help in the delivery of GI by

understanding public requirements and using public knowledge (Du and Yu, 2010). Although the methods of public participation in urban development are stated legally in URPL (2007), practitioners showed limited confidence in adopting public notification and public hearings in practice (Interview I, 2015).

Recommendation: In terms of engaging the public, a complete process of public participation including the engagement of the public at each stage of decision-making from plan-making to feedback is needed (Sun and Zhu, 2010). The legal system should indicate the mechanism for engaging the public and social sectors in the process of decision-making to ensure the adoption of public interests. Indeed, a variety of data could be generated through communication with the public and local communities and this could promote the rationality and effectiveness of the policy and planning documents in the urban development (Du and Yu, 2010). In order to avoid tokenism, it should indicate the opportunities and schedules for engaging the public and local community in the process of decision-making. This is important as Ma and Zhou (2006) raised the question of when the public and local community should, or should not, be engaged. According to the current congressional democratic system, the People's Congress plays an essential role in public participation. The ideas of the representatives of the public and local community should be evaluated and scrutinised carefully. During the adjournment, the decision-makers should engage the given local community at the inception of plan-making or when the public are recognised as stakeholders rather than only when planning documents are ready for peer review and publicity. Furthermore, the process of public participation should indicate the time cost of engaging the public and the local community. This approach could be extended to include the process of plan-making (Chen, 2000; Interview I, 2015).

8.3.3. Identify Required or Correct Stakeholders

As the key component of communicative action, the participants, as well as the role of participating, should be defined to support the establishment of mechanisms for stakeholder participation. Kenawy (2015) suggested that this requires an experienced planner to help in the identification of stakeholders, and facilitate the process of stakeholder participation. This study argues that the identification of stakeholders should be normalised by a combination of the five questions of stakeholder set up above (Rietbergen-McCracken and Narayan-Parker, 1998) (see Chapter 4.4), and by addressing issues which occur in the actual development within the Chinese context. Therefore, it should explicitly indicate the reason, role, and the co-operators of participants in the field of

stakeholder nomination.

- Government Officers

As administrators of the city, local government is inevitably engaged in the practice of planning, including decision-making, implementation, and monitoring during the delivery of an eco-city. However, the administrative boundary of different departments should be re-defined to avoid the excess, or vacuum, of governance on emerging issues (Huang, 2015). Furthermore, local government officers who have, and do not have, a planning background should be engaged in the process of decision-making since they are responsible for local governance, as well as being stakeholders.

- Existing and Potential Planning Professionals

In China, planning professionals are engaged in the process of plan-making at the beginning stage of an eco-city programme. However, national and international planning professionals have more opportunities of engaging at the stage of plan-making, including the master plan and the detailed plan because of their higher academic reputation. In contrast, local planning professionals have limited opportunities to engage in the delivery of an eco-city programme. Zhu and Liu (2012) highlighted the importance of employing knowledge about local features and customs in the practice of planning. Local planning professionals could bring insights about local features into planning considerations and they can also act as a bridge between the local community and government since they have more academic awareness of the potential impact of an eco-city programme and a better understanding of indigenous customs and communities. In addition, as local planning professionals they also represent, to an extent, the public and local community (Huang and Long, 2003).

Based on the investigation undertaken as part of this thesis in Tianjin and Shanghai, it is suggested that existing planning professionals have limitations when dealing with emerging issues. It is proposed that a friendlier communicative environment and mechanism for information publication should be built to attract more potential planning professionals (Interviewee II, 2015). Moreover, it could also contact and invite these persons to assist in the delivery of eco-city projects.

- Existing and Potential Investors

With the traditional pattern of urban development in China, the delivery of an eco-city programme inevitably requires a large amount of funding which is granted by government. The major financial resources of government are selling land (Qin, 2013).

According to local government officers in Tianjin, the existing investors in the eco-city are developers of real estate to a large extent. "The current revenue and investment system caused a widespread issue of 'Real Estate Finance', which significantly and negatively impact on the delivery of eco-cities in China" (Yu, 2012: 25). However, it is neither a sustainable path for promoting ecological programme against the vision of controlling the scale of the city, nor a business which could bring benefits to the local job market. During a period of urban development, the contribution of real estate development should not be ignored in the economic progress of a city, especially at the beginning stages of an eco-city programme. A close and positive relationship between the development of the real estate industry and GDP has been identified in China (Wang and Liu, 2005). Therefore, for existing investors, the priorities of maintaining and developing real estate are:

- Establishing a closer relationship with local markets, the public and local community;
- Exploring patterns of destocking, for instance, affordable housing, to deal with the demands of rural migrants and the potential funding risks (Yin, 2012; Chen and He, 2016; Zhang, Y., 2011); and
- Transferring the existing emphasis of developing residential real estate to commercial real estate, tourism real estate, and other market segments (Chen and He, 2016).

With regard to attracting potential investors, it is essential for government officers to consider the suitability of those companies which they target for involvement and investment within an eco-city. This could be achieved by asking the following questions:

- Is the scale of the company suitable to be developed in the city?
- Can a link be established with the existing advantages and features of the local economy in the city?

In terms of the scale of the company, small and medium sized companies are more suitable to deliver eco-city projects compared to big companies. Moreover, the importance of strengthening small and medium sized business has been highlighted by Central Government (*ChinaIRN*, 2014). The role of small and medium sized business in economic development has been debated and advocated by Central Government and planning professionals. Thus, it is a key issue for local government to enable small and medium companies to develop within eco-cities.

Companies focussed on green energy, ecological research and education, and costal tourism should be encouraged to develop within eco-cities. Furthermore, a reciprocal agreement could be established between local government, existing industries, and potential investors to reinforce the economic development and feature of eco-cities. Going further, this study provides specific suggestions of specific industries which should be targeted to invest in Chinese eco-city projects.

- Existing and Potential Residents

In the delivery of an eco-city programme, it is untenable to discuss the initial goal of plans without paying attention to the views of local residents. According to Healey (2006), the interests of multiple stakeholders, including the public and local community, should be shared and discussed extensively in municipal areas. Dependent upon the issues raised in the actual development, the priority of promoting the effectiveness of public participation should be achieved by doing the following: Establish and reinforce a community office or group as a representative of the public (Hu, de Roo and Lu, 2013; Chen, Zhao and Geng, 2007):

- Provide more confidence to the engaged public and the information they suggest
- Provide proper feedback, including an evaluation of the claims from the public

In terms of gathering the views of potential residents, it has been noted that a particular stumbling block is the issue of insufficient local residents being included at the beginning stage of individual eco-city projects. Before exploring how to attract people to move into eco-cities, it is essential to scrutinise who could be the potential residents of such cities. In the study of Qi (2012), the potential residents for eco-cities were found to be mainly migrants from nearby towns or cities. By combining the views noted in previous chapters and the literature review, it is concluded that the potential residents of an eco-city should be

- rural migrants
- original residents, as well as the original rural residents within or near the eco-city
- staff of existing and potential enterprises

These potential residents would be more interested in moving to an eco-city if their lifestyle requirements were satisfied. Although the needs of the public vary, there are three types of requirements at the beginning stage of an eco-city development, according to Huang and

Zhu (2011). These include grocery services, medical and health services, and administrative services. Thus, urban development should satisfy residents by providing convenient access to these services. Furthermore, the limited nature of existent public transportation could hamper the growth of the resident population (Wang, 2009). The delivery of public transportation aims to improve convenience in a district's traffic system. However, the government officers in Tianjin pointed out that there were significant costs relating to developing public transport infrastructure at the beginning stage of the eco-city development. Through their observations a link between population growth and public transportation has been noticed in the development of eco-city projects (Figure 8.1). Local government provided limited funding to develop public transportation networks when there were limited residents. This led to inadequate public transportation in the city. Thus, there is a clear issue for decision-makers and planners to establish a convenient and economical public transportation system in an eco-city from the out-set.

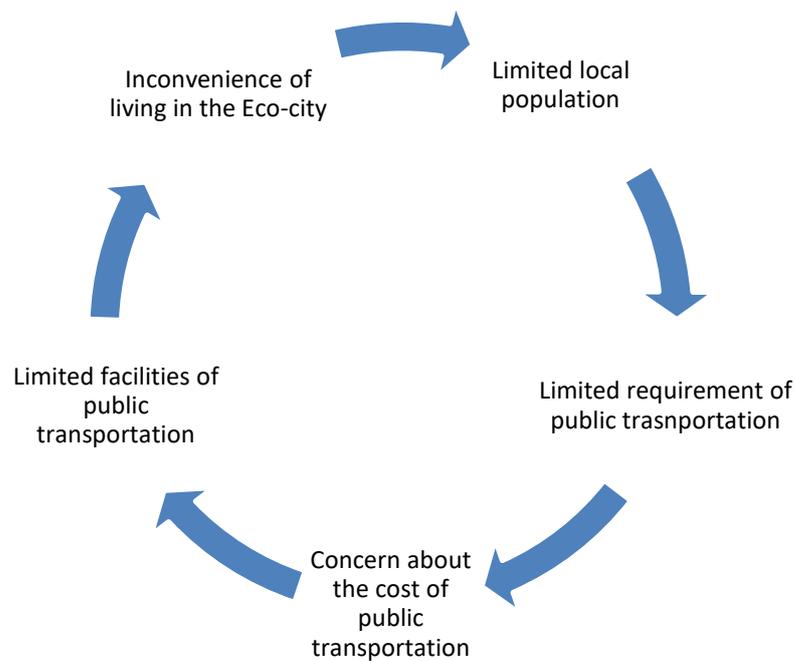


Figure 8.1 The link between local residents and the facilities of public transportation

Despite satisfying living requirements in the city, it is also a priority to ensure that people move into the eco-city. Huang and Zhu (2011) suggested that the motivations of potential residents have implications for employment and education opportunities. The less developed the local industry, or the more limited the local job market, the more hindered the growth of the residential population was. A successful newly built programme of urban development should be delivered with liveable places, commerce, public transportation,

medical treatment and jobs (Wu and Chen, 2015). Therefore, decision-makers should pay more attention to the exploration and creation of motivators to living in the city, including opportunities for jobs and education, as well as places of interests for visitors.

Having identified the proper stakeholders in Chinese eco-city projects, the following sections discuss the present deficiencies in attempts to engage stakeholders. Thereafter, a series of corresponding recommendations that could overcome the problems are proffered.

1) Insufficient engagement of different national and local planning departments: The top-down political system with less departmental collaboration may have disadvantages with regard to dealing with linear economic development or unitary forms of governance. It can also have difficulties in dealing with the complex issues that emerge in the delivery of eco-city projects (Huang, 2004; Interview II, IV, and V, 2015). Therefore, in this new pattern of urban development, that is, in an eco-city, the responsibility of each national and local department needs to be re-thought.

Recommendations: At a national level, the planning of urban development and land use is conducted by MOHURD and MLR respectively (MOHURD, 2016; MLR, 2016). These two departments need to be engaged as key stakeholders at the preliminary stage of an eco-city programme. In addition, departmental collaboration between the MOHURD and MLR should be encouraged to facilitate the integration of planning with respect to urban design and land use (Fang and Tang, 2009). Moreover, local government should play the role of gatekeeper in facilitating collaboration and communication between the two departments to avoid the difficulties in information exchange that were experienced in both Tianjin and Shanghai. At a local level, a lack of departmental collaboration between planning, urban management, and enforcement leads to a gap in monitoring. In turn, this leads to ineffective planning management and enforcement. Moreover, the relevant departments shift the responsibility of less successful management to other governmental bodies (Yang, 2014). Indeed, the governance at the local level may encounter a series of emerging issues which need addressing through departmental collaboration. An effective process of information exchange between the departments of planning and enforcement would avoid the less successful implementation of policy and planning measures. Thus, it is proposed that political bodies or departments should be identified and convened based on the specific projects that arise during the delivery of an eco-city programme.

2) The lack of participation of planning professionals and the public: According to the process of decision-making and the employment of discretion in the actual development,

the importance of engaging planning professionals (especially local planners) and the public has not drawn sufficient attention from decision-makers. With respect to discretion, decision-makers felt less confident about the decisions made during the delivery of an eco-city programme as these decisions require support from planning professionals and the local community. Moreover, the public and local planners should have confidence in engaging in the process of decision-making since they are residents and workers within the city, (Yu, 2012). However, decision-makers showed limited confidence with local planning professionals and the public due to concerns as to their planning skills and knowledge. The ability of local planning professionals and the public to provide useful information for the delivery of an eco-city was brought into question in the actual development.

Recommendations: A group of planning professionals should be identified through an open and transparent approach. It needs its convener to provide all planning professionals, including national, local, and foreign planners, with an opportunity to engage in the approach. According to Jin and Qiu (2003), planners are required to employ the local features of the natural environment, history, and culture to the process of plan-making in China. In addition, and with reference to discretion in the planning system, the employment of discretion is required to avoid making irrational decisions. (Liu, 2010). Consequently, planning professionals should engage in the employment of discretion by providing sufficient professional support.

In terms of engagement with the public and local community; this should identify relevant stakeholders instead of targeting people who have ability to advocate their welfare. The definition of the public and stakeholders is distinguished, which may lead to difficulty in engaging with appropriate stakeholders in the public sphere (Zhao, 2015). The public and local community should be identified by examining whether they are affected or whether they have a potential relationship with existing stakeholders during the delivery of a given urban programme (Zhao, et al., 2008). Moreover, engagement with disadvantaged groups is an essential but neglected part of public participation (Huang and Long, 2003). Therefore, existing and potential individuals, including disadvantaged groups, should be identified as participants in public consultations if they are affected by an eco-city programme.

8.3.4. Explore patterns of effective collaboration and communication

The purpose of the following section is to provide some recommendations based on the identified deficiencies of collaboration and communication summarised in Table 8.2. The section seeks to offer solutions to this problem:

- How to communicate and collaborate with each other

It first illustrates the relationships that exist between all participants in the collaboration and, through so doing, determines the weight of the information they provide. Thereafter, it advocates the establishment of a communicative and feedback mechanism to promote time efficiency and the establishment of more effective pattern of collaboration and communication. Furthermore, it attempts to discuss the content of speech in collaborative and communicative planning with the communicative rationality, including the criterion of the speech and the measures which could be put in place to deal with the practical issues that arise in an actual development. In addition, it indicates misunderstandings that exist about the medium of collaboration and communication in practice, and aims to provide a broad range of perspectives of what collaboration and communication depend on.

To achieve effective decision-making, implementation, and monitoring in the delivery of eco-cities in China, the engagement of stakeholders should be facilitated through a more effective pattern of communication which also has, at its heart, more comprehensive content. This should pay attention to the deficiencies and recommendations as follows.

1) **The unbalanced collaborative and communicative relationship:** the inadequacies of participation levels of each stakeholder in a range of planning process are caused by at least two reasons: the top-down decision-making mechanism and the lack of a common language.

a) **Top-down decision-making mechanism:** In the top-down system, the public policy reflects the interests of the elites or political leaders instead of combining the interests of the whole of society (Dye, 2007). In China, the planned economy (1949-1992) led to a consensus that plan-making was the responsibility of government stakeholders. This affects the current process of public participation and gives limited room for non-government stakeholders to engage (Li and Han, 2005). Consequently, government and non-government stakeholders significantly differ in the importance that they place on issues of collaboration and communication. This unbalanced relationship also causes a difference in the importance attached to the information provided by different stakeholders. The communicative actors at the bottom of the system have limited opportunities to advocate for their personal welfare. Therefore, the unbalanced power relationship in the top-down decision-making system becomes a key issue which affects the efficiency of collaboration and communication. Moreover, it hampers the achievement of citizen power and the ability to engage non-government stakeholders.

Recommendation: Reconciliation of the interests of different stakeholders should be a fundamental aim within the planning process so as to achieve a system of win-win collaborations rather than simply allowing the present system of advocacy based on the sacrificing of political or economic interests to continue to dominate. Based on the increasing inequality of power between stakeholders in Western societies (Healey, 2006), (which mirrors the situation in China (Hu, de Roo and Lu, 2013)), the local government have an excess of discretionary power in the process of plan-making and implementation (Li and Liu, 2004; Chen, 2010; Li and Hu, 2015; Interview II, 2015). With these suggestions, the interests of politicians in their careers and economic development become a dynamic by which to deliver urban projects in the eco-cities of China. The politically dominated decision-making process in China is concerned with actions in the normative context which was discussed by Habermas (1984) as being akin to a one-sided approach of attaining validity in reaching understanding. In this kind of relationship, the government stakeholders have impacted the process of decision-making rather than there being an integration of perspectives of government and non-government stakeholders. As Arnstein (1969) argued, advantaged power stakeholders are unwilling to give power equality because of fear of losing control. The social and public participation encouraged in this research represents a shift in the role of local government in the delivery of eco-cities from one of 'controlling' to 'enabling' (Healey, 2006). In fact, the Central Government of China has adopted a package of policies with respect to the reduction of redundant local governance including the excess of discretionary power, non-legal administration, and inefficient administrative procedures (Xinhuanet, 2015). The emerging policies are considered to be measures which will transform the role of government as a stakeholder in this relationship.

The fundamental principle of establishing a balanced relationship is essential in creating a more open and dynamic process of communication. It has been highlighted that there is a conflict between the interests of multiple stakeholders in actual developments (Interview I, III, IV and V, 2015). This is partly because a quick payback is expected by the government, investors, and the public, but a long-term vision is expected by planning professionals. Lei (2001) suggested that the vision of policies should be consistent with the various interests of the diverse stakeholders in China. A long-term vision within planning documents, therefore, should be implemented by achieving a range of short-term goals in political, economic, cultural and environmental dimension, as well as the promotion of public welfare.

Additionally, the effectiveness of stakeholder engagement is probably determined by the confidence and awareness of communicative actors and the attitudes of others engaged in the process of communication. It is therefore important to promote the awareness and enthusiasm of the public and local community to engage in some universal and less specialised topics (Zhu and Liu, 2012). In the top-down system of decision-making, non-government stakeholders may be concerned about the adoption of their perceptions into actual planning revision and implementation (Zhao, 2015). The establishment of a public and social supervisory system requires a mechanism for classifying and adopting perceptions from the public and social sectors (Sun and Zhu, 2010). Non-government stakeholder, especially the public and local community, would gain more confidence in providing information if their comments and judgements were evaluated and replied to. This suggestion replicates the view of Mou (2015) that there is a need to facilitate public participation by establishing a feedback mechanism which focuses on the professional ethics and legislative system in China. In contrast, this study aims to discover the in-depth theoretical and cultural rationality to establish the mechanism of evaluating communicative activities, as well as to ascertain certain principles of the mechanism in collaborative and communicative planning. Generally, collaboration and communication should pay attention to the relationship between multiple stakeholders. The core of the relationship is in reconciling the interests of all stakeholders rather than focusing predominantly on the government stakeholders or key decision-makers.

b) **Lack of common Language:** There are certain terminologies or ambiguous words which exist in current planning documents. These hinder mutual understanding and the establishment of consensus in eco-city projects (Sun and Zhu, 2010; Zhu and Liu, 2012). The public feel that it is difficult to judge the published planning documents due to the barriers that exist whereby they are not readily able to access the documents (Sun and Zhu, 2010). There also obstacles to their understanding of the content (Xu, 2008). Moreover, government officers and planning professionals raised a concern about the ability of the public to engage in public participation (Chen, 2000; Huang and Long, 2003). Consequently, the lack of a common language may bring negative influences to communicative activities. The interests of the public are diverse in respect of their backgrounds and specialities. This requires much work in analysis and synthesis (Xu, 2008). The interests of stakeholders should be synthesised so as to establish a consensus on the mechanism of information management before decisions are made (Sun and Zhu, 2010).

Recommendation: Collaboration and communication should be delivered based on the establishment of a common language between stakeholders. According to the common language, local government could make a working schedule based on the planning documents during the process of implementing planning documents. The public and local community could, as a result, understand the terminology and information published. This would lead to greater advocacy from the public and local community at no extra cost. In general, the delivery of a common language is aimed at mitigating the barriers of communication between diverse stakeholders. However, the establishment of an identifiable common language is not straightforward.

Through this collaboration and communication, planning professionals should take responsibility for explaining the contents of planning documents. According to Wang (2003) and Xu (2008), planning professionals should play the role of gatekeepers whereby they combine and interpret the disparate perspectives of stakeholders by using figures, tables, videos, and other readable and straightforward common language in their documents so as to maximise the ability of all persons to understand what is contained with the documents. It is also suggested that social organisations should communicate with government stakeholders about their requirements and interests to contribute to the wider process of information exchange (Zhang, L., 2011). Chen (2014) pointed out that a key priority of social organisations is to help to bridge the gap that exists between differing states of economic development and the expectations of the public. To this end, social organisations could advocate simplicity and an ecological lifestyle through facilitating ecological education in their local community. Non-government stakeholders, including investors and the public sector should provide comments on the published planning documents as well as querying existing planning terminology.

It is necessary that decision-makers place an emphasis on the claims of the public to facilitate a deliberative process of decision-making (Healey, 2006). This study suggests that public advocacy should be scrutinised by focusing on the relationship between the long-term interests of an eco-city development and the short-term interests of the public. The needs of the public and local community may not fit into the vision of ecological development (for instance the use of private cars), but this should not be blamed on the public since public needs are part of the bigger and longer-standing process of socio-economic development. Despite different interests existing in the delivery of an eco-city, a shared ground of diverse interests could, and should, be found (Sun and Zhu,

2010). For example, the local economy has been considered as a fundamental feature for examining local government in the current political assessment system. Meanwhile, investors strive to maximise their returns on an investment. Local government and investors should try to express their expectations and interests through collaboration and communication, whilst also seeking to understand and reconcile their respective differences. Moreover, the bifurcation on the understanding of fundamental issues of eco-city developments, such as the vision of attracting investment, should be highlighted in the communications that take place between different stakeholders. It is also essential to indicate and explain the less efficacious actions truthfully (Habermas, 1984). The content of communication should also include the difficulties which occurred in the implementation of ecological principles in order to enhance the authenticity of the statement and the effectiveness of the communication that takes place.

Additionally, long-term collaboration could bring benefits to the revision and modification of planning documents based on the establishment of a common language. As the interviews suggested, the establishment of new collaborative relationships take time with regard to overcoming those barriers to mutual understanding which have been caused by the lack of a common language (Interview IV, 2015). In Dongtan, the plan-making met a diverse set of challenges caused by the changing nature of its planning teams. Although the cost of establishing a common language may increase the budget of plan-making at the beginning stage of an eco-city programme, this cost could be recovered by avoiding the potential extra expenditure caused by repetitive interpretation, and even misunderstanding, in the subsequent actual development of the eco-city.

2) Lack of communicative mechanism: In the actual development of an eco-city, there are certain concerns about the potential barriers of implementation to collaborative and communicative planning in the current planning system; these have time and funding consequences. Communicative practitioners have limited guidance on how to deal with multiple stakeholder engagement in practice regardless of the fact that the Law of Urban and Rural Planning provide a general system for engaging the public and other stakeholders (Sun and Zhu, 2010). The lack of an effective communicative mechanism especially in respect to procedural and practical instructions for practitioners can lead to a range of problems arising.

Recommendation: A communicative mechanism should indicate the procedural and practical feasibility of implementation by ensuring that the time and expenditure spent on

communicative activities is under control. To this end, it should indicate the process of communication in respect of the timetable and budget (Chen, 2000; Chen and Ma, 2009), scope and validity of information (Chen and Ma, 2009; Sun and Zhu, 2010), and the approach of information synthesis (Sun and Zhu, 2010; Zhu and Liu, 2012).

It was proposed by decision-makers in Tianjin that the implementation of collaborative and communicative planning should lay a particular emphasis on the time limits associated with plan-making in the current planning system. Therefore, an extension of time may be required to facilitate greater stakeholder engagement in the process of plan-making. In addition, the budgets of planning may have to increase in keeping with the extra time spent on the practice of planning. Furthermore, regarding the timing of plan-making and the implementation of planning, there is a need to require all stakeholders to provide prompt replies if collaborative and communicative planning is to be enhanced.

In terms of the scope of information, especially the issue of privileged information, this study is not suggesting that privileged information should be made open to other stakeholders. It is, however, advocating an open and free information exchange for unclassified information. Based on the Urban and Rural Planning Law (URPL, 2007), each level of a master plan and strategic planning should be published after approval and scrutiny by the upper level authority. Local government authorities should consider more effective ways of publishing unclassified information.

The scope of privileged information has gradually evolved over the last few decades. For instance, the master plan and strategic planning of land use were statutory privileged information according to the stipulations of MLR (MLR, 1989). Planning professionals and the government should re-scrutinise the scope of privileged information along with the process of urbanisation in China, which is also a part of the dynamic of facilitating an open and free environment for collaborative and communicative planning.

In terms of the validity of information, the shortage of evidence to support academic consultancy services was highlighted by planning professionals with regard to the realisation of actual developments. Despite having more opportunities to engage in the development programme, there is a need for the further exploration of information sources. Data collection should be conducted by using emerging techniques such as WECHAT, and other communicative techniques relating to virtual reality. Local government and planning professionals should seek collaboration with the information holders, such as social organisations, enterprises, and NGOs. Mao (2015) suggested that information from the

public was collected by certain internet companies to a large extent in China (Baidu, Alibaba, Tencent (BAT)). BAT set up databases which contained large amounts of public information, such as the use of taxis, commuting distance, and other activities in urban areas, which reflect the actual activities and requirements of the public and local community. However, it has been proposed that these information holders have less willingness to share their databases with the planning professions since they were seeking methods to make profits from the gathered information. Thus, for decision-makers and planning professionals, it is critical to engage these information holders in the delivery of an eco-city programme and transfer their role from 'holding' to 'providing'.

3) **Insufficient media for collaboration and communication:** The work of Habermas and Healey is criticised for providing limited measures by which to guide the practice of planning (Irazabal, 2009). Healey (2006) argues that communicative planning has been implemented in the UK and China, and that communicative rationality should be scrutinised and modified to fit within the political and social contexts of the two nations. In China, the present communicative relationship between multiple stakeholders was established based on specific projects such as cultural planning, transportation systems, and the construction of green buildings. Though it may help existing communicative actors to concentrate on specific projects, it also brings inadequate opportunities to attract potential co-operators and stakeholders for building a consensus based on a wider range of stakeholder engagement within an eco-city. Furthermore, the role of an eco-city in regional development has not been employed to promote effective collaboration with neighbouring cities. For instance, the industrial development envisaged within an eco-city programme requires collaboration between certain related industries at both city and regional levels (Wang, 2015). The neglect of the economic role of an eco-city may hinder not only the development of an individual company but also a whole industrial chain. In addition, existing communicative actors placed limited attention on exploiting the advantages of an eco-city programme, including its physical environment, green technology, and tourism resources with regard to facilitating collaboration and communication. Cities will be developed without diversity if local culture and customs are not adopted in urban developments (Fang and Zhou, 2010). Moreover, the green infrastructure and technology could, to some degree, act as a media for collaboration to attract further potential investors (Interview I and IV, 2015).

Recommendation: The media of collaboration and communication needs to be varied and

not limited to solely using languages. Collaboration and communication have been advocated both in planning academia and central government and this is not limited solely to oral communication. Processes such as the publication of papers, the commissioning of commercial advertisements, and the approval of pilot areas have been advocated as alternative mechanisms. The current mechanism by which investment work is attracted was, to a large extent, launched by personal visits or video telephone calls (Interview 1, 2015). These methods of attracting investment are not effective in convincing potential investors to invest. In such circumstances, investors play a passive role whilst they are being informed about the eco-city programme. There is a need, therefore, to develop a method of providing adequate and timely information about eco-city development for both local government and investors. It is anticipated that an approach for text communication or other non-oral communication could be more effective in facilitating the process of collaboration and communication in China. More effective methods or communicative mediums such as encouraging public participation through NGOs, social organisations, or local community representatives, are thus encouraged because it is believed that they will help to overcome the disadvantages of traditional verbal-based methods. This observation relates to the suggestion of Leung (2007) that there are difficulties for individual advocacy in China because of cultural issues and privacy. These problems could be improved through group advocacy.

In fact, according to the investigation, the inadequate medium of communication is caused by the limited understanding that exists with regard to the nature and purpose of communicative relationships. Communication action, drawn from CAT and CP, could bring together actors from three types of worlds: the objective world, the social world, and the subjective world.

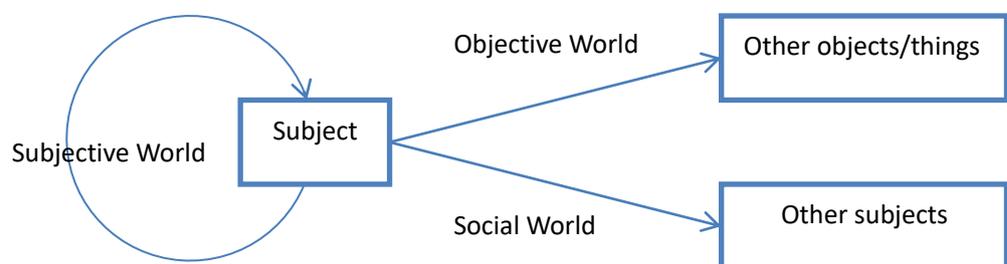


Figure 8.2 Three types of relations in CAT

(Source: Habermas, 1984; Edited by Author)

According to Habermas (1984), the objective world refers to the relationship between communicative actors and objects. The objective world is not only considered as tangible objects where certain patterns of stakeholder engagement occurred, but also the emerging types of intangible objects, such as the internet, visual reality, and artificial intelligence. The social world is as interpreted by McCarthy (1984), is the total society of interpersonal relationships between subjects. In the discussion of CAT, the consciousness of individuals is formulated by mutual communication. This suggests that individuals could gain experiences through mutual actions in the social world. The subjective world is the total experience of subject (Habermas, 1984) which includes the experience of mutual communication with other subjects and objects. The influence of the subjective world impacts on communicative activities, which should also be examined in this section.

This section advocates that the objective and subjective worlds should be taken into account as venues for communication where information could be filtered, received, rejected, or outputted. In the actual development of an eco-city, the individuals who are working or living in the city are dynamic elements that can be utilised to improve eco-city projects. The actions of these individuals could be impacted through mutual communications, but also by changes to the environment of the city and self-study. Given these suggestions, this study suggests that local government should launch increased measures focusing on the objective and subjective worlds such as delivering ecological education, publishing the results of leading an ecological lifestyle, and responding to questions from local communities, as well as promoting ecological awareness amongst the public and the local community. This is in line with the views that there has been a shifting in the role of local government from controlling to enabling in the theory of Collaborative Planning (Healey, 2006). It also illustrates the extent to which the information provided by local government could impact the objective world and the subjective world of local residents. Finally, the advocating of ecological education brings information to the subjective world of actors. This is another process by which public confidence can be improved as people become more engaged in the process of public participation (Roseland, 1997; Qi, 2012).

Furthermore, as previously discussed, the leadership of local government has significant power in determining the delivery of an eco-city development. The central government of China approved eight pilot areas to encourage collaboration and communication in the delivery of eco-city projects. Moreover, the meeting between the leadership of the eight

pilot areas could be considered to have been an opportunity to strengthen the social world between decision-makers. Therefore, this could be considered to be top-down advocacy of the rationality of CAT and CP through the communicative actions between decision-makers of local government in China.

Generally, the communicative actions taken by, or between, government stakeholders and non-government stakeholders, should pay attention to the establishment of the social world, whilst also strengthening relationship with the objective world and the subjective world. Moreover, the understanding of communicative action should not be limited to language communication. It should also embrace other patterns of non-language communication.

The recommendations made above respectively focus on the mitigation of issues that arose which occurred in the eco-city. The following section provides a practical framework to facilitate the practise of collaborative and communicative planning in the delivery of eco-city projects.

8.4. Establishment of Collaborative and Communicative Eco-city Planning (CCEP)

The Collaborative and Communicative Eco-city Planning (CCEP) approach is set up based on the combination of existing studies and key findings in the discussion sections of this thesis. This section combines the recommendations made in previous sections by presenting a coherent framework for the practice of planning in an eco-city. The CCEP could mitigate the barriers to communication between multiple stakeholders and facilitate greater communicative activities in the field of planning, including decision-making, implementation, and monitoring in the delivery of eco-city projects. After introducing the CCEP, it is foreseen that the Chinese eco-city projects could be further facilitated by overcoming a majority of the existing issues. This would also result in the establishment of a more effective planning process. The delivery of eco-city developments in China could eventually be made more successful. It is proposed that the CCEP should be conducted in five stages: preparation, identifying the problem, developing scenarios, treatment, implementation, and monitoring (Figure 8.3). This framework is not overturning the existing planning process in China, but offers an improved approach by integrating the rationality of CAT and CP.

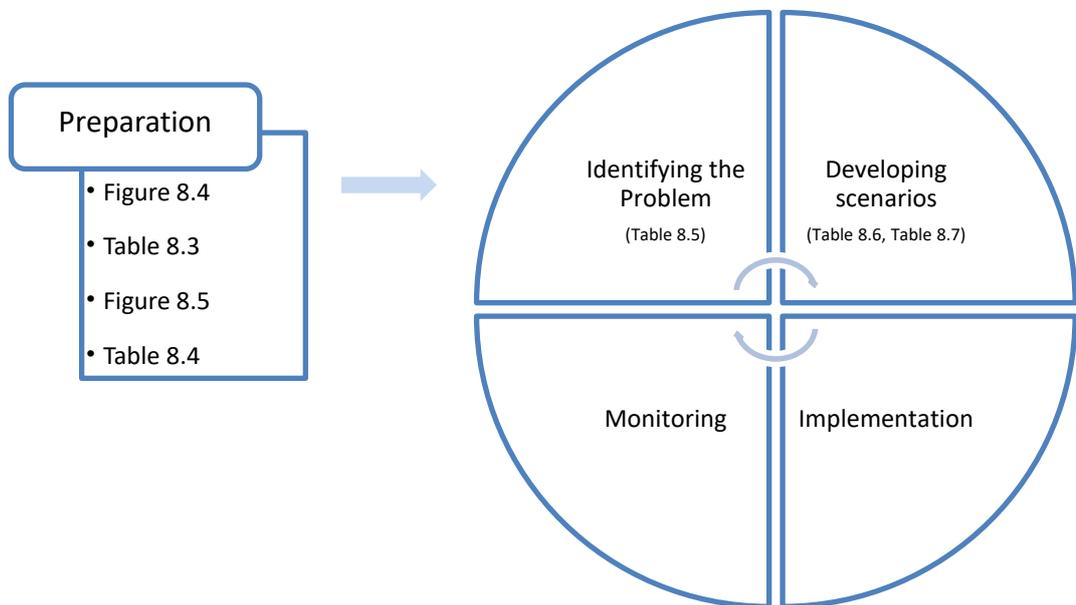


Figure 8.3 The Framework of Collaborative and Communicative Eco-city Planning (CCEP)

Stage 1: Preparation

The period of preparation is aimed at limiting the impact of potential barriers on

collaboration and communication in the development programme. This is achieved by identifying appropriate stakeholders, affirming relevant projects, and establishing a mechanism for information exchange. Furthermore, all suggestions are given for examination and modification in the following stages.

a) Identifying appropriate stakeholders

This section identifies stakeholders through a conceptual framework of identifying stakeholders (Figure 8.4). Afterwards, Table 8.3 presents a list of proposed stakeholders based on the conceptual framework and the actual development of eco-city projects in China. In order to explore and expand the number of relevant stakeholders, all stakeholders have opportunities to suggest additional unlisted stakeholders.

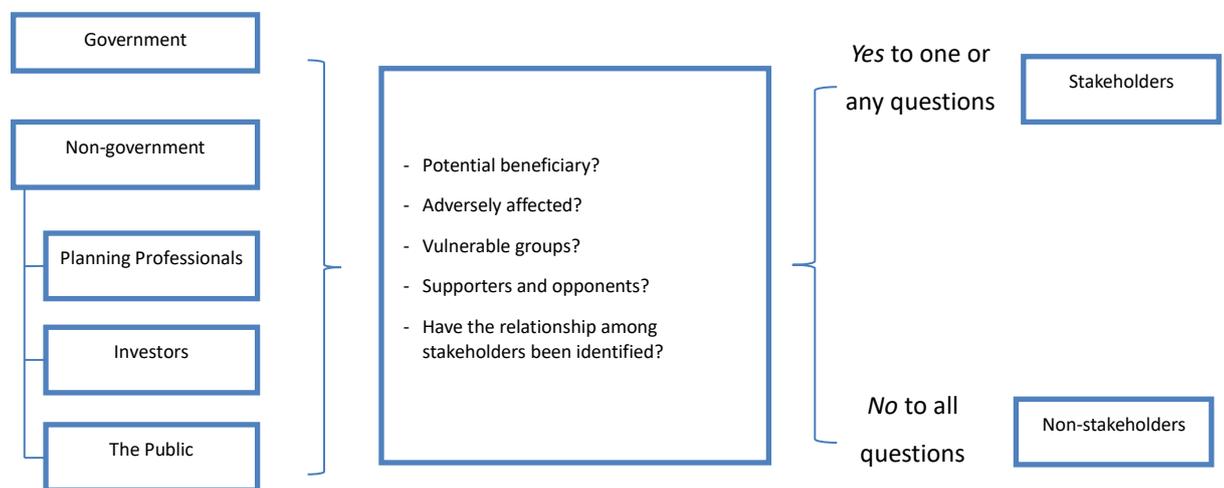


Figure 8.4 The Approach of Identifying stakeholders

(Sources: Rietbergen-McCracken and Narayan-Parker, 1998; Schlossberg and Shuford, 2005; Edited by Author)

The identification of stakeholders may be conducted by the team of conveners which includes local government and planning consultancy staff in accordance with the current planning system that exists in China. The list of stakeholders will be noticed by, and get feedback from, engaged stakeholders through communicative activities to ensure a deliberate process of identifying further potential stakeholders. Furthermore, it will indicate the engagement of both the public and the local community. This is especially true of the original residents and rural migrants. It is necessary for this to occur to guarantee the establishment of an equal collaborative relationship and the engagement of pre-existing

individuals (Habermas, 1984; Healey, 1992).

Having identified the list of stakeholders, it is necessary to scrutinise the initial role of each group of stakeholders (the content in *Italic* in Table 8.3) to distribute responsibilities with regards to the political, economic, academic, and the public dimensions that are integral in the delivery of an eco-city programme. The statement of roles of stakeholders also helps to establish collaborative relationships between stakeholders with shared responsibilities. Moreover, the adoption of such an approach can help to avoid tokenism in stakeholder engagement at its initial stage by indicating the boundaries of political engagement and the responsibilities of the local community. Consequently, it contributes to the establishment of a balanced relationship between stakeholders within the city.

Table 8.3 Proposed stakeholders in Eco-city projects in China

Group	Stakeholders	Role and character
Government	National Planning Authority	<ul style="list-style-type: none"> ● <i>Approve certification of land use and programme proposals</i> ● <i>Determine the strategic planning of Eco-city programme</i>
	Local government	<ul style="list-style-type: none"> ● <i>Administrators of the urban region</i> ● <i>Practitioners of implementing planning documents</i>
Planning professionals	National (or foreign) planning professionals	<i>Engaged in the central decision-making</i>
	Local planning professionals	<ul style="list-style-type: none"> ● <i>Play a less important role at the initial stage of Eco-city programme</i> ● <i>Could represent the willingness of the public</i>
Investors	Real Estate	<i>Dynamic of local economy at the beginning stage of Eco-city programme</i>
	Other existing companies	<ul style="list-style-type: none"> ● <i>Big companies may have a weak relationship with local socio-economy</i> ● <i>Small or medium sized companies may have a strong relationship with the political and economic supports</i>
The public	Local residents and employee	<i>Less engaged in the process of decision-making</i>
	Migrants	<i>Disadvantaged group which has been neglected</i>

b) Indicating relevant projects

The eco-city programme consists of certain projects in the economic, cultural and environmental dimensions within the city. Indicating relevant projects is important if one is

to find the diverse interests within the projects and provide support to the reconciliation of different interests, whilst also addressing the long-term and short-term interests of stakeholders and actors. The long-term visions of improving eco-city projects will be announced according to the visions of upper level planning, such as regional strategic planning and the master plan. These pronouncements combine with the diverse short-term visions of relevant projects. Figure 8.5 provides an example of cultural development in eco-city projects in China and illustrates the rationality of linking the long-term and short-term visions.

The intertwined interests of political reputation, investment returns, academic pursuit, and public welfare, may conflict with the interests of other stakeholders and this could challenge the ability to build a consensus regarding ecological visions within an individual eco-city programme. Therefore, these potentially contradictory interests will be illustrated explicitly during the communicative activities to prepare for the reconciliation of the diverse interests. The gap between different interests will be identified as problems in the next stage for further analysis.

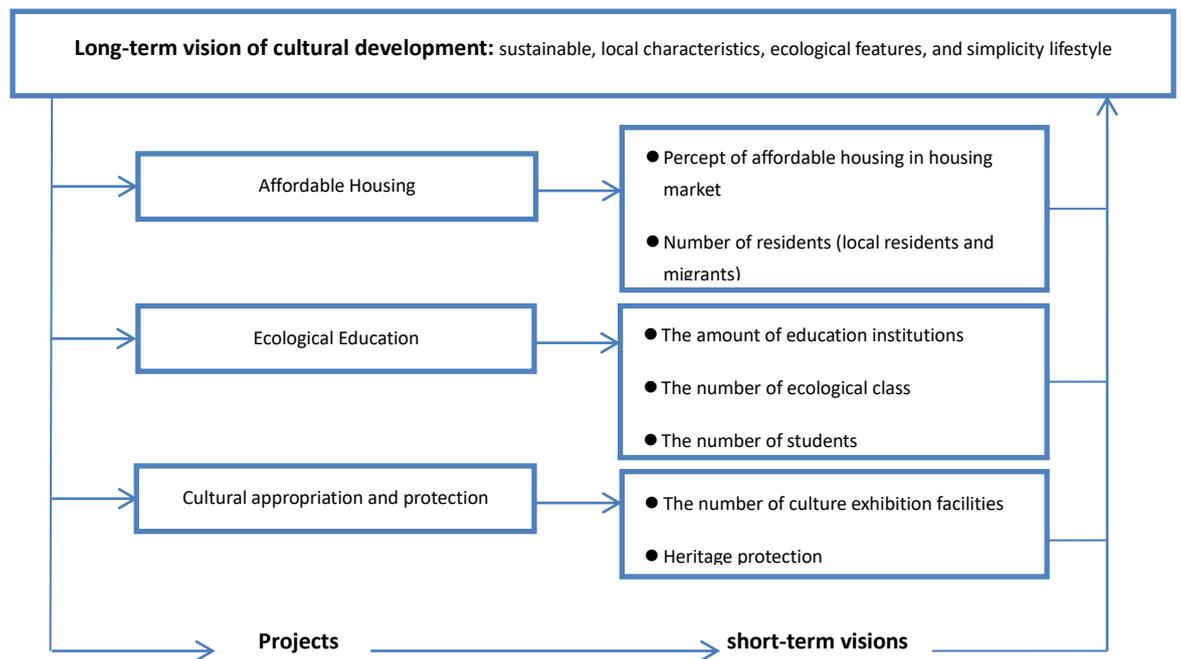


Figure 8.5 The link between long-term and short-term visions in cultural development

c) Mechanism of communicative activities

The mechanism of collaboration and communication between multiple stakeholders will be

dealt with at this stage including information exchange platforms, feasible patterns of communication, and other principles and priorities of communicative activities with respect to the four features of communication (*Where, When, Who, and How*). It is also an approach that enables the building of a consensus through collaboration and communication. This is illustrated in Table 8.4.

In terms of developing a mechanism for decision-making, the existing scope of political discretion requires redefining in the legislative system according to the realities experienced in existing eco-city projects. The delivery of eco-city projects is combined with perspectives of promoting ecology, economy, and society. However, the existing political assessment system is economically oriented (Yu, 2012). This has resulted in a situation arising whereby political discretion places more emphasis on economic progress. This study, therefore, advocates a shift of priority so that social and ecological perspectives are also taken into account. Furthermore, the process of decision-making should be deliberately conducted to achieve a consensus between stakeholders. To this end, all stakeholders including the public and local community should be given an equal opportunity to engage in the decision-making. For instance, the Municipal People's Congress could advocate on issues of public welfare to ensure that such issues are raised during the period of the congress. In addition, as representatives of the public, the local community offices, or "*jiedaobanshichu*", may engage in the process of decision-making during the adjournment (see Chapter 3.6.1). Further, the suggestions and proposals of all stakeholders will be evaluated consistently during the process of decision-making.

With regard to stakeholder engagement, a consistent relationship between government stakeholders and planning professionals is encouraged in the delivery of eco-city projects. Planning professionals will be convened by examining their advantages, including professional skills and expertise, rather than focusing on their academic reputation. Moreover, the engagement of investors could address the shortage of funding resources at the beginning stage of an eco-city programme. The adoption of such a process would help to encourage industries to invest in eco-city projects. If industries do invest in, for instance, ecological technology and green infrastructure, the result is the establishment of a win-win collaborative relationship with local government within the eco-city. In addition, a public and social supervisory system will be reinforced in the current planning system in order to ensure that all stakeholders are engaged equally and extensively. Government plays an important role in enabling non-government stakeholders to contribute to the delivery of

eco-city projects based on their ability.

The mechanism of information management places emphasis on the procedural and practical barriers to information exchange. It will indicate the methods of classifying information, especially the information collected through public participation. This, in turn, contributes to issues of information analysis and synthesis. Afterwards, it will provide a timetable for publishing the planning documents and providing feedback with regard to previous stakeholder engagement. The content of publishing documents should be scrutinised based on legislative requirements, such as the Urban and Rural Planning Law. Overall, the mechanism of information management is a key measure to avoid accusations of tokenism in stakeholder engagement.

Table 8.4 Mechanism of communicative activities

Mechanism of decision-making	the time and scope of political discretion	Where	When
	the components of decision-makers	Who	
	the relationship of decision-makers	Who	How
Mechanism of stakeholder engagement	vary patterns of planning consultancy	Who	How
	encourage investors and developers engagement	Who	How
	ensure the public and social supervisory system	Where	Who
Mechanism of information management	information classification	How	
	information publication	How	
	time and content of feedback	How	

Stage 2: Identifying the problem

In this stage, all stakeholders will highlight the difficulties which may occur during the delivery of an eco-city programme with reference to political, economic, cultural, and environmental concerns as well as with regard to issues of mutual communication. The process of identifying the problems will gain insights from the key notions of communicative planning (Figure 4.1) and deficiencies within the key issues (Table 8.2). It therefore enables the problem to be configured in an accessible way with regard to the aspects of *where*, *when*, *who*, and *how*. Table 8.5 illustrates the approach of configuring the establishment of the environmental assessment system in an eco-city programme. According to the

experiences gained in the previous stages of delivering an eco-city programme in practice, all stakeholders will contribute to the approach (as shown by the content in italics in the table below).

Table 8.5 The approach of configuring problems in the delivery of Chinese Eco-city

Problem	<i>The lack of environment assessment system (EAS)</i>
Location and Venues (Where)	<i>Lack of platform of discussing and configuring the issue which should be enrolled in EAS</i>
Time and Opportunity (When)	<i>The gap between new problems and existing law and penalty system</i>
Representatives and Stakeholders (Who)	<i>The public has limited opportunity of engaging in the establishment of EAS Social organisations could not play a role in establishing the EAS</i>
Patterns and Content (How)	<i>Lack of social supervisory mechanism Lack of integrating both quantitative and qualitative features in EAS</i>

There are three key principles which underpin the configuring of problems in the field of communication. First and foremost, the content of communicative activities should be stated based on the actual development. Presently, stakeholders are required to report successful activities. They should also be required to report on less successful projects as well as previous problems which have hindered the delivery of eco-city projects. To achieve effective communication and develop appropriate measures in the next stage, all stakeholders should indicate and explain the less successful actions that they have been involved in truthfully (Habermas, 1984).

Furthermore, stakeholders will have a comprehensive understanding of the difficulties that other stakeholders face, including the shortage of resources in diverse areas, conflicts of interests, and the difficulties involved in collaboration. Moreover, and in order to build consensus between the relevant groups of stakeholders, it is necessary to address the issues by reconciling divergent stakeholders' interests and establishing a collaborative relationship.

In addition, it is necessary to facilitate communication between stakeholders by avoiding misunderstandings and other barriers to effective and meaningful communication. The problems of mutual communication, including the difficulties associated with illustrating

visions of policy, understanding terminologies in the planning documents, engaging in communicative activities of professional topics, are discussed and recorded in the next section.

Stage 3: Developing the scenarios

This stage addresses the issues raised in the last section within the context of securing agreement from all stakeholders. There are a number of key steps within this stage:

a) Coordinate the list of engaged stakeholders

Although the stakeholders have been identified in the stage of preparation, as shown in Table 8.3, there may be a of lack of engagement from stakeholders during the actual development; insufficient professional support, an unnoticed public and local community, and potential investors might also be ignored. It is also a necessary process in the next cycle of CCEP, since the issues would be updated and this requires an examination of the list of stakeholders.

Based on the approach of identifying stakeholders (Figure 8.4), this section coordinates the list of stakeholders by adding potential or unlisted stakeholders. Table 8.6 provides key priorities for identifying potential stakeholders, including government stakeholders, planning professionals, investors, and the public.

Table 8.6 The priority of identifying potential or unlisted stakeholders

Groups		Priority
Government stakeholders		Scrutinise the list of relevant planning authorities
Non-government stakeholders	Planning professionals	<ul style="list-style-type: none"> ● Establish an open and free environment for academic discussion ● Attract potential planning professionals who support or oppose existing planning documents.
	Investors	<ul style="list-style-type: none"> ● Target the potential investors according to the scale and the domain of the company ● Establish a link between potential and existing investors
	Public and local community	<ul style="list-style-type: none"> ● Place more emphasis on migrants from rural areas and nearby towns ● Attract staffs of potential industries or companies

Based on the current decision-making system, local government and national planning authorities will, and should, be engaged in the delivery of eco-city projects in China. However, issues may still arise with the relevant planning authorities and those political bodies which have not played an appropriate role. Such problems hinder eco-city projects.

Therefore, in this stage, the priorities are to identify government stakeholders so that they may be scrutinised, and to focus on the coordinated relationship that exists between planning authorities.

In terms of non-government stakeholders, it is suggested that the convener should focus on exploring unlisted stakeholders, such as the potential supporter and opponents of existing planning professionals, relative firms of existing companies. The stakeholders should also be identified by considering the existing statement of the eco-city programme, including its scale, its role in regional economic development, and its physical environment. Moreover, it is necessary for central decision-makers to establish an open and free environment to attract non-government stakeholders. This would replicate the advocacy of transferring the role of government from controlling to enabling (Healey, 2006).

b) Solution Exploration

The solution or scenarios are developed to mitigate the barriers in communication, vary the ways of communication, and reconcile the bifurcations of achieving interests. Afterwards, opinions and judgements will be deliberately evaluated by decision-makers to encourage communicative activities.

As previously recommended, there are certain methods of communication, such as the establishment of a common language, employment of information exchange platform, and applying emerging communicative techniques, that could mitigate existing barriers in collaboration and communication. Stakeholders should focus on the problems proposed in the previous stage to deal with languages issues such as planning terminology.

Another issue that impacts on collaboration and communication is the divergent interests of stakeholders. It is identified that the process of reconciling interests consists of: the interest conflicts in the current Eco-city programme, the potential linkage between interests, and the timetable for achieving diverse interests. There are a series of issues which may not be addressed immediately because of the limitations of the socio-economic statement, such as the use of private vehicles in China. Furthermore, it is essential to indicate the common ground that may in fact exist within the seemingly diverse interests of different stakeholders within a specific project. For instance, in China, a GI project consists of varied interests in political, economic, and environmental dimensions. To address this plethora of interlocking issues requires advanced communication to discover the potential linkages between these interests and achieve a win-win collaborative relationship. This is not a straightforward

process and, consequently, it is necessary to draw a timetable of actions which are aimed at achieving balance between the diverse interests.

c) Feasibility Analysis

A solution should be analysed by combining the diverse suggestions of stakeholders to improve its feasibility. This process requires government and non-government stakeholders to examine the challenges of adopting solutions in practice according to the specific skills that they bring to the delivery of an eco-city project. Moreover, the public and local community could have an in-depth understanding of the solutions by engaging in such process. This could promote the feasibility of solution implementation. Extensive engagement of the public could gain more support and also prompt further suggestions as to how planning documents should be revised from the public and local community (Du and Yu, 2010).

d) Establish the work plan for implementation

The work plan is set up based on the draft of the working schedule established in the stage of preparation. This should indicate the time limits, visions of each working step, and how to engage stakeholders. The work plan aims to provide an explicit procedure for planning practitioners by indicating time (*When*), communicative location and channel (*Where*), engaged stakeholders (*Who*), and the vision and content of activities (*How*). Table 8.7 provides a sample work plan. Each group of stakeholders may set up a work plan according to their individual working habit. Although the patterns of a work plan may be variable in practice, the common language and four key features of communication (*Where*, *When*, *Who*, and *How*) set up in previous stages will be used in the work plan to avoid bifurcations of understanding.

Table 8.7 A sample of work plan for local government

Project:	<i>XXX Park*</i>			
Time:	<i>June 2015 – December 2016</i>			
Phase	End Date (When)	Visions and Content (How)	Communicative location and channels (Where)	Stakeholders (Who)
Phase #1	<i>Aug 2015</i>	<i>Preparation for construction: Land preparation, office in construction site, water and electricity supply, etc.</i>	<i>Meeting Video meeting</i>	<i>Local government** Investors Contractor Planning professionals**</i>
Phase #2	<i>Sep 2015</i>	<i>Preparation for construction: Examine the relevant planning documents; Explore the barriers of implementing the documents, such as the noise of construction to neighbourhood.</i>	<i>Meeting Public notification Survey online</i>	<i>Local community Contractor Planning professionals</i>
Phase #3	<i>Apr 2016</i>	<i>Inspection of construction: Open public space, and others relating to structure construction</i>	<i>Construction site Virtual reality</i>	<i>Contractor Planning professionals Local government</i>
Phase #4	<i>May 2016</i>	<i>Inspection of construction: Trees, etc.</i>	<i>Construction site An information platform for the key stakeholders to update</i>	<i>Contractor Planning professionals Local government</i>
Phase #5	<i>Jul 2016</i>	<i>Inspection of construction: Pavement, leisure facilities, etc.</i>	<i>the progress of construction or implementation</i>	<i>Contractor Planning professionals Local government</i>
Phase #6	<i>Aug 2016</i>	<i>Inspection of construction: shrub, lawn, etc.</i>		<i>Contractor Planning professionals Local government</i>
Phase #7	<i>Sep 2016</i>	<i>Examination of experience of park</i>	<i>Construction site Meeting Survey online</i>	<i>Local community Planning professionals Investors Contractor Local government</i>
Phase #8	<i>Dec 2016</i>	<i>Final adjustment and coming into use</i>	<i>Construction site</i>	<i>Local community Planning professionals Investors Contractor Local government</i>

(Sources: Xi'an Dingxing Landscape Ltd., 2014, edited by author)

*It is a project which is edited based on work plan of an actual park project. The date and content is modified according to the original project.

** The local government/planning professionals should be specified in the actual development according to the expertise of the individual stakeholders.

Stage 4: Implementation

The solutions, including the agreements and the mechanisms set up in the previous stages, will be operationalized in this stage. This stage aims to realise the proposals and provide outcomes for evaluation. The key priorities in achieving a successful implementation include:

a) Compliance with the agreements

Practitioners would play two roles in this stage: implementor and supervisor. In the stage of implementation, stakeholders are required to act in compliance with the agreements made in the previous stages (Kenawy, 2015). The process of adopting solutions should be conducted according to the mechanism of communicative activities to reduce the negative influences that can be caused by ineffective collaboration and communication. The lack of public and social supervisory mechanism has been raised. Thus, it is essential to ensure the supervisory role of non-government stakeholders during the implementation of planning documents. Government stakeholders should also play a supervisory role during departmental collaboration. In brief, as a key principle of implementing planning documents, mutual supervision should be underlined.

b) Institution and legislation

The way of implementation will be conducted according to existing institutional and legislative systems. That said, the system should be modified based on both effective and ineffective experiences generated in the actual development. This requires a more effective institutional and legislative system to mitigate the gap between issues raised and the corresponding measures advanced to overcome them. Moreover, the scope of discretion and the responsibilities of the government stakeholders in the system should be revised according to the experiences gained within the actual development.

c) Efficient information exchange

Practitioners inevitably come across challenges during the period of implementation. As a result, they may require immediate support from political, economic, and academic dimensions. An efficient information exchange could mitigate the negative influence of such challenges whilst also helping to build a consensus on developing temporary scenarios.

Stage 5: Monitoring

The stage of monitoring will assess and report the outcomes of the implementation of an eco-city programme. It will also include a process of feedback based on the perspectives of

all the stakeholders. This will contribute to the delivery of future eco-city projects in the next cycle of CCEP.

The assessment and report after the stage of implementation is delivered by local government and developers in the current planning system in China. More importantly, the content and scope of the reports published are scrutinised according to the mechanism of information management indicated in the previous stage. It is essential for information publishers to ensure that information is effectively delivered to other stakeholders. Variable patterns of publication are encouraged to contribute to the precision and explicitness of the information disseminated.

In terms of feedback, it is essential for government stakeholders to gather feedback from all stakeholders after implementation to evaluate the performance of the development programme. This should also include the judgements of third-parties, such as social organisations, NGOs, and other non-shareholders. In addition, stakeholders are required to provide feedback on the communicative activities of their co-operators to facilitate further collaboration and communication in the future. Additionally, feedback and judgements should be replied to under an appropriate schedule to provide stakeholders with evidence of the importance of their engaging in the monitoring of the delivery of eco-city projects in China.

8.5. Conclusions

The analysis within this chapter addressed the key question of this research as to how CAT and CP could facilitate the delivery of newly built eco-city programmes in China. First, the 12 key issues which may occur in other developments of an eco-city showed an updated image of ecological development in China with respect to political, economic, cultural, and environmental dimensions. It enhanced the relevance of the thesis in the delivery of eco-cities in the current Chinese planning system.

Secondly, it explored and established a robust linkage between the developments of eco-city programmes with communicative rationality through synthesising the in-depth deficiencies inherent within the 12 key issues. Thus, the issues were addressed by indicating the four key features of communicative activities (Habermas, 1984; Healey, 2006), including venue (*Where*), time (*When*), stakeholders (*Who*), and patterns (*How*). Recommendations were also suggested in respect of these four key features: explore new venues, determine proper time and duration, identify required and correct stakeholders, and explore effective patterns of communication and collaboration. It highlighted the role of social organisations

(Sun and Zhu, 2010; Hu, de Roo, and Lu, 2013) and online information platforms (Xiao, 2010; Zhang, L., 2011) as means by which to vary places for communicative activities to take place in China. Moreover, the relevance of establishing an effective legislative system in planning system is stated as being to normalise the time and opportunity of using political discretion. A long-term collaborative relationship is encouraged to be set up to provide more opportunities for non-government stakeholders to engage in the process of decision-making (Ge, 2012; Sun and Zhu, 2010). Furthermore, the stakeholders are identified by introducing a mechanism raised by Rietbergen-McCracken and Narayan-Parker (1998) and Schlossberg and Shuford (2005). The importance of engaging national departments, local planning professionals, and the local community, was highlighted in order reflects the weak points that exist within stakeholder identification in the current Chinese planning system. In addition, certain mechanisms of communicative activities were suggested to further facilitate the reconciliation of diverse interests between stakeholders, information exchange, and the enhancement of effective communication. These recommendations if implemented will contribute to the establishment of a practical framework which guides the planning practice of delivering eco-city projects in China.

Finally, the research question which was repeated at the beginning of this chapter was answered through the establishment of a robust practical framework for communicative and collaborative eco-city planning (CCEP). The CCEP is established to facilitate the efficient delivery of eco-city programmes throughout the whole planning process. To avoid the barriers which have occurred in previous Chinese eco-cities, the framework employs several mechanisms in the field of the stakeholder identification, interest reconciliation, and the arena communicative activities to set up certain principles for practitioners at the beginning stage of delivering an eco-city. In addition, the framework established an approach for dealing with the issues that arise during the development of eco-city programmes. Government and non-government stakeholders should be engaged in develop the scenarios and facilitating the dissemination of planning documents. Furthermore, all stakeholders are required to provide feedback to explore the issues that arose and make suggestions for further developments. Overall, the adoption of CAT and CP helps practitioners to deal with previous, existing, and potential issues in the delivery of eco-city projects in China.

Chapter 9 Conclusions and further studies

9.1. Introduction

The purpose of this chapter is to draw together the final conclusions in respect of the conceptual discussion (including the concept of eco-cities, communicative action theory [CAT], and collaborative planning [CP]) (Chapters 2, 3 and 4) and the field investigation that investigated the practice of eco-city development in China (Chapters 6 and 7), as well as to present recommendations for the future planning of eco-cities in China (Chapter 8). It begins with a review of the research background leading to the key research questions that have been addressed in this study. Then, it reflects on the extent to which the research objectives have been achieved, which is determined by illustrating how the study answered the four research questions. First, it illustrates the rationality of highlighting collaborative and communicative planning in the Chinese planning system. In order to link CAT and CP with the delivery of eco-cities, it discusses Western planning theories and applies them to the process of urbanisation in China. It also scrutinises patterns of sustainable development to identify the importance of delivering eco-cities in China. Furthermore, it points out the fundamental barriers to delivering eco-city projects in order to explore the benefits of communicative rationality which, it is argued, could minimise these barriers. Gaining insights from communicative rationality, a practical framework, the collaborative and communicative eco-city framework (CCEP) has been developed which combines the conceptual discussion of the eco-city, CAT, CP with recommendations for facilitating enhanced communicative activities in the delivery of eco-city programmes in China. Finally, it links the major findings of the study to the development of current and future Chinese planning systems to indicate the contribution of this research. Additionally, the limitations of the study are discussed, which is followed by suggestions for further study.

9.2. Evaluation of the research objectives

9.2.1. Research purpose

In China, there is a witty remark prevalent in planning professions: *Zhishang huahua, Qiangshang guagua* (Chinese term “纸上画画 墙上挂挂” which means Drawing up, Hanging up) (Hong, 2015), which is a criticism of planning documents which focus too strictly on urban design but have limited opportunities for implementation in practice. China has witnessed a rapid process of urbanisation in the last three decades which has led

to a series of challenges in the political, economic, cultural and environmental dimensions to achieve sustainable development. Simultaneously, planning professionals have met certain difficulties in dealing with emerging issues in the field of planning implementation, monitoring, and balancing the divergent interests of different groups. However, they could gain limited support from the planning theories of developed Western countries which have been introduced by Chinese planning theorists. An increasing gap has therefore been developed between plan-making and implementation in sustainable development in China. Consequently, it is essential to explore a “Chinese model” (Qiu, 2009: 12) of developing sustainability by addressing four key questions:

- What planning theory or conceptual framework may contribute to sustainable urban development in China?
- Why have eco-cities become a significant development approach in achieving sustainability in China?
- What hampers the delivery of eco-city programmes in China?
- How has the rationality of planning theories contributed to the practice of planning in eco-city development in China?

Therefore, the purpose of the study was to examine: a) how the planning theories widespread in Chinese planning academia; b) the status of eco-city development in China, to develop a practical framework for delivering Chinese eco-city programmes. This framework evaluates plan-making and implementation through the lens of communicative activities with respect to venue, time, stakeholders, and communicative patterns, to achieve sustainable urban development. To this end, this study critically reviewed the nuances of planning theories recognised in Western countries and China to examine whether collaborative and communicative planning has gained attention from planning academics in China (Wu, 2000; He, 2007; Shi, 2007; Zhang, 2012). Then, it provided an overview of the process of urbanisation over the last five decades to illustrate the importance of delivering new urban areas in China (Wei, 2012; Hu, 2015). A comparison between new town and eco-city projects was made to support the existing studies on an approach to deliver new town programmes with ecological concepts. In addition, it discussed a pattern of developing sustainability through exploring the eco-city and its role in Chinese urbanisation. Furthermore, it re-examined the communicative rationality highlighted in CAT and CP, and the feasibility of adopting both theories in the Chinese context. One of main tasks of this

study has been to explore the key issues which have hindered eco-city programmes in China. It undertook this by combining the conceptual discussion based on existing studies, with field investigation. Finally, a series of recommendations have been made to mitigate these issues and to bridge the gaps that exist between plan-making and implementation in eco-city development. The study also developed a practical framework, the CCEP, to guide the procedures of planning, decision-making, implementation, and monitoring in delivering eco-city programmes in China.

9.2.2. The link between eco-cities and communicative rationality in China

This research has argued that there is no significant barrier to introducing Western planning theories in Chinese planning system. According to Wu (2000), He (2007) and Zhang (2012), many Western planning theories (such as rational models, advocacy planning, and communicative planning) have been recognised in China, although Chinese planning professionals have not extensively embraced the rationality of communication in a Chinese context. Moreover, by comparing the findings of Allmendinger and certain Chinese scholars (He, 2008; Liu and Wang, 2006; Qiu, 2003; Shi, 2007; Wang, 2003; Wu, 2000), it has been found that there are no significant differences between Western and Chinese planning academia in recognising the key planning ethos and theories which are extensively discussed in Western urban development. Moreover, the dynamics of generating these theories in Western countries can also be found in China with respect to the socio-economic dimension. This provides grounds to discuss collaborative and communicative planning in China (He, 2008; Hu, de Roo, and Lu, 2013).

Gaining insights from collaborative planning in Western countries (Forester, 1989; Healey, 1992; Innes, 1995), Chinese planning professionals started to link collaborative and communicative planning with the planning system in China in the 1990s (Wu, 2000; Shi, 2007; He, 2007; Zhang, 2012). It is proposed that some communicative planning efforts have been made by local government authorities in the Chinese context to illustrate its possibilities (Hu, de Roo and Lu, 2013). However, commentators have pointed out three major concerns about adopting an approach of collaborative and communicative planning in the Chinese context: doubt as to the substantial outcome of adopting this approach (Zhang, 2012); existing power relationships and the top-down political system (Hu, de Roo and Lu, 2013; Cheng, 2013); and difficulties with engaging the public and local communities (Leung, 2007; Deng et al., 2015). Consequently, there is a visible gap between what is advocated in theory and the implementation of collaborative and communicative planning

in China in practice.

In order to implement collaborative and communicative planning in the Chinese context, it is necessary to scrutinise the process of urbanisation in China. Since 1995 (a period of rapid increases in urbanisation; see Chapter 3.1), China has witnessed a significant shift in migration from rural areas to urban areas. This has led to a significant increase in the need for newly built urban areas. Practitioners, therefore, faced particular challenges in the field of urban planning, such as sustaining a growing urban population, fulfilling the requirement for a liveable environment, and the need to reduce energy consumption. These challenges dramatically hindered the delivery of sustainable urban areas or eco-cities in China (Qiu, 2009). Methods for developing sustainability within urban planning have been discussed by Chinese planners since the 1980s, and gained prominence in planning academia in China in the 1990s (Zhao, 2011a; Li and Zhong, 2012; Li and Dong, 2006; Zhang et al., 2007). Along with the growing pressure of an increased population, environmental pollution, and escalating energy use in urban areas, advocating sustainable development has shifted from promoting environmental sustainability to embracing a combination of economic, social and environmental perspectives (Qiu, 2009; Li, 2012; Yu, 2012). Moreover, emerging issues in respect of the natural environment and the crisis of natural resources have become important motivations for embracing ecologism, or the concept of the eco-city. This is because the latter aims to deal with the relationship between human activity and the natural environment and resources (Urban Ecology, 1996). The 'ecology' and 'ecological' are mentioned increasingly frequently in Five-Year Plans from 1996 to 2010, and more than 90 per cent of Chinese cities had announced their ecological vision by 2012 (Li, 2012). Hence, the delivery of eco-city programmes gained prominence with politicians and planning professionals alike (Zhao, 2011b). Consequently, this thesis addressed the research question as to why the eco-city has become a major way of achieving sustainability in China.

However, increasingly, proposals for eco-cities were stopped in the 2010s (Li and Liu, 2011b), as the delivery of eco-cities faced a series of challenges in political, economic, cultural, and environmental dimensions (Yu, 2011; Li, 2012). In order to explore the issues which hindered the delivery of eco-cities, one of the key research objectives was to re-examine the challenges of delivering the eco-city programme in China. This was achieved in three stages.

First, the planning process for the Chinese eco-city based on existing studies was examined in order to establish the conceptual framework proposed in Chapter 3. The conceptual

framework consists of two parts: the challenges in delivering the eco-city programme and the communicative rationality raised in CAT and CP, as well as the feasibility of adopting rationality in the Chinese context.

The conceptual framework was established to help the generation of case study strategies and research question design. It also helped to form the structure of the data analysis in respect of the political, economic, cultural, environmental, and communication and collaboration dimensions.

A further component of the conceptual framework indicated the rationality of collaborative and communicative planning, as well as the academic and political environment for adopting collaborative action theory (CAT) and collaborative planning (CP) in urban developments in China (Chapter 4). It proposed an increasing awareness of the importance of adopting communicative rationality, although existing research on CAT and CP has been, to a large degree, conducted through the lens of public participation (Hu, 2013; Li, 2013; Wang, 2003). Moreover, the role of collaboration and communication in urban planning has drawn attention from the Central Government of China, according to the Five-Year Plans (FYPs) in the last two decades (NPC, 2001, 2006, 2011, and 2016).

The second step examined the issues which hindered the actual development of the eco-city programme through two case studies; Tianjin Eco-city and Dongtan Eco-city (see Chapter 9.2.3). Finally, the issues highlighted in this thesis were generated by integrating the conceptual framework (first step) and the investigated data (second step) in Tianjin and Dongtan (see Chapter 9.2.3).

9.2.3. Evaluate the practice of planning in the eco-city programme in China

As mentioned in the previous sections, in order to evaluate the practice of planning for Chinese eco-city projects, this study was conducted through integrating the conceptual framework proposed in Chapter 3.6 and the realities generated from the investigation in Tianjin and Dongtan (Chapters 6.2 and 7.2). Hence, it answered the research question as to what issues have critically hindered the delivery of the eco-city programme in China (see Table 9.1 below).

Table 9.1 Issues critically hindering the delivery of the eco-city programme in China

KEY ISSUES RAISED IN THIS RESEARCH	LITERATURE (Chapter 3.6)	Sino-Singapore Tianjin Eco-city (Chapter 6.2)	Shanghai Dongtan Eco-city (Chapter 7.2)	OVERALL
Disadvantages and advantages of engaging political government	Highlighted; Limited discussion with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Limited discussion with CAT and CP	Highlighted; Discussed with CAT and CP
Excess Discretion of Leadership	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Limited discussion with CAT and CP	Highlighted; Discussed with CAT and CP
Gap in understanding Economic patterns and funding sources	Highlighted; Limited discussion with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP
Gap in considering the role of Eco-city in Regional Economic Development	Not Highlighted	Highlighted; Discussed with CAT and CP	Not Highlighted	Highlighted; Discussed with CAT and CP
Lack of Attention to Ecological Culture	Highlighted; Discussed with CAT and CP	Not Highlighted	Not Highlighted	Highlighted; Discussed with CAT and CP
Lack of Attention to Migrant and Local Culture	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP
Environmental Promotion (GI Development) and Its Economic Efficiency	Highlighted; Limited discussion with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP
Lack of Environment Assessment System	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Limited discussion with CAT and CP	Highlighted; Discussed with CAT and CP
Lack of Departmental Coordination	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Limited discussion with CAT and CP	Highlighted; Discussed with CAT and CP
Ineffective Mechanism of Disciplinary Collaboration	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP
Lack of Effective Collaboration between Multiple Stakeholders	Not Highlighted	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP
Lack of Public Participation	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP	Highlighted; Discussed with CAT and CP

 Highlighted; Discussed with CAT and CP	 Political	 Environmental
 Highlighted; Limited discussion with CAT and CP	 Economic	 C & C
 Not Highlighted	 Cultural	

(Sources: Li & Liu, 2011b; Wen, Ni & Bai, 2012; Yu, 2012; Lei, 2001; Booth, 1999; Heazle, 2010; Catney & Henneberry, 2012; Roseland, 1997; Pow & Neo, 2015; Sharifi, 2015; Li & Li, 2003; Li, 2004; Xu, 2008; Zhu & Li, 2013; Urban Ecology, 1996; Xia, et. al, 2005; He, 2006; Wang & Xiao, 2009; Zhou, 1991; Song, 2005; Ye, 2010; SSTEAC, 2007; Zou & Zou, 2015; Du & Yu, 2010; China Economic, 2015; Tsou, et al, 2003; Mah and Hills,2012)

As shown as Table 9.1, 12 issues were classified into five areas: political, economic, cultural, environmental, and communication and collaboration:

- In the political dimension, political bodies were criticised because their engagement was initiated or assessed, to a large extent, with regard to economic targets (Yu, 2012). Political engagement could bring benefits to the economic progress at the initial stage of delivery of an eco-city. However, the implementation of ecological principles in eco-city projects was compromised with the economic development that is required by local government. Moreover, the employment of discretion by leaders is an important component of delivering eco-city projects in China. Nonetheless, it could not avoid unreasonable side of decision if there is no corresponding law and measure in legal system and supervisory mechanism.
- Debates about economic development within the eco-city focused on the identification of problems between planning professionals and practitioners, especially with reference to funding resources and the types of companies which should be attracted. Planning professionals criticised how the real estate industry could not, or would not, contribute to long-term economic development. Practitioners also raised concerns about the shortage of funding for delivering newly built eco-city programmes. They argued that this requires the support of the real estate industry with respect to the promotion of infrastructure and the physical environment. Planning professionals suggested that the companies targeted should combine certain features of the eco-city programme, including the scale of an eco-city and its role in the region. Community companies were recommended to be developed in eco-cities; however, practitioners preferred larger companies rather than small and medium-sized companies or community companies, because of revenue considerations.
- Cultural issues are largely caused by the gap between the culture of migrant and local residents in eco-cities. In a newly built eco-city, it is difficult to explore the features of the local culture where there is limited local residency. Furthermore, cultural issues could not significantly hinder the delivery of the eco-city at its initial stage since the small number of local residents could not bring such issues to prominence. In addition, a newly built eco-city will inevitably face issues with regard to receiving migrants and the migrant culture in China. This has led to discrimination against migrants and a lack of engagement with cultural appropriation in the eco-city.
- Environmental issues include green infrastructure (GI) suffering from a lack of maintenance and environmental assessment systems. It was suggested that practitioners have given significant attention to green technology in the delivery of

eco-cities (Li and Liu, 2011b; Yu and Ning, 2011; Wen, Ni and Bai, 2012); however, the maintenance of GI has become a key issue where investors and planning professionals felt it was difficult to reconcile divergent interests. Investors raised a concern about the high cost of maintenance and the long return period of investing in GI. In terms of an environmental assessment system, the existing system was not adequately updated to effectively deal with emerging problems. Moreover, the relevance of qualitative features in delivering an eco-city programme was neglected in some systems, such as Dongtan Eco-city. In addition, the existing systems have not engaged with the public or social organisations which could reflect the requirements and interests of the public and local community.

- Collaboration and communication is an important dimension which was emphasised in this research. Indeed, it highlighted four issues within eco-city developments, including a lack of departmental coordination, ineffective mechanisms for ensuring disciplinary collaboration, ineffective collaboration between multiple stakeholders, and a lack of public participation. Generally, collaboration and communication between, or within, groups of stakeholders was hindered for a variety of reasons including the ambiguous role of stakeholders, the lack of a common language, the absence of a communicative platform, the difficulties in identifying appropriate stakeholders, and there being insufficient opportunities for collaboration to take place.

In order to link these issues with communicative rationality, this research synthesised the deficiencies of 12 key issues by combining the four features of communicative activities (*where, when, who, and how*) based on the work of Habermas (1984) and Healey (2006) (Chapter 8). Recommendations were provided to deal with the deficiencies highlighted to answer the final research question: How does the rationality of planning theories contribute to the practice of planning in eco-city development in China? The recommendations were presented to answer the four major questions of *where, when, who, and how* (Table 9.2).

Table 9.2 The recommendations for dealing with issues in the eco-city

1. Deficiencies: Lack of proper location and venue (Where)
Recommendations: Communication and collaboration should be conducted by using emerging communicative techniques, such as the internet and mobile apps. Social organisations or local community offices should also play a role of being arenas for collaboration and communication.
2. Deficiencies: Lack of an established information exchange platform (Where)
Recommendations: The establishment of an information exchange platform should be led by government to encourage various stakeholders to communicate by using the platform. It could be established based on using the internet to provide and exchange information twenty-four hours a day.
3. Deficiencies: Inappropriate scope of using political discretion (When)
Recommendations: Reinforce the legal framework to re-define the scope of using political discretion, especially in coping with emerging issues of delivering an eco-city programme, such as the reward mechanism of green building.
4. Deficiencies: The short-term collaborative relationship (When)
Recommendations: The establishment of a continuous relationship between stakeholders, for instance, government and planning professionals, could reduce the barriers to communicative activities which occur at the beginning stage of a new collaborative relationship. A long-term relationship also provides evidence for studying the eco-city programme effectively.
5. Deficiencies: Inconsistent role of public participation in the practice of planning (When, How)
Recommendations: A complete process of public participation should engage the public at each stage of decision-making, from plan-making to feedback (Sun and Zhu, 2010). It should also indicate the mechanism used for managing information collected from the public to avoid the tokenism of public participation.
6: Deficiencies: Insufficient engagement of diverse planning departments (Who)
Recommendations: At the national level, the MOHURD and MLR should be engaged at the preliminary stage of the eco-city programme to support the practice of planning with respect to urban design and land use. Local government should play the role of gatekeepers of these two departments. Moreover, at a local level, departmental collaboration should be encouraged to bridge the gap between plan-making and implementation.
7: Deficiencies: Lack of participation of planning professionals and the public (Who)
Recommendations: Planning professionals, including local, national, and foreign planners, should be identified based on their expertise and background rather than focusing on academic reputation. Moreover, this research suggests that the engagement of planning professionals could help the use of discretionary power to avoid its irrational side. Furthermore, the public should be identified properly through an established approach (Figure 8.4) instead of targeting people who could, or would, advocate only their own welfare.
8: Deficiencies: Unbalanced collaborative and communicative relationship (How)
a) Top-down process of decision-making; b) Lack of common language
Recommendations: a) To ensure the opportunities for stakeholders by providing their perceptions and interests in the process of decision-making. All comments and judgements should be addressed appropriately to promote the awareness and willingness of engaging in the process of decision-making. b) The establishment of a common language could mitigate the barriers of mutual understanding. It not only focuses on linguistic issues, but also the exploration of common good in the delivery of the eco-city projects.
9: Deficiencies: Lack of communicative mechanism (How)
Recommendations: An appropriate mechanism of communication should indicate the procedural and practical feasibility of implementation by ensuring the time and expenditure of the communicative activities under control. It includes a timetable and budget (Chen, 2000; Chen and Ma, 2009), scope and validity of information (Chen and Ma, 2009; Sun and Zhu, 2010), and an approach utilising information synthesis (Sun and Zhu, 2010; Zhu and Liu, 2012).
10: Deficiencies: Insufficient media of collaboration and communication (How)
Recommendations: The media of collaboration and communication should be varied, including languages and non-language media. Language-based communicative activities consist of oral communication and non-oral communication, such as text communication. The non-language-based communicative activities could be conducted through changing experiences, the objective world, and social world, of communicative actors, for instance, self-study, any change in the physical environment, and encouraging a simplicity lifestyle in the local community.

The recommendations were made from the primary research in Tianjin and Dongtan and an analysis of the emergent deficiencies presented in the actual developments. Furthermore, they provide evidence for the creation of a practical framework for collaborative and communicative eco-city planning (CCEP) in eco-city programmes in China.

9.2.4. Develop a practical framework of eco-city planning

CCEP was proposed based on the conceptual framework and the key recommendations outlined in Chapter 8 and Table 9.2. The framework was developed to mitigate the barriers to communication between multiple stakeholders, and to promote the effectiveness of communicative activities in the field of planning, including decision-making, implementation, and monitoring in the delivery of eco-city programmes.

The proposed CCEP framework contains five connected stages (see Figure 8.3): *preparation, identifying the problem, developing scenarios, implementation, and monitoring*. The preparation stage is aimed at limiting the impact of potential barriers to communicative activities. This was highlighted as an issue in existing studies and this research and included the approach of identifying stakeholders (see Figure 8.4), ascertaining the relevance of projects, and the mechanism of communicative activities (Table 8.4). The problem identification stage would be based on the materials provided by the previous stage to point out issues that occurred during the delivery of the eco-city programme. It configures the problem with respect to the four features of communicative activities: *where, when, who* and *how*. A table of deficiencies (see Table 8.5) would be presented to indicate why the programme faced certain issues. Thereafter, in the third stage, scenarios would be developed to deal with the problems identified in the second stage. It contains an approach of re-identifying stakeholders who might have been neglected in the early stage of plan-making. Moreover, the process of developing scenarios would be conducted to achieve three major goals: the mitigation of communicative barriers, enhancing variations in the methods of communication, and the reconciliation of diverse interests. In addition, a work plan for implementation (Table 8.7) would be developed to illustrate the key principles of (*where, when, who* and *how*) by adopting the framework in practice. The fourth stage, the implementation stage would operationalize certain measures, mechanisms, and planning documents generated in the previous stages. The norms of implementation should be indicated in the institutional and legislative system. This would require a revision of the existing system to deal with emerging issues in the delivery of eco-cities. Finally, stakeholders would be required to provide judgements based on the process of

implementation. This would also provide evidence for identifying problems in the next cycle of CCEP. In general, it is a coherent and cyclical approach for dealing with the barriers to communicative activities through building consensus and achieving a win-win relationship for stakeholders.

The framework was designed based on the existing planning process in the delivery of eco-cities by implementing the rationality of CAT and CP. In addition, it is not an advocate of shifting the top-down process of decision-making to a bottom-up approach, but seeks to facilitate consensus building in the delivery of the eco-city programme in China. The relevance of the framework is illustrated in the next section.

9.3. Contribution of the findings

This research has achieved its objectives as set out in Section 9.2.1, and thus makes theoretical and practical contributions to the delivery of eco-city programmes, as well as decision-making and stakeholder engagement in China. It also provides recommendations for how the patterns of communicative activities could be changed in the development of eco-cities in the future.

As previously mentioned, this research discussed the key issues of delivering eco-city projects in China. Through case studies in Tianjin Eco-city and Dongtan Eco-city, it examined the current situation of delivering eco-city programmes to provide supporting evidence to aid in the identification of problems with the development of eco-cities in China. Moreover, despite the issues in the political, economic, cultural, and environmental dimensions, it highlighted the relevance of communicative activities which significantly led to the less successful delivery of the Chinese eco-city programme. Thus, it provided evidence to support an approach of collaborative and communicative planning that could benefit the achievement of sustainable development in China.

Additionally, there are difficulties in implementing planning documents and identifying the planning rationality through collaboration, as well as with regard to building consensus amongst diverse stakeholders (Wu and Yu, 2005; Zou, 2005). This research explored a modified process for decision-making and collaboration according to the existing planning process in Chinese eco-cities. It also introduced a mechanism for combining the perspectives of stakeholders to mitigate the impact of irrational decisions. Furthermore, the approach of consensus building in the process of decision-making was revised by adopting communicative rationality. This offers practitioners a more practical approach which includes identifying stakeholders, discovering and establishing the key issues occurring in

the city, and developing scenarios to achieve a better outcome for the eco-city programme in China. Moreover, the organised mechanism of communicative activities can benefit consensus building and information exchange in the Chinese planning system. Additionally, the framework can also bring some benefits to the procedural and practical issues of delivering newly built eco-cities or new towns in other regions in China which have similar issues to the cases selected in the socio-economic dimension: for instance, conflict between environmental protection and economic development.

In addition, this research presented a clear process for engaging stakeholders in the delivery of the eco-city programme, to bridge the gaps between the engagement of government, planning professionals, and investors, and to promote public participation in the development of Chinese eco-cities. It established a series of methods for stakeholder engagement, including identifying appropriate stakeholders, patterns of communication, and management of information gathered from stakeholders to promote the effectiveness of engaging stakeholders with diverse backgrounds. It directly addressed the issues of engaging different stakeholders, such as political bodies (Liu, 2010; Li and Liu, 2011b; Li, X., 2012), information holders (Mao, 2015), and the public (Xu and Tao, 2011; Sun and Zhu, 2010), through a developed process of collaboration with diverse patterns of communication. It especially pointed out the relevance of engaging information holders (big internet companies, such as BAT) in the practice of planning to embrace the developing Chinese internet industry and enable internet information exchange – a process that has drawn attention from the central government of China (Mao, 2015). In addition, a facilitated process of stakeholder engagement was designed to contribute to the exploration of the common goods that are enhanced through delivering eco-city projects in China.

Finally, the establishment of CCEP could provide evidence for other research in the field of collaborative planning. To facilitate the less ordered and practical collaboration of multiple stakeholders in the existing Chinese planning system (Huang, 2004; Sun and Zhu, 2010; Hu, de Roo and Lu, 2013), the practical framework of CCEP attempted to offer the four major groups of stakeholders – government, planning professionals, investors, and the public – a new set of guidelines to conduct the practice of planning within the eco-city. It also presented a pattern for delivering a more successful eco-city programme in China. Moreover, to ensure effective collaborative and communicative relationships between stakeholders, mechanisms of communicative activities were established for practitioners as principles for adopting communicative rationality.

9.4. Limitations of the study

In addition to highlighting the contribution of this research, it is essential to acknowledge and identify the limitations of this research programme which impacted on the findings of the research.

There were difficulties in conducting interviews in Shanghai, as illustrated in Chapter 5.4, because the eco-city programme in Dongtan is a sensitive topic for stakeholders. Some local scholars from Tongji University and staff from SII refused to participate in the data collection when they knew it was a case study about Dongtan Eco-city. Local government officers in Shanghai did not reply to the emails which were invitations for them to be interviewed about the programme in Dongtan. It was therefore difficult to engage a large number of stakeholders in the case study of Dongtan Eco-city. However, the researcher attempted to overcome this limitation by interviewing central decision-makers such as the chief planner who was directly engaged in Dongtan Eco-city programme. In addition, the emailed responses of staff from SII were adopted into the research to contribute to the data analysis. Finally, the researcher sought to gather evidence for analysing the practice of planning through studying the published planning documents and relevant reports on Dongtan Eco-city.

Despite the constraints of gathering data in Dongtan Eco-city, this research was not conducted through an investigation with the public or local community in either eco-city programme. During the investigation in Tianjin Eco-city, it was observed that a large proportion of residential areas remain under construction. Moreover, Dongtan Eco-city has transferred its original vision of delivering an eco-city programme to an ecological agriculture area, according to the Plans of Land Use of Chongming Island (Chongming Economic Commission, 2011). Consequently, this research attempted to make suggestions from the perspectives of various stakeholders including government, planning professionals, and investors, that eco-city should be delivered under a climate of communication and collaboration, which may be feasible in the current top-down process of decision-making in China.

9.5. Recommendations for further research

After acknowledging the limitations of the research, the final section of the thesis provides suggestions for further research that could build upon the unique contribution to the furtherance of existing academic knowledge that this thesis has made. The

recommendations for further research focus on stakeholder engagement, including public participation and patterns of data collection, and the engagement of social organisations and NGOs. CCEP, as a set of guidelines for communicative activities, has been developed to deal with the issues that could, or would, hinder the delivery of the eco-city programme in China. Although an empirical study of the implementation of CCEP in practice is recommended to facilitate the process of collaboration and communication, it requires further studies to approve the suggestions and ideas in this study. The following sections illustrate the recommended directions for further research:

- After a number of migrants move into an eco-city, data from the public and local community should be collected. The methods for collecting data from the public and local community should be developed to promote efficiency of data collection. Along with the popularisation of the mobile telephone network in China, the idea of collecting data through mobile phones and social websites is suggested for further study to cope with the lack of willingness for public participation in China. It is also necessary to examine whether emerging methods could play a role within a complementary method of existing data collection in the field of planning.
- Public participation should be encouraged through the engagement of social organisations and NGOs to deal with the cultural issues which have led to the existing unwillingness on the part of the public to participate publicly in China. Hence, further research might focus more attention on engaging the public through SOs or NGOs with respect to information management in the delivery of the Chinese eco-city programme. Moreover, it is essential to pay attention to the question of how the establishment of SOs and NGOs could comply with the existing Chinese legislative system.
- Finally, the establishment of a common language for stakeholders to engage with the eco-city programme and CCEP requires further linguistic research. This could establish a database of planning terminology for information exchange between stakeholders. It could also focus on the methods and terms that should be used within planning documents to mitigate barriers to understanding.

9.6. Final Conclusion

This research has explored a practical framework for planning in the delivery of Chinese

eco-cities to deal with the issues which could, would, and did, hamper eco-city development. It has also embraced emerging methods for enhancing communicative activities in China. Foremost, a series of recommendations was provided with relation to the mechanisms of communicative activities to link the theoretical discussion of CAT and CP to the Chinese context. Communicative rationality could facilitate collaboration and communication during the delivery of the Chinese eco-city programme. Furthermore, it examined the key issues and current situation of eco-city development by combining existing literature and the findings that the researcher obtained through undertaking case studies on Tianjin Eco-city and Dongtan Eco-city. This research suggested that the issues could be classified according to their in-depth reasons in the field of communicative features, including when, where, who and how. Finally, by integrating the recommendations into the current process of planning eco-cities, the establishment of collaborative and communicative eco-city planning (CCEP) provides a complete approach for engaging stakeholders to achieve communicative rationality in the future delivery of eco-cities in China.

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Appendix: Interview Framework

This framework is to provide the structured parts of semi-structured interview in this research.

(a) Role and Responsibility

Have you engaged in the planning of Tianjin/Dongtan Eco-city?

What is your major responsibility (role) in the planning work of eco-city development?

(b) Performance Expectancy

What are the key achievements of Tianjin/Dongtan Eco-city?

What are the key issues of plan-making in Tianjin/Dongtan Eco-city?

What are the key issues of implementation in Tianjin/Dongtan Eco-city?

(c) Collaboration and Communication between stakeholders

Who did you work with in Tianjin/Dongtan?

How did you work with other groups in Tianjin/Dongtan?

What are the major barriers of communicating and collaborating with others?

(d) Attitude toward collaboration and communication

What are the key obstacles of engaging the public and local community in the eco-city?

What are the key barriers of engaging a collaborative communication in planning of eco-city?

