PROPERTY RIGHTS AND TRANSFER OF DEVELOPMENT RIGHTS (TDR) FOR CONSERVATION OF PRIVATELY-OWNED BUILT HERITAGE

- THE HONG KONG CASE

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Property Rights and Transfer of Development Rights (TDR) for Conservation of Privately-Owned Built Heritage - The Hong Kong Case

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A thesis submitted in partial fulfilment of the requirements

for the degree of Doctor of Philosophy

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CERTIFICATE OF ORIGINALITY

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HOU Jun

ABSTRACT

Numerous densely-populated cities, like Hong Kong, face the issues of urban development with limited usable land to meet the growing population with the growth rate of 0.6% in 2016 compared with 2015, and the re-development process threatens the conservation of privately-owned built heritage. There are total 46 private-owned monuments and 1043 non-government graded buildings in Hong Kong. City authorities, by allowing private owners to transfer the unused development rights to other sites, namely, “transfer of development rights” (TDR), see such transfer as a win-win method. It is introduced as an incentive to the private owner to promote the built heritage conservation, while not prohibiting economic development. However, the implementation process often involves various problems such as insufficient receiving areas and time delay. This study aims to contribute to sustainable conservation of privately-owned built heritage by exploring ways to use TDR to deal with the private property rights, and it develops a new framework with guiding principles of TDR to support policy-making.

This research area is significant, yet has been inadequately explored in the existing literature. The research proposes a theoretical foundation based on property rights and institutional arrangements to initiate the analysis of the TDR in the conservation of privately-owned built heritage, using Hong Kong projects as a case study. After defining the role of TDR, that helps to decrease the negative impact of the government regulation/zoning over the private property rights, the study develops a framework to

appraise the critical success factors of TDR for built heritage conservation, which includes seven criteria: political acceptability; TDR leadership; public support; social equity; simplicity; market incentive; and the environment. TDR is a good concept but the difficulty lies in its implementation. How to put these factors into practice is a complex problem. Based on this framework, analyses of international comparative studies, and interviews with Hong Kong experts are carried out, to explore how to put the framework into practice. In addition, a survey of North Carolina is conducted. After analyzing the interrelationship between these factors using software NVivo, the study finds that TDR supporting policy, incorporating TDR in planning mechanism, government support and public support are extremely important and the study provides some policy options to implement these factors.

By examining the institutional arrangement of TDR in Hong Kong and three most controversial local TDR cases- Sheng Kung Hui, Carrick building and Ho Tung Garden, the case studies find support to most of the findings obtained in the analyses conducted in this study that the three levels of constitutional, governance, and operational institutions arrangement governing the TDR are inadequate to form an effective system and they do not match the theory of institutional arrangement. The constitutional level cannot provide sufficient legal basis and guidance to the governance level and the operational level, and the governance level cannot play a coordinate role between the constitutional level and the operational level. The research identified the major challenges of application of TDR in Hong Kong as a case study for dense cities, including (1) Lack of legal foundation for TDR; (2) Conflict of TDR with nature

conservation; (3) Conflict of TDR with land use planning and urban planning; (4) Institutions cooperation problems, (5) Lack regulation to ensure social equity; (6) Public participation problems.

Based on triangulation analysis of the above findings, the study provides in-depth discussions of the consolidated results and recommends guiding principles for policy design integrating land use, urban planning, building control, environmental control and the conservation to improve the overall efficiency of TDR practice. It is expected that the study results can provide urban policy-makers an objective reference to strengthen and promote the TDR programme. The framework with guiding principles resulted from this study may also be a strategic tool in understanding the difficulties in TDR programme in other cities like Hong Kong and be a foundation to provide research directions for future studies in this area.

PUBLICATIONS ARISING FROM THE THESIS

Journal Articles and Monograph

1. Chan E.H.W. and **Hou J.** (2015), Developing a Framework to Appraise the Critical Success Factors of Transfer Development Rights (TDR) for Built Heritage Conservation. *Habitat International* (46), 35-43.

2. **Hou J.** and Chan E.H.W (2016). International Policy Approaches for Heritage Conservation Using Transfer of Development Rights (TDR). *Sustainable Development* (In Press)

3. **Hou, J,** Yung, E.H.K, and Chan E.H.W (2016) Institutional Issues of Transfer of Development Rights (TDR) for Built Heritage Conservation- Two Controversial Cases in Hong Kong. *Cities* (Under Review)

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Conference Papers

5. **Hou J**. and Chan E.H.W. (2014), Problems with Transfer of Development Rights (TDR) for Built Heritage Conservation. World Sustainable Buildings Conference 2014: Joint IRCC and CIB TG79 Session, Part II, 28-30 Oct 2014, Green Building Council España (GBCe), Barcelona, Spain (CD-RM publication) 15-22

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CHAPTER 1 INTRODUCTION

1.1 Research Background

Built heritage plays an important role in the city as it reflects its history and social changes. It provides a deep sense of connection to the past and to live experiences, and sustains our values and communities and allows us to share a collective history (Yung et al 2014). Numerous countries face the issues of limited usable land and growing population, which threaten the preservation of privately-owned built heritage. For major densely populated cities, such as Hong Kong, the scarcity of land for development results in continuous and very strong market pressure for redevelopment of existing structures and neighborhoods. Thus, historical buildings with high architectural and social value are increasingly being replaced by modern developments.

For many cities, the administrative grading system for built heritage has no statutory status and the grading does not confer statutory protection to the buildings. In the case of Hong Kong, if the owner decides to demolish his/her building, the government has no means to stop the process (e.g., Ho Tung Garden), unless the building in question is declared a monument. The protection of the property rights and the narrow scope of legislative framework make it difficult to ensure conservation of privately built heritage. In Hong Kong, the government has promulgated its heritage conservation policy in 2007, which stated, *"Promoting the protection of privately-owned historic buildings is a complex issue which involves balancing interests such as safeguarding private property*

rights, the prudent use of public money, and meeting public expectations." It thus clearly recognized the need for new arrangements to provide economic incentives for private owners.

Transfer of development rights (TDR) is a voluntary market-based tool to deal with the dilemma that on one hand the city should meet demand for growth and development, while on the other hand it should preserve scarce and essential resources such as working lands (farms and forests), environmentally sensitive area, and built heritage (Pruetz, 1997, Machemer and Kaplowitz, 2002). Allowing the unused development rights to be transferred to other sites, TDR could be used as an incentive, as one of the potential market-based solutions that addresses the financial issues, creating a "win-win" situation.

Numerous studies have been conducted on TDR all over the world. Although their findings suggest that TDR are feasible in conserving farmland, agricultural land, environmentally-sensitive land and with limited success for historic buildings (Kaplowitz et al., 2008; Pruetz, 2007), it has some drawbacks, such as inadequate receiving areas and lack of programme leadership (Aken et al., 2008). Thus, some researchers proposed the factors that affect the success of TDR, based on a large number of cases observed in different countries (Kaplowitz et al., 2008; Machemer and Kaplowitz, 2002; Pruetz, 2007). Most of such works have focused on factors affecting the use of TDR in dealing with farmland, agricultural land, and environmentally sensitive land in the United States.

However, the characteristics of built heritage conservation and other forms of

conservation different with respect to, for example, the optimal location, value, and the area surrounding the built heritage. Thus, it remains unclear how TDR can be successfully used in the conservation of built heritage. In this context, privately-owned built heritage is particularly problematic as it involves the issue of property rights. In Hong Kong, there were 101 declared monuments, 43 of which were privately owned and 48 were located in the New Territories by December 2012 (AMO, 2013). The total number of graded historic buildings on AMO's list was 1,444, 1059 of which were privately-owned (GHK, 2013). These statistics confirm that privately owned built heritage plays an important role in Hong Kong. TDR, a market-tool that can be adopted to involve the private sector in the project, have a great potential for widespread usage in order to make contributions to the built heritage conservation, if it is well developed at implementation level.

Using TDR, the owners of historical buildings will keep their existing buildings with some obligations imposed and sell the unused development rights. The community will benefit from the preservation of built heritage without incurring any expenses (Tsang, 2001). TDR helps to strike a balance among conservation, development and property rights.

TDR was first introduced in Hong Kong in 1960 and supposed to have been practiced ever since. The government implemented a land redemption certificate system for rural land resumption, known as "Letters A & Letters B". Lai (2000) argued that this system had the benefit of settling compensation for resuming rural land in the New Territories

for small house development with minimal government spending. Cody (2002) suggested resurrecting the Letters B system and proposed TDR as an incentive for historic preservation in Hong Kong. TDR and similar concepts (e.g., land exchange) were proposed for several cases in Hong Kong, such as King Yin Lei, and the Sheng Kung Hui compound. However, thus far, it has always been implemented on a case-by-case basis, as there is no legal framework specifically governing the TDR. Due to this lack of uniformity, the public perceives the government's attitude to the heritage conservation as reactive, rather than proactive. The prevalent view is that the government takes action only when the heritage suffers significant damage.

This dissertation aims to contribute to sustainable conservation of privately-owned built heritage by exploring ways to use TDR to deal with the private property rights and developing a framework with guiding principles of transfer of development rights (TDR) to support policy-making. Hong Kong is selected as a case study which can shed light for other similar dense cities worldwide. With the combination of quantitative and qualitative methods including literature review, closed-ended questionnaire, open-ended questionnaire, interviews and case study, the study further recommends a framework with guiding principles that considers property rights, land use and urban planning control, building control, environmental control and the conservation policy to improve the overall efficiency of TDR practice.

1.2 Research Questions

This research attempts to answer the overall question of how TDR programmes can be successfully implemented in the conservation of privately owned built heritage, whilst addressing the issue of property rights. Specifically, this research examines the following sub-questions:

Q1. How do the property rights, zoning and TDR interact with each other?

It is important to understand the relationship between development rights and property rights, how zoning affect property rights, and what role TDR plays between the zoning and property rights. All of these form a theoretical background to help to identify the critical factors and the associated problems of TDR and give more understanding of how to improve TDR.

Q2. What are the success factors of TDR for conservation of privately-owned built heritage?

Framework of success TDR factors are essential which help to clearly explain how to prepare for a successful TDR programme. The framework can provide a useful reference to policy makers. There are almost 20 existing studies about TDR success factors but most of them are based on the conservation of natural land and environmental sensitive areas. However, great differences exist between natural land transfers and built heritage transfers, as the latter involves issues such as location (built heritage often located on the central dense area), land price (land of built heritage often very high), and ownership

(built heritage sometimes are owned by famous people). These differences lead to different barriers of the TDR for built heritage and TDR for natural land.

Q3. Why TDR in Hong Kong is difficult and controversial?

It is a key step to put the successful framework developed in the earlier part of this research into the local context. TDR is such a complex mechanism that should be discussed in the real context. Success factors in the framework are developed from the literature review, and refined through the opinions of experts. The identification of the controversial and difficulties of TDR in Hong Kong helps to enhance the successful implementation of TDR.

Q4. How can the success factors of TDR be put into practice in the background of Hong Kong?

Factors for successfully implementing TDR programmes have been explored by overseas researchers. During pilot interviews with Hong Kong Government staff about these successful factors, although they argue all of these factors are important to TDR to a different degree, we still have no idea about what we could do to promote TDR in practice. This indicates the framework of success factors is not yet adequate for direct application to local practice. From the practical perspective, this research will explore what policy approaches could contribute to implementation of these TDR success factors. Then, it continues to investigate how to apply these policy approaches in the local context and to find out what are the relationships between these successful factors upon

implementation. The results will not only contribute to better understand the theory of implementing TDR in general, but also provide useful guidance for TDR practice.

1.3 Research Aims and Objectives

The primary aim of this research is to achieve sustainable conservation of privately-owned built heritage by exploring ways to use transfer of development rights (TDR) to deal with the private property rights issues, and developing a framework with guiding principles of TDR to support policy-making for implementing transfer of development rights (TDR).

To achieve the aim, the following are the specific objectives of this research:

Objective 1. To identify the interrelationship among property rights, zoning and TDR;

Objective 2. To develop a success framework for TDR implementation;

Objective 3. To facilitate the implementation of the framework by international comparison and capturing the experts' views;

Objective 4. To identify the problems of implementing the TDR for the conservation of built heritage in Hong Kong;

Objective 5. To recommend a framework with guiding principles for policy design which considers property rights, land use and planning control, building control, environmental control and conservation, to effectively implement transfer development rights for the conservation of built heritage in fast-growing dense cities like Hong Kong.

1.4 Significance of the Research

Many cities in the world, like Hong Kong, experience fast growing development and become densely populated cities. Hong Kong has experienced great changes in the past 140 years on its way to transform from a small fishing village to one of the most important international financial centres of today. Driven by the pressure of redevelopment of its old structures and neighbourhoods, many of the old buildings and traditional districts have been demolished. Thus, it is an urgent issue to conserve the limited remaining heritage assets. With good conservation and revitalization purpose, built heritage can benefit us greatly, for example, manifest the unique appearance and culture of the city, enhance the quality of the city and aesthetics of the city landscape, promote tourism, reduce building density, and educate younger generation about the history of Hong Kong, etc.

In order to preserve built heritage, the most direct way is for the Government AMO to declare the building as a monument. If the building is private, the declaration should win the owner's consent first. However, some owners are willing to sell or demolish their building for redevelopment. Thus, administrators for conservation of privately-owned buildings face great difficulty. It has been demonstrated that there is certain potential for the use of TDR to preserve the built heritage. However, TDR has only been used in a case-by-case basis to deal with the privately-owned built heritage conservation, which is not a sustainable approach. In addition, although there are studies on the idea and grand policy level of using TDR in Hong Kong, the great difficulty of successful TDR

is in the detailed arrangements at implementation level. There is little local research about TDR implementation, especially when considering the recent controversial cases. Thus, the research provides policy-makers a referenced framework to prepare for TDR programme implementation.

Although transfer of development rights (TDR) is not a new concept in the context of built heritage conservation in cities around the world, it requires a well-integrated management system to implement the TDR programmes. Internationally, some researchers have addressed TDR from the policy and programming perspectives. Some authors have proposed a range of factors that affect the TDR success, based on the empirical data from farm land projects or environmentally sensitive areas. However, a successful framework for using TDR for built heritage conservation is lacking, in particular in densely-built and fast-growing cities, such as Hong Kong. This research will fill this gap.

Further, there is very little research examining the role of TDR from the property rights perspective and exploring the relationships among property rights, zoning and TDR and enhance the TDR from a perspective of institutional arrangements. This research will provide a theoretical foundation for TDR implementation from the property rights and institutional perspective.

1.5 Overview of Research Design

This research adopts a combination of qualitative and quantitative methods to collect

and analyze data to produce findings in different stages of the research and for topical issues. These different sets of findings will be consolidated using triangulating strategies to deduce meaningful discussions and recommendations in the end. This study will involve the following research methods such as literature review, questionnaire surveys, interview, international comparative study, and case study. The overall research approach and the interrelationship of each of the research methods and components are depicted in Figure1.1

As institutional arrangements affect the efficiency of the TDR implementation, an institutional approach is used to examine the institutional arrangement for TDR in Hong Kong based on the theoretical framework of institutional arrangements. An analytical framework for examining how the institutional arrangements affecting decision-making will be developed. In turn, this will help an understanding of the property rights and efficiency of the proposed TDR implementation models.

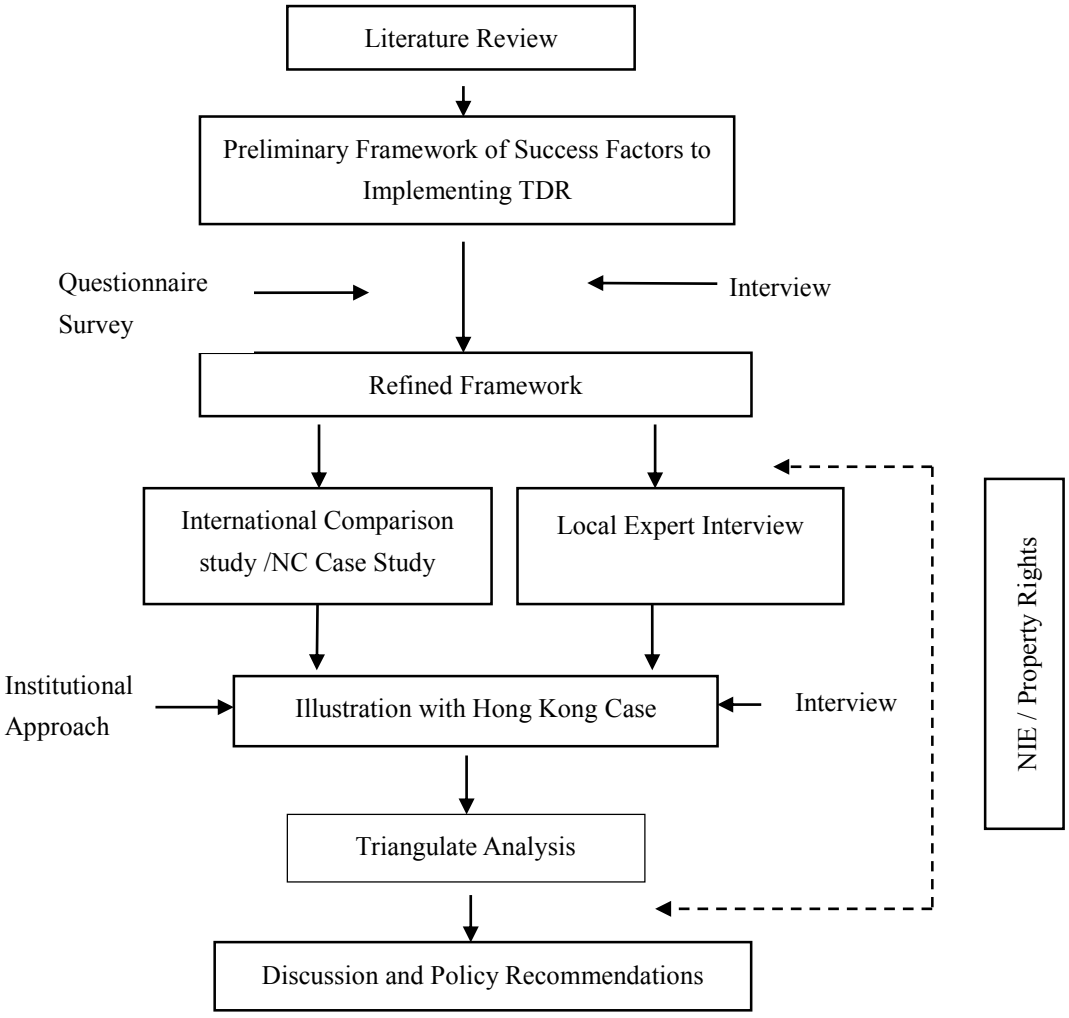


Figure 1. 1 Overall view of research design

This section provides an overall view on the approach of the research, detailed descriptions of the research methodology and institutional approach are presented in section 2.6.

1.6 Structure of the thesis

The thesis consists of seven chapters, as shown in Figure 1.2. A brief summary of each chapter is outlined in the following sections.

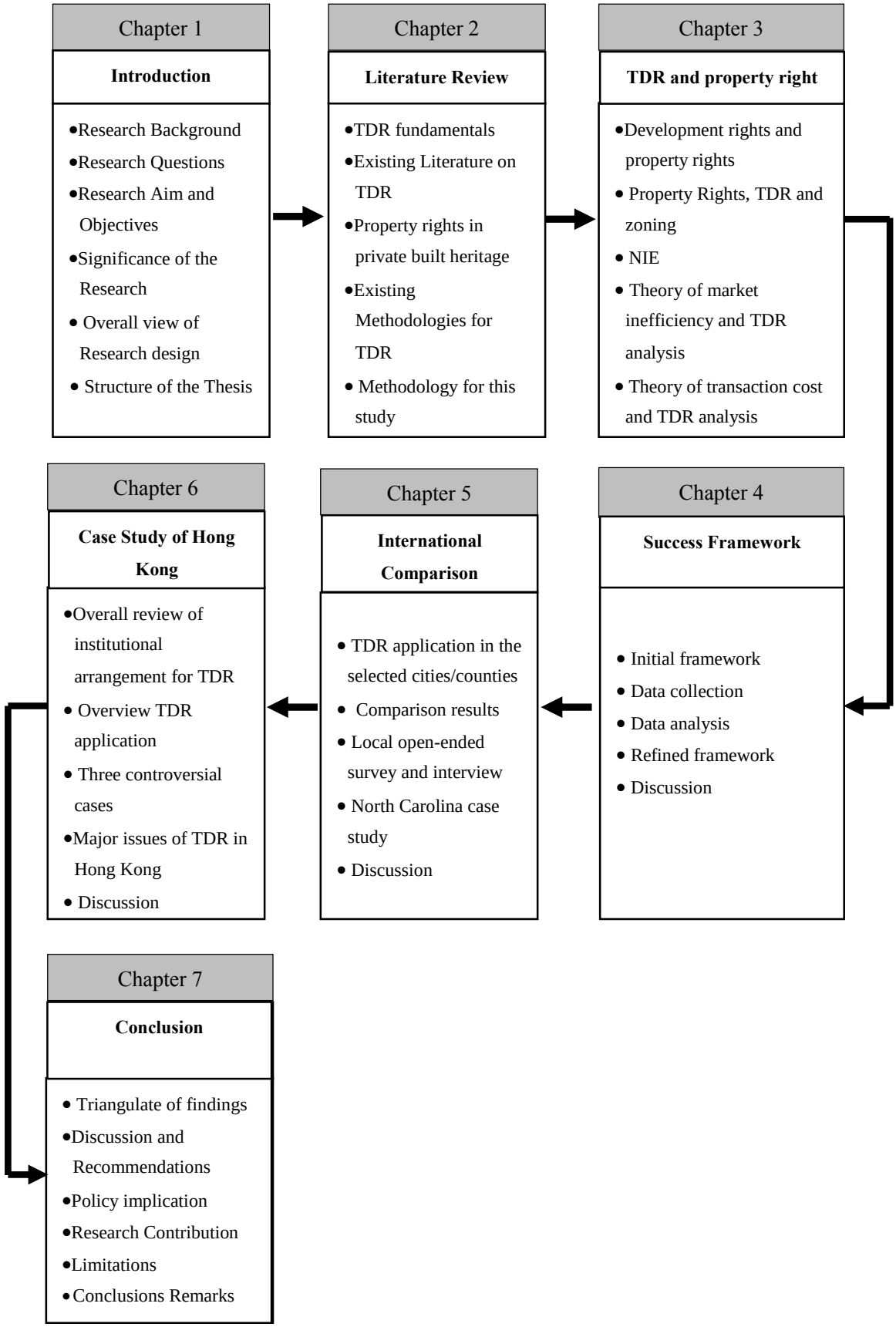


Figure 1. 2 Sructure of the thesis

Chapter 1 serves as the overall introduction to this study. It introduces the research background and research questions, identifies research objectives, explains the research significance and presents the overall research approach. Finally, it outlines the structure of the thesis.

Chapter 2 reviews the TDR fundamentals, existing studies and methodologies for the study of TDR. In addition, TDR success factors are reviewed. Based on an examination of the existing literature, the research gaps to be filled in this study and the theoretical perspectives for this research are presented. After reviewing the existing methodologies for TDR, the research methodology for this study is selected and presented in detail.

Chapter 3 explores the relationship between development rights and property rights, and examines the relationship among property rights, TDR, and zoning. Based on the theory of market inefficiency and transaction costs, the research uses Hong Kong as an example to analyze the market inefficiency problems and transaction cost problems of TDR models. After the analysis of each part, the research proposes some strategies to improve TDR efficiency.

Chapter 4 develops a framework for evaluating TDR success factors. Based on the literature review, an initial framework for TDR has been developed and is then refined by the questionnaire survey and interviews with experts in Hong Kong. Discussion about these factors helps to understand the framework.

Chapter 5 applies the framework developed in Chapter 4 to examine the policy

approaches that other cities / countries used to implement these TDR success factors, through international comparative study. Local open-ended survey and interviews are carried out, which are based on the framework developed in Chapter 4 to identify the local difficulties and problems when implementing the identified success factors. Finally, the survey conducted in North Carolina is presented from an international perspective, as to why TDR has not been implemented even if it has legal foundation for TDR.

Chapter 6 examines the institutional arrangements for TDR in Hong Kong from the perspective of the three levels of institutional arrangements, namely: constitutional, governance and operational levels. An overview summary of the TDR cases shows the overall impression of TDR application in actual Hong Kong practice. Then it examines three TDR case examples in Hong Kong to explore the detailed controversial issues when implementing TDR.

Chapter 7 presents the discussion/recommendations for practice and overall concluding remarks. It begins with a brief review of the whole study and triangulates the findings from different research methods to consolidate an overall view for discussion and recommendations. It then discusses the contributions of this study to the existing knowledge in the field. It concludes with observations about the limitations of this study and makes suggestions for future studies in this area of research.

CHAPTER 2 LITERATURE REVIEW AND METHODOLOGY

2.1 Introduction

This chapter provides a comprehensive review related to TDR, consisting of four parts. Firstly, it introduces the TDR fundamentals includes definitions of TDR, basic structures, how TDR works, and the advantages and disadvantages which help to clearly and systematically understand what is TDR. Secondly, the existing literature about TDR includes TDR applications worldwide, and so different aspects of research studies on TDR are reviewed. It helps to identify the research gaps. In addition, studies about factors which contribute to the successful TDR are reviewed, aiming to facilitate and form the initial successful framework for this research to pursue in-depth (see Chapter 4). Thirdly, the different approaches to studying TDR are summarized, which helps to select the methodology for this research. Finally, the research methodology of this thesis is presented.

2.2 TDR Fundamentals

2.2.1 Definition of TDR

Transfer of development rights (TDR) has been discussed by planners and scholars for a long time. The first introduction of the TDR concept dated back to 1916 in New York City: a zoning ordinance permitted lot owners to sell their unused air rights to adjacent

lots, thus allowing the "receiving" lot to exceed the height and setback requirements (Giordano, 1988). In the USA, TDR was first proposed by Lloyd in 1961 (Machemer & Kaplowitz, 2002).

Transfer of development rights (TDR) is a market-based tool to help implementing a jurisdiction's growth policies (Aken et al., 2008; McConnell and Walls, 2009). TDR uses the "economic engine" of new growth to accommodate pressures for growth and development, and, at the same time, preserve essential resources such as working lands (farms and forests), environmentally sensitive areas, and important features such as landmarks, and heritage buildings (Pizor, 1978; Aken et al., 2008; McConnell and Walls, 2009). Pizor (1978) viewed TDR as a resolution to the dilemma experienced by the land use planners, and one which proposed a means of balancing urban growth with environmental preservation.

The conceptual key to TDR is the notion that development rights are one of the bundles of property rights that comes with a piece of land or property. These land-based development rights may be used, unused, transferred or sold by the landowner (Machemer &Kaplowitz, 2002). TDR programmes allow landowners to sever development rights from properties (Kaplowitz et al., 2008; Li, 2008) that communities identified for preservation such as farmland, forest and historic buildings (known as "sending areas"), and sell them to purchasers who want to increase the density of development in areas that can accommodate additional growth (known as "receiving areas") (Johnson and Madison, 1997; Machemer and Kaplowitz, 2002; Aken et al., 2008,

McConnell and Walls, 2009; Pruetz and Standridge, 2009). Thus, unlike purchase of development rights (PDR) programmes that use the funding from the grants or tax revenues, the fund of TDR is from the developers of receiving sites with greater development potential and therefore potential profit (Kaplowitz et al., 2008).

2.2.2 Basic Structures

No two TDR programmes are exactly alike. However, there are certain common features that most programmes have. Machemer and Kaplowitz (2002), and Li (2008) proposed four elements of TDR. They are sending area, receiving area, severable development rights, and process of the transfer. Aken et al. (2008) proposed eight fundamentals which are the most comprehensive and detailed elements of TDR, including goal-setting, sending area, receiving area, development bonuses, allocation and exchange rates, transaction mechanism, conservation easements and programme administration. Each of these are explained below:

Goal-setting: TDR programme can be widely used in a range of programmes such as preservation of specific areas, agriculture/open space protection, historical area preservation or rehabilitation of low-income housing (Kaplowitz et al., 2008). Clear community goals with broad public support are fundamental to a successful TDR project.

Sending area: sending areas are the areas that a community has identified as worthy of permanent preservation (Kaplowitz et al., 2008). The identification of sending areas from which development rights can be sold is a critical early step in designing a TDR

programme (Aken et al. 2008).

Receiving area: receiving areas are those regions designated for more intensive growth and development (Machemer and Kaplowitz, 2002). Designating viable receiving areas is one of the most critical and challenging aspects of programme development (Aken et al. 2008).

Development bonuses: the developers in the receiving site are granted the additional density or other forms of bonus such as added height, increased lot coverage in exchange for purchasing TDR (Aken et al. 2008).

Allocation and exchange rates: allocation rate means the number of TDR each sending site can potentially sell; exchange rate means the number of added units or other credits available to a developer who purchases a TDR. Both of the two rates directly affect the TDR value (Aken et al. 2008). In order to make sure the TDR is attractive enough for the owner and developer to participate, the setting of these two rates needs to be carefully calibrated.

Transaction mechanisms: a TDR transaction often needs facilitation to provide information or to link the potential sellers and buyers in many TDR projects such as clearing house, TDR bank or third-party broker (Aken et al. 2008).

Conservation easements: a conservation easement is placed on a property in the sending site once the development rights have been sold from the sending area, which clearly stated the responsibility of conservation for the owner and monitoring task (Aken et al.

2008).

Programme administration: TDR projects need special administrative department and staff to make the smooth operation such as facilitation of transaction, recording of easement, reviewing of TDR, and tracking of TDR (Aken et al. 2008).

2.2.3 How TDR Works

Development rights transfer offers an alternative market-based instrument that can be utilized by the local government (McConnell and Walls, 2009) to conserve land with public benefits (Aken et al., 2008). Under this framework, the difference between the existing and permissible plot ratio of the land can be transferred and traded in the open market. The proceedings from these sales could be used for preservation, maintenance or improvement of the built heritage (Li, 2008). This eases the burden of the limited governmental funding and provides an incentive to private owners to maintain their buildings. Most importantly, the community benefits from the conservation without having to purchase or resume the properties using tax money. The purpose of a TDR scheme is to create a "win-win" solution (Tsang, 2001).

Landowners in sending areas receive compensation for giving up their rights to develop, while developers in the receiving areas pay for the rights to develop at greater densities or heights than would otherwise be allowed. Once a land parcel's development right has been severed, regardless of whether it is subsequently used or retired, the property from which the rights are sold is placed with a development restriction or conservation

easement, allowing for permanent protection of the parcel (McConnell and Walls, 2009; Pruetz and Standridge, 2009). Conservation easements are legal encumbrances on land that restrict and bar current and subsequent owners of the parcel from certain identified actions and land uses (Machemer and Kaplowitz, 2002). TDR does not limit growth or replace zoning. It provides a policy that allows communities to plan more effectively by identifying the areas in which the development should be encouraged and directing that growth into areas most appropriate for it (Kaplowitz et al., 2008). TDR goes beyond traditional zoning by compensating owners who give up the development rights and by mitigating many of the public costs (Pizor, 1978), as a 'least-cost' option (Li, 2008) and less impact of sprawl.

2.2.4 Advantages and Disadvantages of TDR

TDR have many advantages that contribute to sustainable development in principle. The following will first discuss the advantages of TDR from the perspective of social, economic, and environmental and cultural factors.

From the social aspect, firstly, TDR is voluntary. The landowners have the right to develop as permitted by current zoning without participating in the TDR (Aken et al., 2008). If the developers have no demand for additional density or height, they don't need to care about the TDR. They can choose to participate freely according to their own needs, unlike zoning, that every related stakeholder should obey it. Secondly, TDR compensates landowners fairly (Pizor, 1978; Li, 2008), unlike zoning which sometimes causes unfairness since it benefits some landowners and limits others. So, TDR makes

rigid land use regulations more politically feasible and easier to implement. Thirdly, compared with zoning, which can change over time and with new administrations, TDR is more predictable. Instead of incurring the cost and risks of negotiating with government approving authorities for variances, a developer can exceed additional density by purchasing development rights (Pizor, 1978).

From the economic aspect, TDR is market-based and is unlike the purchase of development rights (PDR) programmes that the government uses the limited public funding to compensate the owners. TDR relies on the private market (developer of the receiving sites who acquire greater development potential) and do not require government funding (Kaplowitz et al., 2008). TDR allows the market to decide what parcels to be preserved without reducing total growth. The developer will gain more density or height than that allowed in zoning law. Additional, the income of related departments will increase from receiving the transaction fee, etc.. (Chan & Lee 2008).

From the environmental and cultural aspect, TDR is more permanent which uses deed restrictions or conservation easement for permanent protection of land parcels (Pizor, 1978). Once the development right has been transferred, the owner should obey the easement strictly. TDR can be used to protect land or buildings that are under threat of development or any other resources that a community wants to preserve (Pruez and Pruez, 2007). According to Pruez and Pruez. (2007), in the US, of about 191 TDR programmes targeted towards environmental and farmland conservation, 15 programmes are oriented towards historic preservation and 12 focus on infrastructure

and urban design.

TDR has some advantages over other policy options (Wang et al., 2010). For example, TDR has added options of compensating landowners rather than using relatively restrictive land zoning, and, as such, avoid the landowners' accusation of "taking away" their property (Li, 2009). In contrast to PDRs, TDR relies on the private market economy and do not require government funding (Li and Gan, 2013). However, if TDR is not well organized, the disadvantages of it will bring negative impacts.

2.3 Existing Literature on TDR

2.3.1 TDR Application in the World

The practice of TDR is most commonly found in the US. Since 1960s, TDR programmes have been adopted in more than 30 states in the United States (Pruetz, 1997) with about 248 TDR programmes, covering over 445,000 hectares of farmland, natural areas and open space (Nelson, et al., 2011). TDR is widely used for environmental protection, farmland preservation, community revitalization, economic development, and some historic preservation (see Table 2.1 for summary). The US programmes that have preserved the most land to date include King County, Washington, the New Jersey Pinelands, Montgomery County, Maryland, Palm Beach County, Florida and Collier County, Florida (Harmen et al., 2015). Other countries like Australia (Greenaway and Good, 2008), Canada (Pruetz, 2003), Japan (Spaans et al., 2010), Germany (Henger and Brizer, 2010), Italy (Micelli, 2002), The Netherlands (Janssen-Jansen, 2008); Turkey

(Kocalar, 2011), Taiwan (Huang, 2010), and mainland China (Wang, et al., 2010) have also carried out TDR programmes.

In view of the gradual disappearance of heritage and the large demand of the public funds for various aspects of urban development, TDR, as one of the economic incentives, is widely used to conserve the built heritage and landmarks all over the world. Historic preservation TDR programmes, accounting for approximately one-tenth of the TDR programmes in US, originally emerged in large cities, including New York, Los Angeles, Dallas, San Francisco, Denver, Seattle, Portland, Atlanta, New Orleans, Pittsburgh, and Minneapolis. More recently, medium-sized cities, like West Palm Beach, Florida, and small cities, like Aspen, Colorado, have turned to TDR to protect historic structures (Pruetz, 2007).

Table 2. 1 Description and examples of TDR application fields (Based on Source: Nelson, et al., 2011)

Application field	Description	Example
Environmental protection	Protect bodies of water, watersheds, and groundwater recharge zones; retire lots prone to disaster	Malibu coastal zone in California to reduce the people and property at risk in hillsides and other hazardous places
Farmland preservation	Protect the farmland due to threaten by continuous urban growth. agriculture is a primary component of many local economies	Montgomery county preserved farmland in the northern part of the county by transferring density to the southern part of the county.
Community revitalization	Use TDR to revitalize downtown areas in general and specific sites in particular	Los Angeles adopt a Central Business District Redevelopment Plan by using TDR to improve housing, open space, facilities and transportations etc.
Economic development	Protect a specific industry important to the local economy.	Carroll county, Maryland prohibits the creation of new lots in the areas underlain by marble and other recoverable minerals, because marble quarrying contributes significantly to the local economy.
Historic preservation	Protect landmarks/historical buildings begins from the larger cities (e.g. New York) to medium-sized (e.g. Florida) cities and continue to smaller cities.	New York use TDR to protect Grand Central Terminal.

2.3.2 Different Perspectives of the Research about TDR

TDR is considered as a good method for conservation by many researchers e.g. McConnell and Walls (2009); Machemer and Kaplowitz (2002); Pruetz and Pruetz (2007); Linkous (2016) as TDR relies on the private market and do not require government funding. However, some researchers show skepticism on it (Danner, 1997;

Renard, 2007; Linkous, 2016) because poorly designed TDR programmes can result in a valueless right of ownership (Danner, 1997). There are serious practical and legal obstacles to implement it (Renard, 2007). No matter what attitudes the researchers hold on TDR, one point is assured that TDR method is simple in concept, but complex in its details of implementation. Many TDR programmes in the US generate few or no transfers. Thus, two mainstreams of researches on TDR can be summarized. One is about research on success factors (Pruetz & Pruetz, 2007; Pruetz & Standridge, 2009; Machemer & Kaplowitz, 2002; McConnell & Walls, 2009; Pizor, 1986). They developed success framework based on the large number of collecting the TDR cases (details are in Section 2.3.4). For example, Kaplowitz et al. (2008) employed a self-administered, mail survey to collect information from U.S. planning officials overseeing 109 TDR programmes in order to identify the key characteristics.

The alternative view is based on local case studies to illustrate specific problems on TDR and provide some lessons. For example, Janssen-Jansen (2008) examined the TDR cases in The Netherlands. He argued the establishment of a development company was very important, such as "ORR" (company for TDR in Dutch) which not only "*represents the demand site*", but actually "*buys up the rights if no other buyer comes forward*". Micelli (2002), after analyzing the Italian TDR cases, found the success of TDR relies on integration with planning and administration to develop market rules. Frankel (1999) proposed to scrutinize closely Seattle's TDR scheme to ensure that an essential nexus exists between the public amenities paid for by development rights, and the harms created by increased density by examining the past and present TDR systems in Seattle.

McConnell and Walls (2009) contrasted successful TDR and the fact that there are few TDR transactions to illustrate the important problems to implement TDR.

In addition, some researchers aim to talk about the market issues of TDR. Thorsnes and Simon (1999) developed a simple market model as a framework to describe the mechanics of a TDR programme; Bruening (2008) talked about market obstacles, fairness and legality related to TDR. Danner (1997) discussed the market value and economic factors.

There are also a few studies talking about the potentials in local areas based on studying the US experiences. For example, Kwasniak (2004) explored the potential of carrying out TDR in Canada without specific legislative authority. Harmen et al. (2015) supposed TDR can be an effective tool to preserve open space and manage unwanted growth and development in peri-urban areas in Australia.

However, all of the above research studies are based on the TDR for nature conservations rather than for built heritage conservation. There are only a limited number of studies that have focused specifically on the use of TDR in historic preservation, and most of those are based on one or two case study descriptions and analyses. Baker (1975) conducted an analysis of the New York Plan and Chicago Plan, while Costonis (1972) analyzed the TDR mechanism and two cases, namely Tudor Park and Grand Central Terminal. Arnold (1992) proposed some TDR strategies by analyzing New York, Adelaide, Chicago and Brisbane plans on the aspects of describing TDR procures and cases, after which he proposed some useful amendments. Thus far, no systematic study

has been conducted, focusing on successful TDR frameworks on built heritage conservation.

2.3.3 Researches about TDR in Hong Kong

There is also a paucity of studies on TDR for built heritage conservation due to the limited TDR practices in Hong Kong. Li (2008) examined whether TDR can be adopted effectively in Hong Kong by reviewing the current control on property development and its effects on heritage buildings and conditions for applying the TDR in Hong Kong. After examining the available TDR cases, the author concluded that the future looks promising for TDR applications in Hong Kong. Although there is general support for allocating greater resources to built heritage conservation efforts through the provision of economic incentives, some authors suggest that TDR may not be the appropriate incentive because its implementation requires legislative amendments that would be difficult to implement, given the land scarcity in Hong Kong (LCP, 2007).

Tsang (2001) stated that: "*The existing framework of density control under the building ordinance and statutory town plans does not allow any TDR to apply across sites that are not contiguous*"; and "…*transfer of development right is only allowed between different parts of the same development site*". However, the current practice is controversial and faces some challenges. According to Chan (2011), the main challenges are the absence of a consistent official procedure or strategy (e.g., the government deals with the privately-owned heritage buildings on a case-by-case basis) and the manner in which the community values the land and space. TDR gives the owners of historic

buildings strong power to redevelop and makes the compensation far more expensive. Li (2008) pointed out that the up-zoning should be allowed on the receiving site in the TDR projects. However, the current trend of reducing development intensity in large cities does not favour this model.

In order to ensure the success of TDR in Hong Kong, some researchers pointed out that the TDR should be enhanced, while also offering some suggestions. Firstly, when using TDR, private property owners are instrumental in the TDR success (Li, 2008). Chu and Uebegang (2002) have identified the following reasons for the absence of private sector involvement in conservation as due to: (1) the private owners' expectations and ability to maximize their return on investments; (2) absence of private owner compensation mechanisms; and (3) lack of financial incentives. Thus, some literature suggested forming a special committee whose responsibility is to study the compensation issues (LCP, 2007). Moreover, the government could auction the development rights of a heritage site as compensation to the original owner (LCP, 2007). Tsang (2001) suggested relaxing the maximum plot ratios and site coverage permissible under the building regulation and the statutory town plans.

Based on the current findings, it is evident that the implementation of TDR demands a new management model. It is necessary to establish an efficient, open, fair and transparent system that ensures clarity and fairness of the procedures the public should follow (Li, 2008). Thus, TDR implementation demands substantial government effort in educating the public and requires key stakeholders to show willingness to make some

political compromises.

In addition, as Tsang (2001) pointed out, when initiating TDR projects, the focus should be on the buildings of value to the community, which can be conserved at an affordable cost. Tsang (2001) further proposed designating the heritage areas, instead of just individual buildings, and transferring gross floor area (GFA) credits from a sending site to a receiving site. In terms of the receiving site, LCP (2007) proposed that the government should draw up a list of sites that could be used for land exchange. Alternatively, the government should consider transferring the development rights of those private owners to the public open space (LCP, 2007).

2.3.4 TDR Success Factors

Many researchers have studied the factors affecting the TDR success based on the famous TDR programmes implemented in the U.S., such as Montgomery County, MD (aimed at preserving the agricultural land), New Jersey Pinelands (forest, farms and scenic towns) (Machemer and Kaplowitz, 2002), Dade County, Florida, and Livermore, California (Pruetz &Pruetz, 2007).

Aken et al. (2008) proposed five factors as key elements in highly successful programmes, based on the evidence in Washington State. They are: (1) ensure zoning compatibility; (2) support market studies to fine-tune TDR programmes; (3) facilitate TDR transactions; (4) consider both carrots and sticks to achieve local participation; and (5) coordinate closely with Growth Management Act (GMA) goals.

Machemer and Kaplowitz (2002) developed a framework for evaluating transfer of development rights programmes using iterative grounded theory based on 14 TDR case studies in U.S. It includes the following thirteen elements: (1) political foundation; (2) consistent regulatory process; (3) sense of place; (4) resources in area seen as valuable; (5) rapidly growing area; (6) public acceptance; (7) appropriate receiving areas; (8) TDR leadership; (9) mandatory programmes; (10) TDR bank; (11) TDR compatible with PDR; (12) simple and cost efficient; and (13) knowledge of development, local land use demands and patterns.

Kaplowitz et al. (2008) employed a self-administered, mail survey to collect information from U.S. planning officials overseeing 109 TDR programmes in order to identify the key characteristics associated with TDR success. Their findings revealed that complementary PDR programmes, TDR banks, and background studies are central to a successful TDR programme. Other factors, such as who initiates TDR programmes, the number of initiators, the type of development demand in the TDR programme area, and housing demand, were also shown to affect the TDR success.

Pruetz and Pruetz (2007) argued that, although for every TDR rule, there are typically several exceptions, yet many successful TDR programmes have some common traits. The authors divided the common traits into three major aspects, namely: (1) sending area success factors (e.g., development constraints; down zoning; infrastructure requirements); (2) receiving area success factors (e.g., rezone the TDR receiving area; developers can apply for changes to a higher density by choosing TDR; inter-

jurisdictional agreement); and (3) incentive success factors (e.g., low baseline density; consistent application; market factors, differential bonus density).

McConnell and Walls (2009) identified several important determinants of TDR market activity, including (1) baseline zoning density limits; (2) the density bonus; (3) TDR allocation rate; and (4) the number of TDR required per additional dwelling unit. Furthermore, they used two programmes (Montgomery County, Maryland; Calvert County, Maryland) with active markets, compared with two (Malibu, California; Queen Anne's County, Maryland) with only a few transactions, to illustrate the importance of the market characteristics.

About 20 articles have been written on the factors affecting TDR success (Aken et al., 2008; Bredin, 1998; Costonis, 1974; Coughlin & Keene, 1981; Danner, 1997; Fulton et al., 2004; Field & Conrad, 1975; Heeter, 1974; Johnson & Madison, 1997; Kaplowitz et al., 2008; Karanja & Rama, 2011; Pruetz & Pruetz, 2007; Pruetz & Standridge, 2009; Machemer & Kaplowitz, 2002; McConnell & Walls, 2009; Pizor, 1986; Roddewing & Inghram, 1987; Tripp & Dudek, 1989; Stinson, 1996; Strong, 1998), the findings of which can benefit the TDR projects in built heritage conservation in Hong Kong. The factors, such as: viable receiving site (Fulton et al., 2004); background & market studies (Kaplowitz et al., 2008); market factors (Pruetz & Standridge, 2009); simplicity (Karanja & Rama, 2011); public participation (Fulton et al., 2004); third-party broker facilitation (Machemer & Kaplowitz, 2002); social equity (McConnell & Walls, 2009); and transaction costs (Bruening, 2008), can also be important to the success of built heritage

conservation projects.

2.3.5 Why TDR fail?

Sheenhan (2007) identify eight challenges and missteps that have been experienced in establishing and implementing TDR programs, that are lack of community support, distrust of the system, concern about increased density in the receiving area, developers have access to increased density through other mechanisms, lack of interest in selling development rights among landowners, lack of interest in buying development credits among developers, too complex and burdensome, and unstable and unpredicted prices. Fulton (2004) pointed out that the most difficult technical aspects of a TDR program is calibrating the market between buyers and sellers, and motivating both parties to participate in the program. low TDR price may the result of not enough demand for additional density in receiving areas. Many TDR programs fail because developers are satisfied with the density that get for free without buying TDRs (Pruetz and Standridge, 2009).

2.4 Property Rights in Privately-owned Built Heritage

When a private property is designated as a "historic building", the owner's use of the property will be confined. For example, "*the rights of freedom to use and derive income from land can be attenuated by restrictions on the scale of intensity of development like density control and plot ratio controls*" (Lai, 1997); the owners have the duty to maintain the exterior architecture features of the landmark in good repair (New York "Landmarks

Preservation Law"). However, Chapman (1997) holds an opposite view, such that the designation of a building as 'an historic building' will actually enhance property value. He argues "*the desire to maintain and raise property values in a given district often has driven historic preservation efforts. Given this reality, the property rights argument that governmental land regulation reduces property values for the average landowners is ironic*". These two opposite views make it difficult to have clear and consistent decisions and thus cause many cases to be taken to the court. However, even if the government can win in some cases, the high cost of litigation and the controversial social impact would prevent the government from undertaking preservation efforts.

The above controversy is only an introduction on property rights in privately-owned built heritage, which is indeed a complex matter. Hence, Chapter 3 is devoted to conduct an in-depth review in this area and it provides a detailed analysis of property rights in relation to TDR used for conservation of privately-owned built heritage.

2.5 Existing Methodologies for TDR Research

Over the past four decades, most of the TDR researches adopted a qualitative method aiming to find out the problems of TDR by: (1) analysis of 1-5 cases; (2) case comparison; or (3) the researcher's own critical analysis (Costonis, 1973; Pizor, 1978; Johnston and Madison, 1997; Pruetz and Pruetz, 2007; Aken et al., 2008 McConnell and Walls, 2009; Frankel, 1999; Janssen-Jansen, 2008; Micelli, 2002; Linkous, 2016)

Some studies adopted a combination of qualitative and quantitative methods. Empirical

analysis is the popular approach to evaluate the success factors. They use the qualitative methods to collect data such as by case study or grounded theory and then carry out data analysis. For example, Machemer (1998) developed TDR success factors by reviewing a large number of cases and then carried out a combination of explorative case study and comparative case study. Later, Machemer and Kaplowitz (2002) identified the programmatic characteristics and carried out data analysis based on an iterative grounded-theory approach.

Pruetz and Standridge (2009) developed success factors from the literature and then through a study of 10 top programmes to evaluate the importance of them as essential, important, helpful but not critical Only a few studies adopted quantitative methods of data collection or other alternatives. For example, Linkous (2012) used a logit model to see which indicator is the significant contributor to more likely intention to adopt TDR. Kaplowitz et al. (2008) exploited SPSS (x2 test, Fisher's exact test) to test whether and to what extent TDR programme characteristics impact TDR programme success. Other approaches, using GIS data has been used by some researchers to map the areas for TDR (Torre et al., 2012). McConnell et al. (2006) used GIS supplemented dynamic analysis to examine the performance of a real-world TDR market in Calvert County. Mi and Chang (2016) used GIS data to map exactly the 88 locations of TDR transactions and qualifying receiving and sending areas. Field and Conrad (1975) considered marginal revenue and cost analysis with the aid of a more complicated geometric construction to compare the TDR price or areas preserved by TDR and calculate conversion ratio.

For this research study, in view of the limited number of TDR cases executed in Hong Kong, these are not sufficient to do rigorous quantitative analysis. In addition, the data of cases before 2007 are not accessible. Further, currently the public in general do not know much about TDR, so that any questionnaire developed can be answered only by conservation-related experts. Hence, only simple quantitative data analysis can be conducted.

2.6 Methodologies for This Study

A triangulation strategy is utilized in this research which combines qualitative and quantitative methods. The methodology "triangulation" is stated by Bogdan and Biklen (2006) as a powerful technique that facilitates validation of data through cross verification from two or more sources. Using more than one method to gather data, such as interviews, observations, questionnaires, and documents is identified as one of the main basic types of triangulation (Denzin, 1968). In this research, qualitative methods are used to help explain and enhance the quantitative findings. A quantitative method is used to evaluate the importance of the TDR success factors for built heritage conservation and to prioritize the reason why North Carolina does not have the TDR implementation. Qualitative methods are employed to explain why these factors are important and how to implement these factors in local context. The data collection methods combine extensive literature reviews, interviews, observation, and examination of relevant official documents. All possible methods and strategies were carefully considered, and the appropriate methods chosen. The overall research methods and

research flow are presented in Figure 2.1.

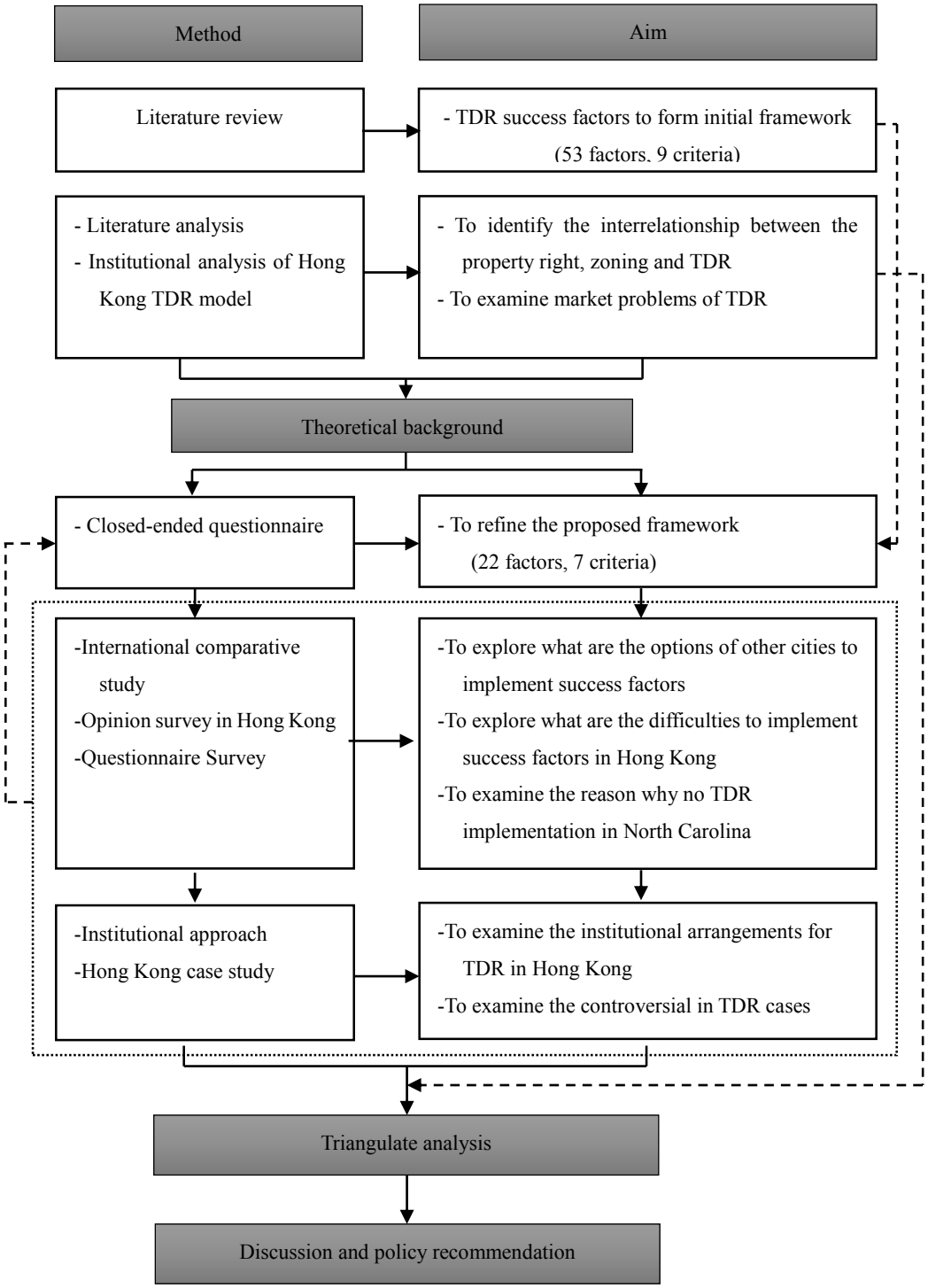


Figure 2. 1 Research method of the thesis

2.6.1 Focus and Approach to the Literature Review

A comprehensive review of the existing body of knowledge was an essential process in this study. A literature review is defined by Sekaran (1992) as a preliminary gathering of data. In this research, the literature review was employed (1) to understand the basic principles of TDR; (2) to develop an initial framework that may be used in the conservation of built heritage based on the factors identified as instrumental to the TDR success; (3) to identify the TDR problems; (4) to help identify the interrelationship between property right, regulatory planning and TDR and then pursue enhancement of TDR from the perspective of institutional arrangement. This part forms a theoretical foundation for the following research. It is primarily used to achieve Objective 1 and Objective 2 of this thesis.

2.6.2 Focus and Nature of Questionnaire Surveys

A questionnaire survey is a research instrument for gathering information, consisting of a pre-formulated written serious of questions to which respondents record their answer (Groat and Wang, 2002). It is an efficient mechanism for collecting data when the researcher knows exactly what is required and how to measure the variables of interest, as it has standardized answers that make it simple to compile data (Sekeran, 2003).

Three rounds of questionnaire survey were carried out. The first round was the closed-ended questionnaire with the aim to evaluate the importance of the success factors identified from the literature review. A Five-point Likert-type scale is used and the mean

score of each factor is used for evaluating the importance of the factors. Twelve copies were answered by the conservation experts in Hong Kong, which is reported in Chapter 4. It was used to help to achieve of Objective 2 of the thesis.

The second round of questionnaires is the open-ended questionnaire with experts in Hong Kong, aiming to find out the difficulty to implement these success factors and how to put these factors into practice.

The third round of questionnaires is the closed-ended questionnaire aiming to explore the reasons why North Carolina did not have the implementation of TDR even though they have TDR legislation. The percentage of respondents choosing each reason is used for prioritizing the reasons. Forty-five copies were answered by both the governmental departments involved in built heritage conservation and NGOs for built heritage conservation in North Carolina in the U.S. The second and third rounds of questionnaire are reported in Chapter 5. It was used to help to achieve of Objective 3 of this thesis.

2.6.3 Approach Used the Four Sets of Interviews

An interview, as a data collection instrument, has many strengths, as it "*facilitates access for immediate follow-up data collection for clarification and omissions; useful for discovering complex interconnections in social relationships; large amounts of expansive and contextual data quickly obtained; provide background context for more focus on activities, behaviors and events*…" (Greenfield, 2002).

Four rounds of totally 30 interviews are carried out. The first round is conducted together

with the first round of questionnaire. Twelve experts including urban development professionals working in Hong Kong were interviewed in order to evaluate the importance of the factors identified in the literature review. This helped reduce the number of factors collected in literature review, by eliminating the less important ones. Moreover, the framework was made more efficient by categorizing the remaining factors. As the TDR process is complex, the main factors contributing to its success are best identified through interviews with experts in the field. It was used to help to achieve of Objective 2 of the thesis.

The second round of interview was carried out together with second round open-ended questionnaire with experts, including surveyor, academic, architect, urban planner, and pressure group, to investigate how those factors are implemented and what difficulties are encountered when implementing these factors in the context of Hong Kong. Interview questions include: Is it difficult to legislate for TDR? If yes, what are the difficulties? How to consider TDR in land use zoning etc.? As TDR is complex, in order to eliminate the impact of missing important problems of the questionnaire for TDR, ten interviews are carried out together to collect more accurate and useful information. Interview data are transcribed, and then coded by NVivo, based on iterative grounded-theory approach. Several words or sentences generate one node. After coding all the 10 interviews, these nodes are put together to find the relationship between them which will be grouped into parent nodes. After several rounds of coding, the nodes and their relationships become more and more conceptualized.

The third round of interview with five conservation experts in North Carolina are carried out to know more about the privately-owned built heritage conservation and why TDR is not implemented in North Carolina. The second and third rounds of interview were used to help to achieve of Objective 3.

The fourth round of interviews with eight experts are carried out aiming to find out why TDR in Hong Kong are difficult and identify the controversial of the TDR cases in Hong Kong. As TDR programmes before 2008 in Hong Kong are confidential, interviews are carried out with the conservation experts, NGO, surveyor, academic, architect, urban planner which can help to identify the TDR cases, programme details and controversial. It was used to help to achieve of Objective 4 of this thesis.

2.6.4 Comparative Studies of Policy Document Data

Comparative studies aim to find out the common features and differences among several objectives (Bryman, 2008). Bereday (1964) in "Comparative Method in Education" developed the procedure of comparative studies into four major steps, namely description (describe the phenomenon), interpretation (why the phenomenon is like this), parallel (list the information used for comparison), comparison (compare commons and differences).

After the critical literature review to understand the problems of TDR and success factors of TDR, international comparative studies were carried out on TDR policies using 15 selected cities/counties based on the framework of TDR success factors. The analysis

first describes the general TDR application of the selected cities/counties. Based on the refined framework in Chapter 4, all the policy approaches used in implementation of the success factors are listed. An examination of these factors revealed that six factors were common and included in the policy approaches by over half of the cities/counties. Then, based on these six identified factors, interviews were carried out to explore why they are important and explore the interrelationship between them. Selection criteria of the cities/counties for comparative studies are based on preference given to: any landmark preservation case; successful and well-known cases of conservation using TDR; cities/counties with a long history of TDR use; and also consideration of available references that are accessible to the author.

2.6.5 Case Studies of Three Hong Kong Heritage Developments

The use of a case study is a comprehensive research method. It is categorized as an empirical inquiry, investigating the phenomenon within its real-life context, especially when the boundaries are clearly evident, as noted between phenomenon and context (Yin, 1994: p.13). Usually dependent on multiple sources of evidence, case study research logically incorporates specific approaches in data collection and analysis. The case study method is fit to deal with the technically distinctive situation in which the variables of interests are more than mere data points.

In this research step, first, is presented a general overview of the Hong Kong TDR cases. Then, three specific detailed case studies namely Sheng Kung Hui Compound (SKHC), Carrick Building (CB), Ho Tung Garden (HTG) are described analytically to explore the

controversial issues. Initial observation shows that, firstly, they are all heritages with high architectural and social value that attracted attention of the general public. Secondly, they represent different types of owners. SKHC is owned by a non-profit organization (NPO), CB is owned by the developer, and HTG is owned by a private owner. Through the three cases, it can illustrate the different objectives and demands arising from different types of owners for TDR programmes. Thirdly, the SKHC project has successfully realized TDR implementation, although it had some controversial issues. CB is a very controversial case that lasted for almost three years. Although it had been approved by the government Planning Department, it encountered many objections from the residents, the public, District Councillors and NPOs. Finally, the HTG project failed to use TDR and was demolished.

The analysis of the controversial issues of the cases are based on an in-depth analysis on the mass media such as newspaper, internet and forums, governmental documents, research papers, and communication with government, NGOs, residents and concerned groups. The identified issues were captured and recorded, and subsequently verified by interviews with eight experts, professionals, and District Councillors.

2.6.6 Analysis of Decision-making Using an Institutional Framework Approach

An 'Institutional Framework' approach is used to examine the institutional arrangements for TDR in Hong Kong, based on the theoretical framework of institutional arrangements (Figure.2.2). In this approach, an analytical framework for examining how the institutional arrangements affect decision-making is developed into a three-level nested

hierarchy, namely constitutional, collective choice, and operational levels (Ostrom, 1990). These levels clearly show the structure of the institutions and interaction between them (Figure. 2.2). Ostrom (1990) defines the relationship between these three levels, such that the "operational level" directly affects day-to-day decision- making, e.g. what rewards or sanctions will be assigned to different outcomes. The "Collective-choice level" indirectly affects the "operational level", in the form of the rules used for officials, or external authorities to develop policies. The "Constitutional level" crafts the set of rules in the collective-choice level, that in turn affects the set of rules in the "operational level", hence incorporating the concept of nesting.

Oakerson and Walker (1997) made a little adjustment to the structure, substituting 'collective choice' by 'governance'. The governance level includes the element of self-governance implicit in collective choice as well as enabling a broader notion of extrinsic governance. Thus, the three levels of institutional arrangements are defined as Constitutional level, Governance level, and Operational level. Rules and/or policies at the upper levels are stricter, and should be followed by those at the lower levels.

For the Constitutional level, it includes laws or regulations concerning property rights, environmental protection, land administration, urban planning, economic development and sustainable development, etc., (Ostrom, 1990). Rules at this level usually have legal effect, which should be followed strictly. They are robust and difficult to change (Oakerson, 1992). Modifications to them is relatively difficult, requiring complex procedures and a long time.

For the governance level, the government agencies at this level interpret the laws and regulations in the constitutional level and provide guidance to ensure the implementation of policies at the operational level. This is usually achieved by development control mechanisms (Ostrom, 1990). Thus, the governance level plays a coordinating role between constitutional level and operational level (Ostrom, 1990).

For the operational level, rules at the operational level have the closest effect on the individual transactions by facilitating and organizing transactions within the market (Seabrooke et al., 2004). Although the operational level is shaped by the constitutional and governance level, sometimes the rules in the operational level remain independent of the rules of the upper two levels. Many of the rules of the operational level appear to be informal. Interestingly, some adaptive strategies in the operational level could be 'fighting' with the upper two levels proficiently in order to maximize individual benefits (Kent, 2004).

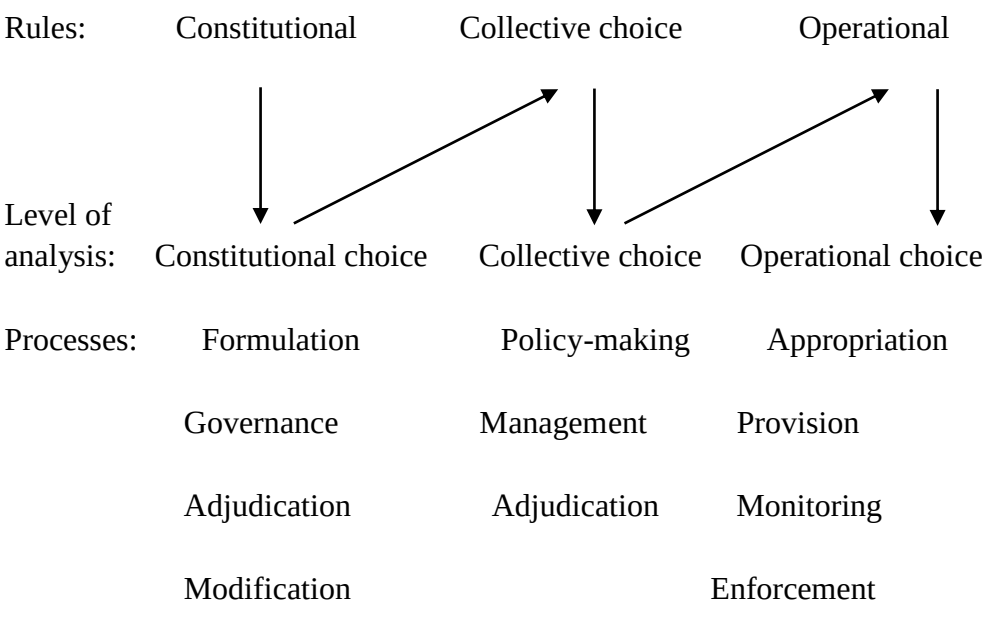


Figure 2. 2 Linkages among rules and levels of analysis

(Source: Ostrom, 1990)

2.7 Summary of the Literature Review and Methodology

It can be seen from this review that TDR is considered as a market incentive for exchanging development rights from the landowner in sending sites for conservation to the developers in receiving site for greater densities. TDR has been proven to be an enduring and malleable planning tool in its long history of application. Although existing studies provide useful insights in understanding TDR programmes, there is a lack of understanding on TDR for the conservation of built heritage. Most of the existing research studies are based on the conservation for forest, environmental areas, etc. There is also little research exploring on the relationship between TDR, property rights and government regulation/zoning.

Due to the different socio-political and legal contexts, TDR programmes have great differences between countries. Even in different cities within the same country, TDR programmes are different. In particular, there is a lack of understanding of TDR in Hong Kong about most of the cases on controversial issues, as well as market analysis. Research focused on these cases, leading to clarity about the key factors in the conservation of built heritage, can provide guidance for the dense cities and for those cities taking up TDR as an informal mechanism, or at the beginning of exploring TDR.

By summarizing different methodologies on TDR research, it can be concluded that the nature of information about TDR is difficult to be quantified at this stage. Both the use

of case studies and interviews are the major effective methods to understand TDR in practice. This research designs a set of methodologies for TDR on built heritage conservation using Hong Kong as an example. Due to the limited number of actual TDR cases in Hong Kong for which data is available, a major quantitative analysis and large amount of case studies are not possible. As current TDR practice is largely undocumented, knowledge of it is informal in Hong Kong. Crucially, outcomes of current practice are related closely with the private property values, and so the government carries out TDR with confidentiality. The public do not know it well, and even some professionals associated to urban planning, land use and conservation do not know much. The research also depends on the experience from overseas cities and this is used as a basis to make it relevant in the local context during interviews with local experts.

CHAPTER 3 TDR AND PROPERTY RIGHTS

3.1 Introduction

This chapter begins with a comprehensive discussion about development rights and the relationship between development rights and property rights. Then the narrative explores the relationships between property rights, TDR and zoning/government regulations. The Section (3.3) following focuses on the discussion of the role TDR plays on the property rights. Market inefficiency and high transaction costs are identified by the literature as two major barriers to using TDR as good mitigation for the attenuation of property rights due to government regulations.

Firstly, based on the theory of market inefficiency, the research use Hong Kong as an example to identify what are the market inefficiency problems and analyze how the market inefficiency problems affect TDR and then compare the formal and informal TDR in dealing with these problems. Secondly, based on the theory of transaction costs, the research also used Hong Kong as an example to compare different transaction costs occurs in the four TDR models under three different scenarios- no TDR, informal TDR and formal TDR. In addition, based on the theory of new institutional economics (NIE), institutional arrangement is identified as the most effective way to decrease the transaction costs and enhance the market efficiency. Thus, after analyzing the topics of market inefficiency and transaction costs, institutional strategies are also proposed in each of the topics.

In the end, the research tries to qualitatively describe the change of land use value and exchange value during the specific period from before designation of heritage, to government's proposing to conserve the built heritage through to final decision making under the scenario of no TDR, with informal TDR and formal TDR. The aim is to check the impact of different types of the TDR on private property.

3.2 Development Rights and Property Rights

3.2.1 Definition of Development Rights

Property ownership is described as consisting of a "bundle of rights" which is strongly rooted in common law. These rights include the right to possess, use, modify, develop, lease, or sell the land and so forth. Snare (1972) classifies the three essential rights for private property: the right of use, the right of exclusion, and the right of transfer. Calling property a "bundle of rights" is like calling the human body a "bundle of organs," or a human nervous system a "bundle of cells" (Klein and Robinson, 2011). Usually when someone purchases a parcel they purchase the entire bundle of rights associated with the land, which can be separated and reassembled.

Property rights is also described as a "bundle of sticks", in which each stick represents an individual right (NDSU, 2016). For example, mineral rights are property rights to exploit an area for the minerals. Air rights are a type of development right in real estate which can be used or developed by the owners. It can be defined as "the right to control, occupy, or use the vertical space (air space) above a property, subject to necessary and

reasonable use by neighbor(s) and others (such as aircraft)" (Business Dictionary). "Development rights" is defined as the right to develop a piece of land for residential, commercial, or industrial purposes, also a right within the bundle. Owning a development right means that you own the right to build, modify or demolish a structure on the parcel. Development rights may be voluntarily separated and sold off from the land.

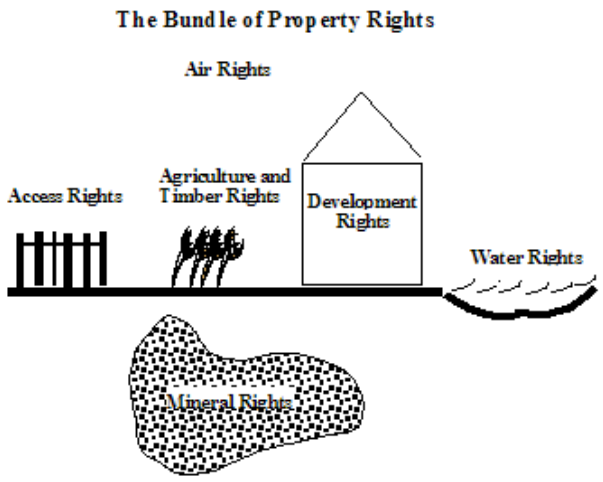


Figure 3. 1 The bundle of property rights
(Source: globle.bing.com/image/bundles of rights)

The development rights can be transferred or purchased, named as "transfer of development rights" (TDR) and "purchase of development rights" (PDR) respectively. If no TDR or PDR happens, the development rights remain under the baseline of on-site construction limits. If the sending site owner selects the TDR option, then the development rights that can be used on the sending site are those specifically allowed under the recorded TDR easement. Once the easement is officially recorded, the sending site owner also has transferable development rights that cannot be used on the sending site but can only be transferred for use on a suitable receiving site. Development rights

(DR) have other similar terms such as “development credits” (DC). In some counties in the US, they named the development rights in terms even more characteristic and specific. For example, in New Jersey Pinelands, they have “Pinelands Development Credits” (PDC) (Machemer, 1998).

3.2.2 Development Rights in UK, US and France

Although development rights always exist in property ownership, but the regulations for the use of the development rights vary greatly between the UK, US and France, which represent the three typical forms of development rights.

The concept of development rights originates from UK in the late 1930s, aiming to balance the sharp increase of land value in the development districts and sharp decrease of land value in the restricted development districts due to urban planning. The UK government enacted the Town and Country Planning Act in 1947, which established the principle that ownership alone no longer conferred the right to develop the land. This means the development right belongs to the government and anyone who wants to change the land use or carry out any development activities should get the planning permission. If permitted to develop, land development tax should be paid, which is similar to the situation that the land owner purchases the development right from the government.

In the US, property ownership evolved towards the concept of bundles of rights, especially since the Second World War, enabling the bundles of rights e.g. development

rights, air rights, etc., to be separated from each other. This makes the possibility for creating the corresponding market for these rights such as transfer of development rights (TDR). If the development rights are transferred from the owner to other people, the other rights within the bundles of rights can become unchanged, still belonging to the owner. The separation of the development rights allows the development rights in the farmland to be transferred the other areas without construction on the farmland, which helps to prevent development expanding to farmland and the natural environment. However, situations in western European countries are different. For example, there is no concept of bundles of rights in France. In their civil code, the property rights, including the property of underground and air rights exist in the form of unitary rights on land that cannot be separated from each other (Renard, 2007).

From the above comparison, it can be seen the mechanism of development rights is an administrative instrument to facilitate the government to regulate the land use. In the UK, the property owners do not have the development rights. If they need it, they should buy it from the government. But in the US, separated development rights are often used to preserve the farm, natural environment and heritage. However, this has also been challenged by the court, which concluded the right to build, an inalienable part of property rights, should be used in-situ, and not be allowed to transfer to other sites (Renard, 2007).

3.3 Property Rights, TDR and Zoning

3.3.1 Impact of Zoning to Property Rights

There is a classical scenario showing the tension between property rights and historic preservation. "*One day, the city notifies you that it has designated the neighborhood in which your building is located an historic district. As you pore over the regulations that accompany the historic district notice, you realize that the city has diminished your ability to develop and make alteration to your building and property. You may no longer be able to add aluminum siding or a roof deck to your building, or paint the front door deep purple. Has the city 'taken' something from you and devalued your property in such a way that it should compensate you for your loss*?" (Chapman, 1997)

The government has responsibilities for the public interest. For instance, they do not allow buildings of great historic value to be demolished, and prefer polluting industries to be located in the suburban area instead of in town centres. In many countries, governments are accustomed to utilizing zoning/regulatory land use planning to separate the incompatible land use and to realize planning objectives. By imposing restrictions on land use, the way an owner uses their property rights are confined, which is considered as an attenuation of the private property rights (Needham, 2006). However, this type of intervention might be unfair in most of the situations that the landowners of a certain district are restricted while the landowners of other districts not.

In 1965, the "Landmarks Preservation Law" ("law") was enacted in the New York City,

under which a building meeting certain criteria can be designated as a “Landmark” by the Landmarks Preservation Commission authorized by the law. Once the private building is designated a landmark, the property owner’s rights are restricted, such that the owner cannot use his property and site at his will. The owner is bound in duty to maintain the exterior architectural features of the landmark in "good repair" according to the Law. If the owner wants to change the exterior features of building, he should seek approval of the Commission and obtain the Certificate of Appropriateness issued by the Commission. (Walker and Avitabile, 2011)

The legal concept of a ‘taking’ derives from the Takings Clause of the Fifth Amendment to the United States Constitution, which states “*private property shall not be taken for public use, without just compensation*.” Two forms of takings have been recognized: physical and regulatory. A physical taking is government action that tangibly deprives or dispossesses the owner of a portion of his/her land. A regulatory taking occurs when government land-use regulations constrain the landowner's free use of his/ her land, causing diminution of the land's value. (Chapman, 1997)

In Hong Kong, when a building is designated as a ‘Monument’ or ‘Proposed Monument’, the private property rights are attenuated due to a set of restrictions to the use specified by the Antiquities & Monuments Ordinance (A&M Ordinance). Besides violating the owner’s rights to best use of their land, private property rights can be attenuated by the terms and conditions prescribed for the site:

“(1) The Authority, and any designated person authorized by him in writing, may, for

the purposes of this Ordinance, at all reasonable times: a. enter and inspect any proposed monument or monument; b. with the prior approval of the Chief Executive (i. fence, repair, maintain, preserve or restore any proposed monument or monument; ii excavate or search for relics in any proposed monument or monument and remove any relics hitherto undiscovered.)

(2) Without authorization, no person shall: (a) excavate, carry on building or other works, plant or fell trees or deposit earth or refuse on or in a proposed monument or monument; or (b) demolish, remove, obstruct, deface or interfere with a proposed monument or monument, except in accordance with a permit granted by the Authority." (A&M Ordinance)

After designation, the free options of the land owner in utilizing their private property right is strictly confined by government regulations.

3.3.2 Role of TDR from the Perspective of Property Rights

Penn Central Transportation Co. v. New York City is an early classical TDR case for built heritage conservation with great social impact at that time. In 1967, Grand Central Terminal in New York City, owned by Penn Central Transportation Company ("Penn Central"), was designated as a "landmark" by the Commission. In 1968, the Penn Central planned to construct a high rise office tower on top of the terminal. One of the plans proposed to build a 55-storey office building on top of the station and maintain the external features of the building. The other plan proposed for a 53-storey office building,

while one side of the station would be demolished to keep a consistent façade with the new building. Both of the two plans were presented to the Commission for application of the certificate required by the law. However, both plans were rejected by the Commission because the plans have great negative impact to the architectural features of the landmark. Afterwards, Penn Central sued the city in New York Supreme Court, arguing the commission had taken its "air right" without just compensation, violating the Takings Clause of the Fifth and Fourteenth Amendments. However, the court judged that no "taking" happened in the case because the owner can still use the station and get the economic return of it. In the end, the court implicitly sanctioned the use of TDR as a legitimate means to preserve property rights. The owner finally accepted the TDR.

As reported in some studies, TDR is provided aiming to compensate the owner for the economic loss due to the government's regulations. A key point is how far the government regulations confine the private property. If the regulations do not incur "taking", the government does not need to pay compensation. Then the return due to TDR allowed by the regulations can be considered as "bonus" income (Pruetz, 2003).

However, in order to protect the public interests, the government regulations sometimes inevitably violate the private property rights and constitute an unconstitutional taking. In fact, one objective for the government adopting TDR is to protect the governmental agency from being accused of "taking" of owner's property resulting from restrictive regulations. The controversial issue appealed by the property owners is whether "taking" happens to their property for public use without just compensation. However, there is no

definite line to differentiate "takings" or not. From the government point of view, the loss of the affected property owners can be compensated by participating in TDR programmes. However, this was challenged by Pruetz (2003). He argued "*TDR may well not constitute 'just compensation' due to some real limitations on the efficacy of TDR regulations*". For example, in most circumstances there will be a time lag between the regulatory restrictions imposed to the owners and the actual implementation of TDR. "Temporary taking" occurs and keeps operating until there is a market converting TDR to money. Thus, TDR cannot be considered "just compensation" to deal with the case involving "taking".

If there is no "taking" involved, things will be much easier. When the government's regulation confines all the private owner's development and rational use for economic return, TDR can be initiated to compensate the private owners. However, due to the different governmental actions, expectations, and economic impact of each case, there is a great uncertainty of the ongoing TDR programme. If there is no market for TDR, one cannot define TDR's role to mitigate the economic loss of private owners (Pruetz, 2003). Even if a market exists, the owners cannot get their economic rewards at once, due to the delays in the process such as searching for proper buyers, which make TDR face a "temporary takings challenge". If the government's regulations only confine the density of the site but not disturb all the rationale for economic return, TDR can be exploited as "mitigation" for the attenuation of the development value by government's regulation.

Thus, TDR can be considered as a mitigation method for addressing adverse effects of

regulatory planning, and in most cases can compensate part of the economic value of the property. The barrier for TDR to serve as a good mitigation method is an ineffective market and costs of delay.

3.3.3 Relationship between Property Rights, TDR and Zoning

Nelson (1979) defines the nature of zoning from a property rights aspect. His main argument is that zoning can be regarded as collective property rights assigned to community members to control their community environment and public services. All too often in many countries, zoning assigns more development rights to rural land than the market actually needs, but assigns insufficient development rights to urban land that cannot meet urban development needs. Planning and zoning thus may contribute more to inefficient land-use patterns than intended. TDR becomes a potential tool for rebalancing the allocation of development rights, especially if downzoning rural areas and upzoning urban ones is not politically expedient (Nelson et al, 2011). A key feature of TDR programmes is to internalize externalities caused by imperfect market interactions between land uses, plus imperfections caused by policy itself (Field and Conrad, 1975).

When implementing TDR, one important step is to look for the receiving site with suitable land area and infrastructure capacity etc. in the existing zoning plan, which regulates the type of land use, the density, the building height etc. in different zones. Any change in the chosen use must be consistent with the designated types of use, scale, and intensity of development (Lai, 1997). By zoning, the land is divided into individual sites

which are then assigned to different private property ownership by lease. After designating the receiving site for TDR, zoning changes may occur to delineate the proper site boundary, regulate the potential GFA and other parameters. Then a new lease will be developed for the designated area. Thus, the consistency of the TDR and zoning is very important.

Property law aims to protect the private property rights from 'taking' without fair and just compensation, which makes the implementation of the urban planning and land use planning difficult. Before implementing the planning goals, the government would face huge compensation to the private owner. "*The property rights lead to extraordinary costs for local governments and will undermine the basic zoning power that cities have long used to achieve public benefits such as historic preservation*" Chapman (1997). If the property rights are not clearly defined, the requisition will face much higher compensation and transaction costs.

Based on the section 3.3.1, 3.3.2 and the above analysis, the relationship of property rights, zoning and TDR can be described as following (Figure. 3.2).

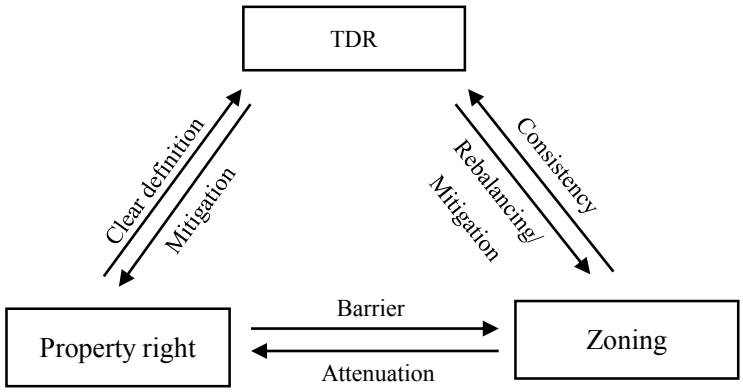


Figure 3. 2 Relationship of property rights, TDR and zoning
(Source: By author**)**

Zoning will affect or attenuate the value of private property rights; In return, complication of property rights will deter the exercise of government zoning power generally; TDR will help to mitigate the negative impact of regulations to the private property rights and at the same time help to mitigate the difficulties to implement the zoning due to the problems of private property rights, as TDR only transfer the development and the other remaining bundles of property rights unchanged; TDR can rebalance the negative legacy of zoning by distributing of the development rights; Clear definition of property rights will facilitate the owners to know the rights that they have; TDR should be included in the zoning and keep consistency with zoning.

This research emphasizes on how to implement TDR as an important role to better mitigate the negative impact of planning/zoning on the property rights. In the following, this research adopts a new perspective as shown in Figure 3.2 by considering the relationship among TDR, property rights and zoning to revisit the important role TDR in mitigating the attenuation of property rights due to government regulations.

3.4 New Institutional Economics

Based on the last section's analysis, both an ineffective market and high transaction costs are the two major barriers to the TDR acting as a good mitigation method. In the New Institutional Economics (NIE), institutions are the most effective ways to deal with the transaction costs and improve the market efficiency. NIE incorporates a theory of institutions into economics (Commons, 1992). It is interdisciplinary combining economics, law, political science, organization theory, sociology and anthropology to understand the social, political and commercial perspective of institutions (Klein, 1999). It builds on, modifies, and extends neoclassical theory (Ronald Coase Institute), and borrows liberally from various social science disciplines, but its primary language is economics (Klein, 1999). Its goal is to explain what institutions are, how they arise, what purposes they serve, how they change and how they should be reformed (Commons, 1992). It includes work in transaction costs, political economy, property rights, hierarchy and organization, and public choice.

The term 'New Institutional Economics' was originated by Williamson (1975). It has its roots in Ronald Coase's two articles named "The Nature of the Firm" (1937) and "The Problem of Social Cost" (1960). Underlying economic activity and analyzing beyond earlier institutional economics and neoclassical economics, NIE aims to examine how institutions affect economic growth by combining theoretical and empirical research within the social sciences.

North (1990) regarded institutions as "*the rules of the game in a society or, more formally,*

are the humanly devised constraints that define and limit the set of choice of individuals and thus serve as the framework for human interaction." Institutions integrating the formal rules, informal rules and enforcement mechanisms within a conceptual framework, are established to reduce uncertainties in transactions, which determine the costs of transacting. Institutional arrangements are the policies, systems, and processes that organizations use to legislate, plan and manage their activities efficiently and to effectively coordinate with others in order to fulfill their mandate. Institutional arrangements determine the capabilities of institutions to govern the allocation of property rights and thus affect the amount of corresponding transaction costs as well as the overall market efficiency.

3.5 Theory of Market Inefficiency and TDR Analysis

Based on the analysis in section 3.3.2, the two major barriers for TDR to serve as a good mitigation method are identified as 'ineffective market' and 'cost of delay'. The following two sections 3.5 and 3.6 focus on the exploration of analysis of market problems and transaction costs respectively.

3.5.1 Market Problems of TDR

Danner (1997) revealed the reason why among the 16 programmes in Florida, USA, only two had periodic sales of TDR, five had a few sales over 10 years' time and the other had no sales. This is because the programme can exist with thousands of TDR available but with little or no demand of TDR. Nelson et al. (2011) argued that effective TDR

programmes rely on markets to achieve planning objectives and in practice found that a TDR programme is more likely to fail if lacking strong connection to the land use planning or strong market. If lacking connection to the planning law, the programme will be opposed by the property owners (Renard, 2007) and citizens of the receiving site, or it will be criticized for exceeding the maximum densities regulated by the comprehensive plan.

Bruening (2008) identified four major market-based obstacles to TDR programmes: (1) unbalanced allocation of supply and demand; (2) Inconsistent and flexible zoning making developers have other alternatives to increase density other than using TDR; (3) High transaction costs e.g. time-consuming negotiations over price, preparation of purchase and sale agreements and other documents, valuation difficulties, meeting government regulations of scrutinizing individual transactions; and (4) Not enough public outreach and education.

Through an analysis of multiple TDR programmes, Danner (1997) presented a good understanding about the effectiveness of TDR programmes and argued "*if a program is not operating efficiently, there is no need for anyone to purchase a TDR, which, therefore, would have little or no value*"; "*If demand for development exists or increases, market value of usable TDR will increase*". In order to create market demand for TDR, Danner (1997) opined the programme should give TDR four economic factors including: utility (use), scarcity (limitations on availability), desire (demand) and effective purchasing power (reasonable price).

3.5.2 Theory of Market Failure

An efficient market intends that free markets can allocate resources efficiently, which means asset prices fully reflect all available information such as cost, benefit, shortage etc. In economics, market failure is a situation in which the allocation of goods and services is not efficient. Market failures will occur when the market "fails to produce public goods", or "inadvertently produces externalities", or "gives rise to natural monopolies", or "disenfranchises parties through information asymmetries" (Zerbe & Mccurdy, 1999). The four aspects are illustrated as the following:

(1) Monopolies

In the Economic Dictionary, a monopoly is defined "*exclusive control of a commodity or service in a particular market, or a control that makes possible the manipulation of prices*". Lacking economic competition to produce goods and substitute goods, monopolies will make the price much higher than the actual price which shows wrong information. The monopolied price, being higher than the firm's marginal cost, results in a high monopoly profit.

(2) Asymmetric information

Asymmetric information refers to one party that has different information to the other in transactions. This creates an imbalance of power in transactions. The party with more information may take the advantage to cheat the party with less information. Different groups of people may suffer different risk and costs because of different information

they can acquire (Liu, 1999). The group with less information may have less confidence in the transaction so the transaction costs will increase.

(3) Public goods

"Nonexcludability" and "Nonrivalrous" are two distinct features of public good. A public good is a good that allows the nonpayers to enjoy the benefits of the good or service and guarantee one individual does not reduce availability to others (Economic Library, 2016). People can occupy the public goods without paying for them which generates the problems that people are willing to occupy the public goods rather than provide the public good. Thus, the market cannot play the role of adjusting the resource allocation, which means the market fails.

(4) Externality

Externality is usually defined as "*a situation in which the utility of an affected party is influenced by a vector of activities under his control but also by one or more activities under the control of another (or others)*" (Zerbe& Mccurdy, 1999). Consumers and producers may fail to take into account the effects of their actions on third-parties (e.g. individuals, organizations, or communities), an effect which is against the principle of efficient resource allocation by the market. Externality can be considered as the inconsistency between the social net output and private net output (Liu, 1999). Pigou supposed the externality can be solved by government intervention, while Coase argued if the property rights are clearly defined, there will be no inconsistency between the

social net output and private net output. However, Stiglitz holds the view that if a large number of people are negatively affected by the externality, government intervention is necessary. The transaction costs to internalize the externality and to define clear property rights will be huge.

The market cannot exist without the guidance of the government's formal rules. Musole (2009) summarized three major reasons to adopt state intervention based on Garba (1997), Dowall (1993), Whitehead (1983) etc. These are: "*Elimination of market imperfections and failures to increase operating efficiencies; Removing externalities, so that the social costs of outcomes correspond more closely to private costs; Redistribution of society's resources, so that disadvantaged groups can share in society's output.*"

State intervention has different forms such as administrative/regulatory controls, provision of goods and services, taxation or subsidies, direct ownership and /or participation in investment (Hallett, 1979, Adams, 2003). However, some excessive or inappropriate intervention may induce high transaction costs such as delays and complicated procedures in "*acquiring ownership rights*" or "*lobbying and bribing officials to expedite allocations of ownership*" (Musole, 2009). State intervention also produces a cost, which can be called political transaction costs. It relates to the "*establishment of the state bureaucratic system, rearranging, monitoring and enforcing property rights*" (Musole, 2009). When determining well intended state intervention, it needs to examine: "*the objectives of the intervention, the administrative consequences, the way in which the market will react to the new conditions and the advantages and*

disadvantages policies" (Hallett, 1979).

3.5.3 Analysis of Efficiency Problems of TDR

Analysis of efficiency problems in TDR is based on the theory of market failure above, including the four major reasons: monopolies, asymmetric information, public goods, and externality (Table 3.1). Efficiency problems are classified into two categories, one is the general efficiency problems in TDR and the other is efficiency problems as a result of "government failure".

A. Efficiency Problems in TDR Market

Based on the literature review and discussions with experts, three typical efficiency problems in TDR for conservation of built heritage in Hong Kong are identified as following:

A1. Not enough demand for TDR

There are several ways for a developer to get bonus plot ratio such as providing public open space in the square. TDR is only one of the ways. If the developers can get additional development density by enhancing the quality of environment/building in their own real estate, then they of course will choose that method first instead of dealing with conserving the built heritage in other sites. Thus, even if there are plenty TDR available for sale, with only a few buying it, the transfer market cannot function well.

When the government proposed other incentives besides TDR to increase development

density, these incentives form externalities to TDR. According to the theory of an inefficient market, there are several methods that can deal with the externality, such as taxes or subsidies intended to deal with economic imbalances, regulations to limit activities that might cause negative externalities, government provision of services with positive externalities, or claims for compensation for negative externalities by affected parties. For TDR, the government can adjust the relevant regulations to balance the use of different methods to provide increased development density, in order to make the developers more willing to consider TDR.

A2. Owners are not willing to participate in TDR

TDR is a voluntary mechanism. If the owners are not willing to transfer, the government cannot force them to do so. During the negotiation, the government will consider the owner's rational willingness and requirements. Sometimes even if all the requirements are met, the owners are still not willing to transfer, perhaps using the excuse of their strong sentimental feelings with the land passed down from their ancestors.

Usually, the owners of the built heritage do not want to contribute to the conservation for the public interests by sacrificing their building as public goods. It is difficult to persuade the private owners to keep the heritage buildings. The public are willing to use the public goods rather than providing it at a cost. Thus, the market cannot adjust the resource allocation and yet the ability of government to provide the public goods is limited. The government should facilitate more organizations (e.g. NGOs) to provide more platforms for the public to know and be willing to provide public goods through

educating the public, changing the public's attitude towards heritage, and providing incentives to the participant in heritage conservation.

A3. Difficulties in finding a receiving site that can meet owners' requirement

In this research, land exchange programme is one of the TDR types. It is difficult to find a receiving site for TDR to conserve built heritage near the original site with a good view. If the owner agrees to exchange the land, the most important thing is to look for a receiving site that can satisfy the owner's requirements. If the government uses public land, they should guarantee the public's benefits will not be violated, otherwise the government should compensate the affected parties. Thus, the role of government, to mediate the conflict between the private and public interest, is necessary.

B. Efficiency Problems as a Result of "Government Failure"

Government regulations are usually implemented to deal with the market efficiency problems. However, some problems may be caused by improper government regulations as identified in the following.

B1. High hidden cost

The case by case approach for TDR provides certain flexibility which is good for the market-based tool, but it also brings uncertainty in the operation. Uncertainty increases the transaction costs especially the hidden cost e.g. more time is needed to collect useful information for owners to decide whether to transfer; negotiation between government and the owners to reach an agreement; public consultation for the potential receiving site.

The high hidden cost in TDR can be explained by the theory of asymmetric information. To prevent high hidden costs, the government should guide the market especially at the initial stage of using TDR, providing the effective institutional arrangements so that the transfer process can be easier. Specifically, the government should assign the duties relating to TDR to each appropriate department for coordination and supervision works. For the related departments to be able to help, the government must develop a clear TDR policy first. This will save much time for the negotiation between the government and the owner of TDR.

B2. People are not willing to participate

There is little information about TDR found in the government website. The public do not know TDR well and do not trust whether the system can work. As the public also do not know how TDR can benefit them, there is little interest in the public to participate in the process of TDR. It is part of "asymmetric information" in the theory of market inefficiency. To deal with this situation, the government should provide an integrative information system about TDR showing the designed government department responsible for TDR, the detail of transfer method, transactions, the demand and supply of TDR etc. The system could help users to design rational contracts, create honest and normative third parties, and evaluate the risk and build the forecasting systems. Then the public can trust the system will work and they will be willing to participate. But now, many things are unclear. They will naturally avoid being involved in TDR.

B3. Unstable real estate market

The government monopolizes the primary market of land. In order to enhance the government income, the government restricts the supply of land which increases the land price and the corresponding costs of the real estate development. In some districts, some developers monopolize the whole real estate market which makes the property prices much higher. Thus the price cannot reflect the real value of property and increases risks for investors. This may also affect the demand of TDR to have more development projects.

In order to deal with the monopolies in the market, the theory of an inefficient market suggest that the land market should be more transparent e.g. open bidding. The government should encourage competition between different developers to prevent monopolies, publicize the sales information, and facilitate a forecasting system. Moreover, the government may develop and publicize some compensation rules to help out the affected owner of some special designated situations with built heritage worth conserving.

Table 3. 1 Evaluation of the efficiency problems in the Hong Kong TDR market for built heritage conservation based on the theory of inefficiency market

	Inefficient market reasons			
	Externality (tax, regulation, compensation, mediation)	**Public goods (improve institution, information, incentive)**	**Asymmetric information (institutional design, build information system, third party supervision, contract)**	**Monopolies (encourage competition, transparency,)**
A. Efficiency problems in TDR				
A1.Not enough demand for TDR	The developer may get bonus floor area through other ways e.g. incentive zoning so no need to participate TDR			
A2.Owners are not willing to use TDR		Owners do not willing to contribute to the heritage conservation which belongs to the public benefit		
A3.Difficult to find receiving site that can meet owners' requirement	The selecting of receiving site sometimes violate the public interest and will be objected by the public			
B. Efficiency problems as a result of government failure				
B1. High hidden cost			Uncertainty during the transfer and no legislative procedure so high cost may spend on acquire information and wait for approval	
B2.People are not willing to participate			As informal tool, limited information revealed from the	

	Inefficient market reasons			
	Externality (tax, regulation, compensation, mediation)	**Public goods (improve institution, information, incentive)**	**Asymmetric information (institutional design, build information system, third party supervision, contract)**	**Monopolies (encourage competition, transparency,)**
B3. Unstable real estate market (transfer to different region)			government and people do not trust the system	Monopoly of land market by Government and Monopoly real estate market by developers

Comparison of Efficiency Problems of Informal TDR and Formal TDR

Although there are different methods available to deal with market failure, Government intervention still plays an important role to repair market failure through taxes, subsidies, restraints, state production or state co-ordination (Krabben, 2009). Informal TDR is a better way to describe the current situation in Hong Kong. TDR is carried out on a case-by-case basis without many regulations announced to the public. The formal TDR is defined in terms of the government including TDR operations in the planning mechanism, and arranging the related institutions to promote TDR or even have specific legislation for TDR. From the Table 3.2, it can be seen, both informal and formal TDR have many strategies to deal with the efficiency problems in TDR.

Table 3. 2 Comparison of efficiency problems of informal TDR and formal TDR

Efficiency problems	Remedies by Informal TDR	Remedies by Formal TDR (formal government intervention, legislation)
A. Efficiency problems in TDR		
A1.Not enough demand for TDR	The informal TDR is difficult to sell and buy the TDR in the open market	Develop supporting policy and incentives to promote TDR
A2.Owners are not willing to use TDR	Negotiation with the owner;	Change the public attitude to built heritage and TDR
A3.Difficult to find receiving site that can meet owners' requirement	Looking for receiving site one by one and wait for approval	Include TDR receiving site in zoning or heritage conservation plan
B. Efficiency problems as a result of government failure		
B1.High hidden cost	No way	Having a complete transfer method system
B2.People are not willing to participate	Negotiation with the designated individuals	Open and transparent transfer information and clear procedure
B3.Unstable real estate market	No guarantee.	Compensation rules

3.6 Theory of Transaction Costs and TDR Analysis

3.6.1 Theory of Transaction Costs

The simplest practical interpretation of transaction costs is from Lai (1997), which defines transaction cost as all economic costs except actual production costs. Musole (2009) gives a comprehensive definition of transaction costs (TC) based on others' researches. He defined TC as the cost related to "transfer, capture and protect the rights" (Barzel, 1989); the cost of "using the price mechanism" (Coase, 1988); the costs of "exchanging ownership titles" (Demsetz, 1968); the ex-ante costs of "drafting, negotiating and safeguarding an agreement" and the ex-post costs of "haggling, contract governance, and bonding costs to secure commitment" (Williamson, 1985).

Coase (1960) and North (1990) argued that how much the transaction costs are and what types of transaction costs occur, largely rely on the institutional environment. In fact, transaction costs are "costs of institutional arrangements" (Lai, 1997). North (1990) stresses that the higher the transaction costs, the less number of transactions happen. If the transaction costs are costly, no transaction will occur at all. Gu & Hitt (2001) argued that any decrease of TC can help to enhance the market efficiency.

How to measure the transaction costs? There are two approaches (Klaes, 2000). The first is an "objectivist" approach that measures the transaction cost quantitatively by using data from the financial sector. The second is the 'subjectivist' approach by adopting a comparative institutional approach which compares "transaction costs proxies" (e.g. uncertainty, asset specificity, opportunism) to measure the "relative efficiency of alternative institutional/property rights arrangements or contractual choices" (Musole, 2009). Transaction costs can be divided into three broad categories (Dahlman, 1979):

(1) "Search and information costs" are costs such as in determining whether the required good is available on the market, which has the lowest price, etc.

(2) "Bargaining costs" are the costs required to come to an acceptable agreement with the other party to the transaction, drawing up an appropriate contract and so on. In game theory, this is analyzed for instance in the "game of chicken". On asset markets and in market microstructure, the transaction costs are some function of the distance between the bid and ask prices.

(3) “Policing and enforcement costs” are the costs of making sure the other party sticks to the terms of the contract, and taking appropriate action (often through the legal system) if this turns out not to be the case.

From the above discussion, it can be seen transaction costs are a critical factor in the evaluation of market efficiency. It plays an important role in decision-making and policy execution processes. It is certain an effective institution design can reduce transaction costs significantly and thus contribute to the rise in overall efficiency.

3.6.2 Analysis of Transaction Costs in the Four Models of TDR under Three Scenarios in Hong Kong

Land has two fundamental values: use and exchange. The value in use refers to the value of the land to the owner based on the land’s existing uses. This value can be both economic and noneconomic. The value in exchange refers to what someone else would pay for the land. Transaction cost is a cost incurred in making an economic exchange. In this part, the research will use ‘subjectivist’ approach defined in Section 3.6.1 to compare three parameters: “transaction costs proxies” (based on the Section 3.6.1, three categories developed by Dahlman, 1979), “land use value” and “land exchange value” under three scenarios which are: (1) No TDR; (2) Informal TDR; and (3) Formal TDR. Within the informal TDR and formal TDR, the author also qualitatively compared the “transaction costs proxies” in the four TDR models in Hong Kong.

(1) Definitions of the Three Scenarios:

Scenario 1, No TDR: in this research, we suppose no TDR refers to using public funds to buy the heritage;

Scenario 2, Informal TDR: it is defined as case by case negotiation between the owner and the government;

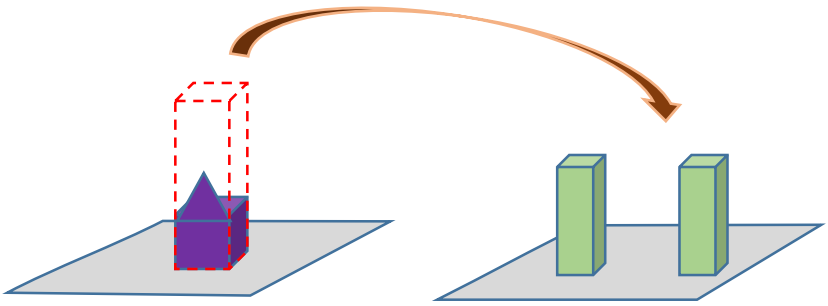
Scenario 3, Formal TDR: it is defined as supported with legislation for TDR

(2) Description of Four TDR Models in Hong Kong

In order to explore the effect of transaction costs under the four models, the author proposes the following scenario which typically arises in the Hong Kong situation. The owner of the built heritage wants to demolish the old building and build new ones with higher density under the permission of zoning. However, the government representing the wish of the public wants to preserve the built heritages. Thus, several forms of TDR are introduced for the owner to choose.

Model 1. Transfer to Contiguous Site of the Heritage Site (Land Exchange)

Description: the sending site and receiving site are of equal land area. The total development rights of the original heritage site are transferred to the contiguous site of the heritage site. The owner of the built heritage hands over the heritage site and building on it to the government. The owner can carry out development activities in the new site after paying for the land premium (Figure. 3.3).

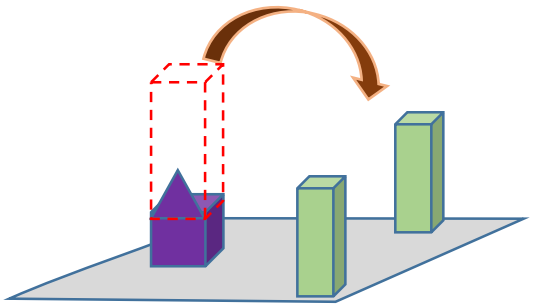


Sending site: Heritage site Receiving site: Contiguous site to the heritage

Figure 3. 3 Transfer to contiguous site of the heritage site
(Source: by author)

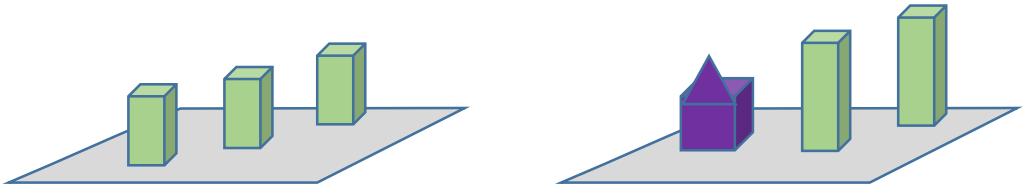
Model 2. Transfer within the Same Parcel

Description: the sending site and receiving site is in the same parcel (Figure 3.4). The unused development right of the built heritage is transferred to another part of the land within the heritage site which means the owner keeps the built heritage and carries out the new development near the heritage (Figure 3.5&3.6). The heritage still belongs to the owner but the owner has no development rights on it any more. When using and maintaining it, the owner should follow the contract between the government and the owner.



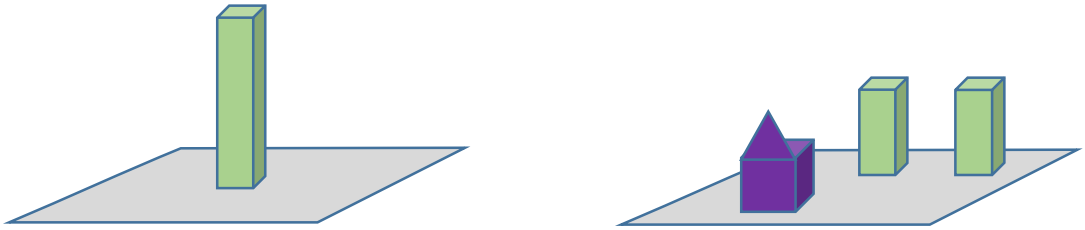
Sending site and receiving site: heritage

Figure 3. 4 Transfer within the same parcel
(Source: by author)



Original plan of the property owner Final plan after TDR

Figure 3. 5 Owner's original plan and plan with TDR
(Source: by author)



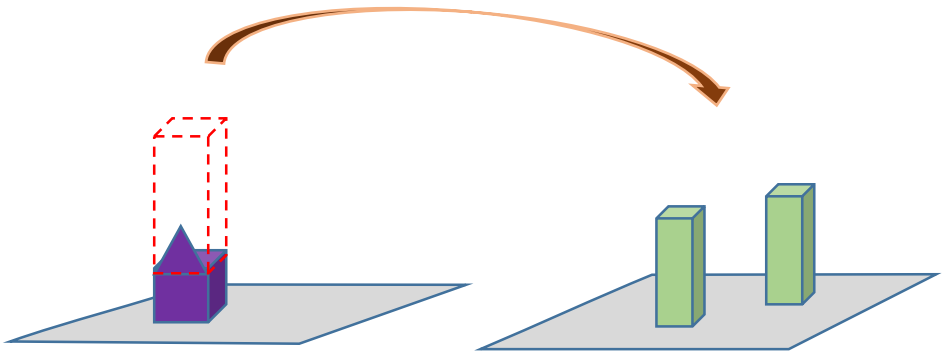
Original plan of the property owner Final plan after TDR

Figure 3. 6 Owner's original plan and plan with TDR
(Source: by author)

Model 3. Transfer to Non-contiguous Site but within the Same Ownership

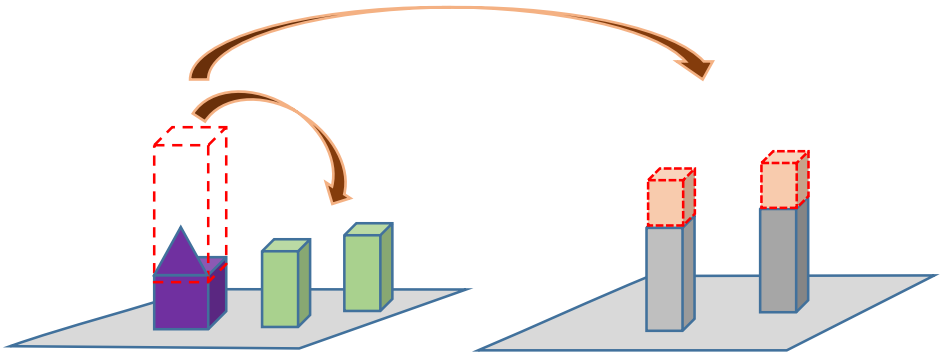
Description: the sending site and the receiving site are both under the same ownership.

The unused development rights are wholly (Figure 3.7) or partly (Figure 3.8) transferred to the same owner's other site. The heritage site still belongs to the owner and the owner can use it as usual with some obligations to government but cannot carry out further development activities. Any development of the heritage site should be reported to the government and seek government permission. The owner can carry out new development in another site.



Sending site: heritage site Receiving site: the owner's other site

Figure 3. 7 Transfer all the unused development rights to new site (Source: by author)

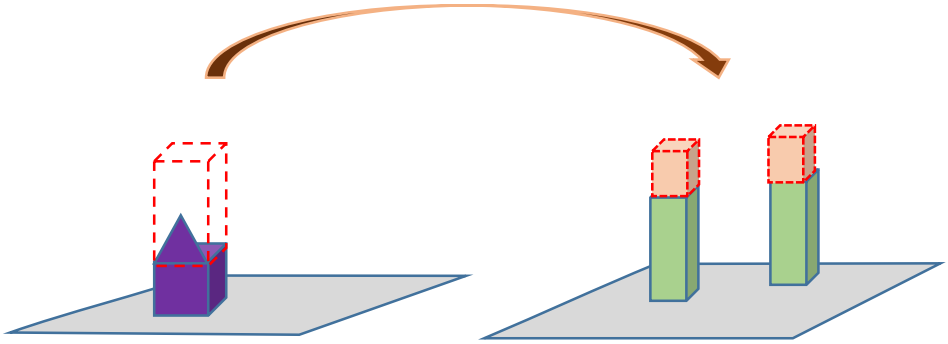


Sending site: heritage site Receiving site: the owner's other site

Figure 3. 8 Transfer part of the unused development rights to new site (Source: by author)

Model 4. Transfer to Developer's Site

Description: the owner can sell the unused development right to the developer which means the unused development rights are transferred from the heritage site to the other developer's site (Figure 3.9). The owner can still use the heritage building but does not have the development right anymore which means he cannot demolish or redevelop the heritage building, and even the maintenance work should follow the government's requirements. The developer should pay the owner for the development right received. And then the developer can get additional plot ratio but should make sure the receiving site can hold the additional development.



Sending site: heritage site Receiving site: developer's site

Figure 3. 9 Transfer to developer's site
(Source: by author)

(3) Comparison analysis of TC and land value of the above four models in three scenarios

Scenario 1, No TDR

Preserve or demolish? If the owners want to demolish the old building and construct a

new one, they should submit the proposal to the government for approval. If the government wants to conserve the building, they can reject the proposal. If there is no fair and just compensation, the owner may claim in the court. According to the current law in Hong Kong, if the building has not been designated as a monument, the owner has the right to demolish it. Thus, without TDR, if the government wants to conserve the building, they can only use public funds to buy it, which is very expensive. If not, the heritage will be demolished by the owner. If using public fund to buy, the major transaction cost is as the following (Table 3.3).

Table 3. 3 Transaction cost of scenario 1, No TDR

	Transaction costs (TC)			
	Search and information costs	**Bargaining costs**	**Policing and enforcement costs**	**Comments**
Purchase the heritage	The owner will evaluate the building through various ways	Bargaining between the government and the owner	Use public fund should be supported by the public, which will cost much time	Extreme high

Land Use Value and Exchange Value: The land use value may go up suddenly because the owner thinks their building is of high value to the public. But in fact, the exchange value may go down because the government may pay the owner based on the real estate market at most. Supposedly, at this time, others want to buy it, they may think the owner wants to sell as soon as possible because selling to the government, the price will not be higher than the market and the government needs time to conduct public consultation which brings the transaction cost higher. The buyer may think, even if they pay as much

as the government, the owner should be willing to sell it to them. So, the buyer will not provide a high price to the owner.

Scenario 2, Informal TDR

Currently, TDR is carried out case by case in Hong Kong, which is considered as informal TDR. TDR is not included in any law, policy or planning mechanism. It is proposed to be an incentive to the private owner. The whole process mainly depends on negotiation between the government and the owner. It does not have regulated and clear procedures publicized to the public, aiming to facilitate the individual projects flexibly. However, the four models of informal TDR incur huge transaction cost to the owner (Table 3.4).

Table 3. 4 Transaction cost of scenario 2, Informal TDR

	Transaction costs (TC)			
	Search and information costs	**Bargaining costs**	**Policing and enforcement costs**	**Comments based on the three features of TC**
M1, Transfer to contiguous site of the heritage site	The owner will ask for the third party to evaluate the continuous site		Time for public consultation; land use changes of the receiving site, new lease; if the continuous site is not vacant, settle down that first	**Uncertainty is very high** because public may oppose it, high risk; the owner should wait for those procedures
M2, Transfer within the same parcel		Bargaining on the TDR covenant	Planning Dept. approval	**Uncertainty is low** most quick transaction
M3, Transfer to non-contiguous site but within	The owner may ask third party for advice on how to	How to transfer equal value; Bargaining on the	Time for check the capacity of the receiving site,	**Uncertainty is a little bit higher** due to bargaining

	Transaction costs (TC)			
	Search and information costs	**Bargaining costs**	**Policing and enforcement costs**	**Comments based on the three features of TC**
the same ownership	transfer equal value	TDR covenant	possible new lease, land and planning dept. approval	on the transfer areas
M4, Transfer to developer's site	Search for seller and buyer, not enough participants, the transaction fee will be high;	The transfer ratio; Bargaining on the TDR covenant	Time for check the capacity of the receiving site and planning dept. approval; third party supervision	**Low frequency** transaction may make the TC higher, the transfer ratio with **higher uncertainty**
Overall Comments for Informal TDR	Few TDR information publicized, the participants look for information everywhere and ask for help from third party	No clear transfer method and no legislation. The owner always want more	Happens case by case. All the work is left after the agreement on TDR, so much time is needed to wait for these procedures	**High uncertainty, low frequency**

Land Use Value and Exchange Value: Suppose the original land use value is 5 units. When the government declares the heritage building as temporary monuments, the land use value may be go up suddenly to 7 units, because the non-economic value is increased. Suppose the original exchange value is 5 units. When the government declares the heritage building as a temporary monument and proposes TDR to the owner, the exchange value may go down sharply, maybe to 3 units, because there is a great uncertainty about the land use and it is not attractive to other buyers.

Scenario 3, Formal TDR

Formal TDR is not the actual practice. It was defined by the author as the mechanism

with support of legislation, clear policy objectives and regulations. Although the flexibility of TDR is decreased, transaction cost is lowered substantially (Table 3.5).

Table 3. 5 Transaction costs of scenario 3, Formal TDR

	Transaction cost compared with informal TDR			
	Search and information costs	**Bargaining costs**	**Policing and enforcement costs**	**Comments based on the three features of TC**
M1, Transfer to contiguous site of the heritage site	The owner will ask for the third party to evaluate the continuous site		Regular procedure (public consultation, land and planning dept. approval) Develop new lease	Uncertainty is decreased greatly. After legislation may easy to win public support and receiving sites may be designated in advance
M2, Transfer within the same parcel		Little bargaining possibility	Planning Dept. approval	Uncertainty is much lower
M3, Transfer to non-contiguous site but within the same ownership	TDR policy will clearly show the transfer methods	TDR policy will clearly show the transfer methods and guarantee equity	Receiving site may be checked in advance; Regular procedure (Land and Planning Dept. approval) Develop new lease	Clear TDR policy will decrease the uncertainty
M4, Transfer to developer's site	Formal TDR attract more participants	TDR policy will clearly show the transfer ratio. Little bargaining possibility	Receiving site may be checked in advance; planning dept. approval; third party supervision	Transaction frequency is increased. Uncertainty is decreased.
Overall Comments for Formal TDR	TDR policy will show much information for public and participant for reference, saving much time to search for information.	After specific policies are developed, the bargaining opportunity is decrease	Normal transfer process is developed. Clear transfer policy will guide gov. dept. to support TDR process and make it faster	Uncertainty is great decreased and frequency is increased, thus TC is much decreased

Land Use Value and Exchange Value: After TDR legislation, the land use value will stay at 7 units but will not be affected by the option of whether there is proposed TDR or not. However, the exchange value may be 4 units at the beginning, because the legislation will make the building less valuable when everyone knows what will happen next. When the government declares the building as a temporary monument and proposes TDR, the exchange value will keep stable or a little decrease but will not experience a period of big decrease of value like Scenario 2.

In summary, TDR legislation will make the transaction costs much lower than informal TDR by increasing transaction frequency and decreasing the uncertainty. It also makes the exchange value of the land stable and avoids a sudden decrease of value as informal TDR. However, legislation may have a negative effect on the land value, which indicates legislation cannot solve everything, particularly TDR involving site characteristics. The market needs some flexible rules in the regulations. The problems relating to land and property rights are usually complex, especially relating to built heritage, which is difficult to have its value evaluated. Therefore, some aspects e.g. transfer process must be regulated legally while some other aspect e.g. incentives should be reserved for negotiation. Thus, the formal TDR should also have the support of some informal rules.

3.7 Summary of TDR and Property Rights

Development rights are important parts of the property rights. Different countries have different regulations or administrative rules about development rights. Transfer of

development rights can only happen in the situation when the development rights can be separated from the property rights. This research identified the relationship among property rights, TDR and zoning, that is property rights and zoning constrain each other, while TDR can mitigate the negative impact from property rights and zoning to each other. Clearly defined property rights and integration of TDR with zoning contribute to the implementation of TDR much easier.

Based on the theories of NIE, market inefficiency and transaction costs, this research adopts a "subjective" qualitative method to analyze the market problems and transaction costs in TDR in specific models and scenarios. It shows clearly how formal TDR with legislation and clear policy and regulations help to increase market efficiency and decrease the transaction cost compared to informal TDR. Although formal TDR are not flexible, informal rules are also needed in formal TDR to address the site characteristics of each TDR case. In addition, formal TDR can also help to stabilize the property value. This chapter has not only provided a theoretical foundation for the following empirical stage of the study, by showing what relates to TDR closely and how they interact with each other, but it has also classified the TDR cases in Hong Kong into different models. Each of these models are analyzed based on the theory, which provides a basis to inform policy makers in practice.

CHAPTER 4 FRAMEWORK FOR TDR SUCCESS FACTORS

4.1 Introduction

There are almost 20 articles with discussion on how to carry out successful TDR project, but there is very little literature about using TDR for the built heritage conservation. This chapter aims to develop a successful TDR framework for built heritage conservation projects to fill the gap in the extant research and practice. It presents a systematic analysis performed to develop an initial theoretical framework, as well as identify and evaluate the factors crucial to the TDR success, which is subsequently refined through interviews with the experts in the field.

The study adopts a qualitative method to select the most important factors, identified through expert interviews, while quantitative analysis is conducted to ascertain the ratings of the selected factors. This approach has yielded 22 critical success factors under seven criteria that are most relevant to the success of TDR programmes for built heritage conservation. The framework, together with the identified factors and criteria, provides valuable reference for city government to formulate policy pertaining to the use of TDR for built heritage conservation in densely populated cities. The research design of developing the success framework is as following (Figure 4.1).

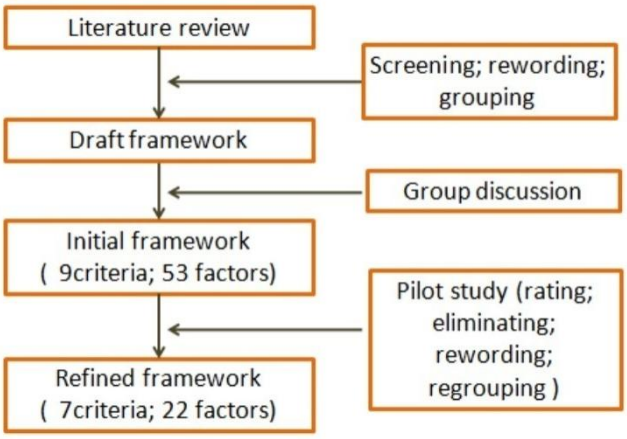


Figure 4. 1 The research design and process
(Source: by author)

4.2 Initial Framework

Literature review yielded a large number of factors contributing to the TDR success, which were selected for further analysis. In most of these articles, the proposed factors were based on a wide range of TDR programmes in the U.S. For example, Fulton et al. (2004) revealed seven components required for TDR success based on the experience of more than 100 TDR programmes nationwide, while Kaplowitz et al. (2008) conducted a study on 109 TDR programmes. Machemer and Kaplowitz (2010) analyzed TDR characteristics and elements by conducting a comparative analysis of 14 TDR programmes in the U.S., of which 7 pertained to farmland preservation and 3 to agricultural land preservation. The factors proposed in the aforementioned articles were subsequently classified into different criteria, which were used in designing the survey (Table 4.1). More specifically, 53 factors were identified, which were classified under 9 criteria, namely political acceptability, TDR leadership, TDR bank facilitation, public

support, social equity, viable receiving areas, simplicity, TDR studies and market incentives. Moreover, four themes were identified, and were used in developing the initial framework for conducting the interviews (Figure. 4.2).

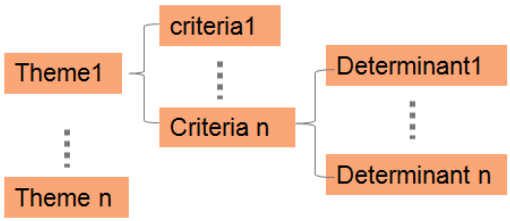


Figure 4. 2 Conceptual framework
(Source: by author)

Table 4. 1 Initial framework for study and the analysis of the interview

Theme	Criteria	Description/ Determinants	Aspect
Regulatory Characteristic **(Machemer & Kaplowitz, 2002)**	Political acceptability	Description: strong political foundation will make TDR stable and consist which will get more public support. Not in conflict with the development in the receiving area	**Institutional**
		D1, Enabling legislation for TDR **(Machemer &Kaplowitz, 2002; Kaplowitz et al., 2008; Pruetz et al., 2007)**	
		D2, Minimal zoning changes and variances **(Machemer &Kaplowitz, 2002; Aken et al., 2008)**	
		D3, TDR should be included in the comprehensive plan **(Machemer &Kaplowitz, 2002)**	
		D4, TDR should be included in built heritage conservation	
		D5, Meet with design standards **(Machemer &Kaplowitz, 2002)**	
		D6, Can PDR work in Hong Kong?	
	TDR leadership **(Machemer &Kaplowitz, 2002)**	Description: strong leadership and clear duty distribution will make the objective clear, process smooth and consensus easy	
		D1, the authority of the administering agency **(if legislation, the authority is clear) (Johnson & Madison, 1997)**	
		D2, New layers or branches of administration **(Johnson & Madison, 1997)**	
		D3, The state and local government support **(Johnson & Madison, 1997)**	
		D4, TDR programme co-ordinator is useful and important **(Machemer &Kaplowitz, 2002; McConnell &Walls, 2009; Johnson & Madison, 1997)**	
		D5, Key development community participants **(Machemer &Kaplowitz, 2002; McConnell &Walls, 2009)**	
		D6, Timely key participant involvement (Machemer &Kaplowitz, 2002)	
	TDR bank facilitation **(Machemer &Kaplowitz, 2002; Pruetz& Standridge, 2009; Kaplowitz et al., 2008;**	Description: TDR bank serve several important functions to facilitate the TDR process	**Institutional+ economic**
		D1, Bank acting as facilitator **(Machemer &Kaplowitz, 2002; Pruetz& Standridge, 2009; Kaplowitz et al., 2008; Karanja &Rama 2011)**	
		D2, Line-item in budget for TDR programme **(Machemer &Kaplowitz, 2002)**	
		D3, Create an ongoing preservation revolving fund by buying and selling TDR **(Pruetz& Standridge, 2009; Kaplowitz et al., 2008)**	
		D4, educating the community **(Kaplowitz et al., 2008)**	
		D5, providing programme stability, credibility and confidence **(Danner, 1997; Kaplowitz et al., 2008)**	
		D6, Leveraging funding sources **(Pruetz et al. 2007)**	
Community Characteristic **(Machemer &Kaplowitz, 2002)**	Public support **(Karanja &Rama 2011; Fulton et al., 2004; Pruetz& Standridge, 2009; Yung & Chan 2011a, 2012)**	Description: Obtain consensus from major stakeholders on the transfer of development rights from the sending site to the receiving site	**Social**
		D1, Good information **(Johnson & Madison, 1997; Danner, 1997)** through the use of clearing house, TDR bank or newsletter, auctions **(McConnell &Walls, 2009),** meetings, hearings and votes **(Machemer &Kaplowitz, 2002; Pruetz& Standridge, 2009),** comprehensive, well-maintained webpage **(Pruetz& Standridge, 2009)**	
		D2, Set up review mechanisms and protocols for updating TDR values over time **(Aken et al. 2008)**	
		D3, Determine useful method for tracking and evaluating the programme **(Johnson & Madison, 1997)**	
		D4, third-party brokers to facilitate transactions **(Machemer &Kaplowitz, 2002)**	
		D5, neighbors of the receiving site not oppose the higher density **(Fulton et al., 2004)**	
		D6, The community should monitor transfers and make adjustments if needed **(Pruetz et al. 2007)**	
	Social equity **(McConnell &Walls, 2009)**	Description: The major stakeholders are having equal access and use of TDR, minimize conflicts in development, property and resource by adding the "livability" component	
		D1, stability in TDR prices **(McConnell &Walls, 2009)**	
		D2, credibility of the TDR programme maintained by consistently required TDR for all bonus density **(Pruetz et al. 2007)**	
		D3, Who pays for land preservation? (usually new residents face higher housing price) **(McConnell &Walls, 2009)**	
		D4, sense of place for both in and outside the sending and receiving areas **(Machemer &Kaplowitz, 2002; Yung , Chan & Xu 2011)**	

Theme	Criteria	Description/ Determinants	Aspect
		D5, Uniform credit transfer ratio **(Johnson & Madison, 1997)**	
		D6, Valuation using a list of criteria **(e.g. Land type and location; Past and future use; soil quality; property size) (Johnson & Madison, 1997); (McConnell &Walls, 2009)**	
Programmeme characteristic **(Machemer &Kaplowitz, 2002)**	Viable receiving areas **(Fulton et al., 2004)**	Description: physical and political acceptable to accommodate the additional development in the receiving site; Minimum adverse impact on the existing site and the surrounding environment including townscape, streetscape.	**Economic+ environmental**
		D1, High rate of home construction **(Machemer &Kaplowitz, 2002)**	
		D2, baseline density must be low enough **(Pruetz et al. 2007)**	
		D3, Market for bonus development **(Machemer &Kaplowitz, 2002; Pruetz& Standridge, 2009; Danner, 1997; Karanja&Rama, 2011)**	
		D4, Market for type of TDR-based development **(Machemer &Kaplowitz, 2002)**	
		D5, Fit with master plan, zoning plan and design standards **(Machemer &Kaplowitz, 2002)**	
		D6, Physical capability to handle increased density **(Machemer &Kaplowitz, 2002; Karanja &Rama, 2011)**	
		D7, Compatible with existing development **(Pruetz& Standridge, 2009)**	
	Simplicity **(Karanja &Rama Machemer 2011; &Kaplowitz, 2002;**	Description: Simple administrative means and procedures held to build support among the diverse group (Pruetz & Standridge, 2009)	**Institutional**
		D1, TDR allocation formula easy to understand **(Machemer &Kaplowitz, 2002)**	
		D2, Developers and sending area landowners understand programme **(Machemer &Kaplowitz, 2002)**	
		D3, Easy for the municipal staff to administer **(Danner, 1997)**	
		D4, Too many requirements for the owner will dampen the participation **(McConnell &Walls, 2009)**	
	TDR studies **(Kaplowitz et al., 2008; Aken et al. 2008;)**	Description: knowledge educated the TDR stakeholders and the public. A good knowledge will promote the public participation.	**Institutional**
		D1, clear understanding of the local real-estate market by local officials, TDR leader and developers **(Aken et al. 2008; McConnell &Walls, 2009; Machemer &Kaplowitz, 2002)**	
		D2, Studies on the willingness and ability of local residents to influence high-density development **(McConnell &Walls, 2009)**	
		D3, Developer and landowners know the TDR option, how it works, and how it can help them **(Pruetz& Standridge, 2009; Karanja &Rama 2011)**	
		D4, regular reminded the public of TDR programme benefits **(Pruetz& Standridge, 2009)**	
		D5, recreational and educational programmes aimed at school-age children and adults **(Pruetz& Standridge, 2009; Machemer &Kaplowitz, 2002)**	
	Market incentive **(Pruetz& Standridge, 2009; Karanja &Rama, 2011)**	Description: incentives to benefit and attract the heritage owner and developer from the aspect of market control	**Economic**
		D1, Strict sending-area development regulations **(Pruetz& Standridge, 2009; Karanja &Rama 2011)**	
		D2, Few or no alternative to TDR **(McConnell &Walls 2009; Pruetz& Standridge, 2009; Danner, 1997; Karanja &Rama 2011)**	
		D3, Offer sufficient compensation to sending area owners **(Fulton et al., 2004)**	
		D4, enhanced transfer ratio **(Pruetz& Standridge, 2009;)**	
		D5, Low transaction costs and administrative costs **(Machemer &Kaplowitz, 2002; McConnell &Walls, 2009; Fulton et al., 2004)**	
		D6, Communities can give developers greater certainty **(such as the maximum density, the approval process will not delay, unanticipated costs, and whether or not their projects will be approved or not) (Pruetz& Standridge, 2009)**	
		D7, Conversion factors through TDR **(such as exemption from open space, setback, coverage, landscaping and parking requirements) (Pruetz& Standridge, 2009; Pruetz et al. 2007)**	

4.3 Data Collection

The questionnaires were developed with the aim of obtaining two main types of information, namely attitudinal and demographic data. Using a Five-point Likert-type scale (Table 4.2), the respondents were required to report how they feel about the factor presented in the questionnaire by rating the importance of 53 factors. The respondents were finally requested to provide some personal information, such as position and qualifications.

The data for this study was collected via face-to-face interviews with professionals in building, town planning, architecture design, property development and heritage conservation. The study sample was purposely small, as it included only senior people in the academic, government and industry sectors, with rich experience and insights. Given that the objective was to eliminate less important factors from the list yielded by the literature review, input from these individuals was most valuable. However, if any of the eliminated factors is later proven important, it will be reconsidered in the following research. Although the interviews are guided by closed ended-questions, the participants are also given the opportunity to discuss issues of interest by responding to open-ended questions. The interview results and comments of the respondents would be very valuable for modifying and fine-tuning the questionnaire to be used in the subsequent large-scale survey.

Table 4. 2 Five-point Likert-type scale

Option	Least important	Less important	Average	More important	Extremely important
Score	1	2	3	4	5

4.3.1 Sampling

According to 16 types of purposeful sampling by Patten (1990), combination/mixed purposeful sampling is used in this study including. The sampling criteria employed in this study are summarized in Table 4.3.

Table 4. 3 Criteria of sampling

A. Time—available within one month;
B. Convenience—friends of our group; research college; guest lecturer of our university
C. Interest—interest in TDR and built heritage conservation
D. Qualifications—individuals in senior positions, professionals with over 10 years' working experience
E. Field—land use, town planning, building, architecture design, property development and heritage conservation
F. Job nature—academic; governmental official; industrial
G. Number of interviewees—a small number of participants may suffice; testing stops when no obvious new information is revealed.

4.3.2 Respondents

Twelve individuals with rich experience in built heritage conservation were interviewed as a part of this study (Table 4.4), four of whom are from academia, two are the government committee members, and four work in the industry. Each interview lasted 40-50 minutes.

Table 4. 4 Interviewee profiles

Interviewee	Field of Work	Work Experience	Qualification
A	Architecture, urban planning	10-14 years	Academic Researcher
B	Conservation	30 years or above	Professor/practitioner
C	Conservation	30 years or above	Professor
D	Town planning	30 years or above	University council member
E	Building and real estate	15-19 years	Professor
F	Architectural design	15-19 years	Senior manager
G	Architectural design	30 years or above	CEO of an architectural company
H	Conservation	25 years	CEO of an architectural company
I	Building	10-14 years	Surveyor
J	Building	10-14years	Surveyor
K	Central & Western Concern Group	20-25 years	Senior architect/Pressure group member
L	Community Alliance for Urban Planning	20-25 years	Urban planner/Pressure group member

4.4 Data Analysis

Data analysis aims to selecting the important success factors by calculating the mean score. The method is based on the following criteria (Table 4.5, Table 4.6).

Table 4. 5 General criteria for eliminating factors

A. Calculate the mean score for each factor, then calculate the mean score pertaining to each criterion, using the mean scores of all applicable factors;
B. Factors with mean score ≥ 4.0 are retained as are criteria with mean score ≥ 3.5 (in five-point Likert scale, 4.0 corresponds to “more important”);
C. Factors with mean score < 4.0 and criteria with mean score < 3.5 are deleted.

Table 4. 6 Specific criteria

A. Amalgamating the factors with similar meaning;
B. Rewording the factors that are important, but with improper or vague wording;
C. Regrouping the factors that are important, but are within an improper category;
D. Adding the factors or criteria omitted in the initial framework, but suggested by the interviewees

Each factor's mean score was calculated by adding up the scores and dividing the total by the number of scores.

$$\overline{X} = \frac{\sum X_i}{n}$$

$\overline{X}$ denotes the mean score, $\sum X_i$ the total score, and n represents the number of scores.

The mean score of each criterion was calculated by adding up the mean scores of all contributing factors and dividing the total by the number of factors.

4.5 Refined Framework

Based on the feedback provided by the interviewees, the framework was refined to include seven criteria with 22 factors (Table 4.7)

Table 4. 7 Refined framework for evaluating the factors critical to the success of TDR

Theme	Criteria	Determinants	Aspect
Regulatory characteristic	**Political acceptability**	Description: Strong political foundation will make TDR stable and consistent, which will result in greater public support. Not in conflict with the development in the receiving area. D1, Enabling legislation for TDR D2, Minimal zoning changes and variances D3, TDR should be included in the built heritage conservation mechanisms	Institutional
	TDR leadership	Description: Strong leadership and clear duty distribution will make the objective clearer, allowing the process to progress smoothly and reach the consensus easily D1, The authority of the administering agency (if legislation, the authority is clear)	

Theme	Criteria	Determinants	Aspect
		D2, The local government support D3, Set up review mechanisms and protocols for updating TDR values over time D4, The approval process will be not delayed	
Community characteristic	**Public support**	Description: Obtain consensus from major stakeholders on the transfer of development rights from the sending site to the receiving site D1, Good information about TDR and TDR-related area distributed through newsletters, auctions, meetings, hearings and votes, as well as a well-maintained webpage D2, Neighbors of the receiving site do not oppose the higher density (sourced from the studies on the willingness and ability of local residents to influence high-density development) D3, Timely key participant involvement (especially when time for engaging public participation) D4, Community monitor mechanism	Social
	Social equity	Description: The major stakeholders are having equal access and use of TDR, minimize conflicts in development, property and resource by adding the "livability" component D1, The value of the building after re-use to the public (after re-use, the building must bring benefits to the public) D2, Using a list of criteria to evaluate the credits transfer ratio	
Programme characteristic	**Simplicity**	Description: Simple administrative means and procedures are needed to build support among diverse groups D1, Developers and sending area landowners understand the programme D2, Easy for the government departmental staff to administer	Institutional
	Market incentive	Description: Incentives to benefit and attract the heritage owners and developers from the market control perspective D1, Offer sufficient compensation to the sending area owners D2, Low transaction and administrative costs D3, The maximum development potential of the receiving site and the sending site D4, Incentives aimed at motivating the operators to operate the re-use programme, such as monetary support at the beginning of the project	Economic
	Environment	Description: Development under the environment capacity D1, Compatible with the master plan, zoning plan and design standards D2, Minimal disturbance to the existing environment	Environmental

Theme	Criteria	Determinants	Aspect
		D3, Physical capability to handle increased density	

4.6 Discussion of the Framework

(1) Political Acceptability

According to the findings reported in extant literature, political structure and political strength influence TDR programme characteristics and implementation (Johnson & Madison, 1997; Machemer & Kaplowitz, 2002). Therefore, the framework proposed in this study considers legislation, zoning plans, and built heritage conservation as evidence of good political and legal foundations for successful TDR programmes. Legislation is, of course, to a large extent, responsible for ensuring the TDR implementation. More specifically, based on the analysis of the questionnaire responses, the importance of legislation scored 4.67 out of 5.0.

However, whether TDR can be successfully legislated in Hong Kong needs to be explored further. The heritage conservation policy currently in force in Hong Kong encourages introducing economic incentives to protect the privately built heritage (Policy Address, 2007). TDR is only devised by the administration as one of the economic incentives and can be used as an administrative tool in the initiatives aiming to respond to the heritage conservation policy (CRHKH, 2013). Thus, in order to ensure that TDR is taken into consideration in the heritage conservation mechanisms and zoning plans, a complete set of TDR policies should be developed first. Using the case-by-case method is neither sustainable for TDR practices nor for privately built heritage

conservation.

(2) TDR Leadership

The analysis conducted as a part of this study revealed four key determinants of TDR leadership that can ensure the success of TDR programmes. The authority of the administering agency makes the agency more powerful and gives it much clearer responsibility, supplemented by local government support. This, in turn, makes the cooperation of different departments more effective and the interest of different stakeholders more balanced. In addition, review mechanisms and protocols for updating TDR values help to identify any problems associated with TDR. They also promote the public participation in TDR by promoting the TDR values and making sure that the TDR process is transparent. However, effective evaluation of the heritage value may be a challenge. Neither the real estate index nor the current grading regulations for historical buildings work effectively or precisely enough to calculate the value of the heritage, especially its intangible component. Thus, the form of the TDR leadership (e.g., whether to establish a new TDR agency/ office/ team) is important and the working mechanism of the leadership should be refined.

(3) Public Support

The study findings revealed public support as critical to the success of TDR programmes. Public participation is increasingly given attention in the urban development activities. Quality and reliable information on TDR is disseminated through newsletters, auctions,

meetings, hearings and votes. However, having a well-maintained webpage is fundamental is promoting public support (Johnson & Madison, 1997; Danner, 1997). Winning the support of neighbors of the receiving site is also necessary, but is often difficult to obtain in practice. In the short term, compensating the affected stakeholders may be the most direct and effective way in which this issue can be addressed. In the long term, educating the public on the importance of the heritage and its contribution to the society is also essential. In ensuring the public participation, it is important that this right is not misused by the public or politicians to argue for their own benefits. Additionally, adopting "community monitor mechanism" in Hong Kong could be valuable, as this would serve as a platform for different stakeholders from the community to communicate their views and concerns pertaining to TDR. This should be based on a complete set of TDR policies and guidelines, which helps to determine the areas and activities the community should monitor.

(4) Social Equity

Contrasting the views of many studies, the findings of the present study indicated that social equity is of great importance to the success of the TDR programmes. This criterion aims to ensure that the stakeholders have an equal access and use of TDR, while minimizing conflicts in the development project. In the framework, social equity involves two major stakeholders, namely the public and the property owner whose conflict are illustrated as follows. For example, the public might doubt whether the building has sufficient historical, architectural, cultural and contextual value to warrant

its conservation. Moreover, some may question the value of its public use following the conservation. Sometimes, the public may doubt the motivation behind such initiatives, suspecting collusion between the local government and the developers. It is also likely that the owner and the developer would object if the transfer plot ratio assigned to their property is not competitive. Some interviewees proposed allowing the community to decide what should be conserved, where the development rights should be transferred, or what the transfer ratio should be. This is similar to "community right to beat" in the U.S. and the national planning policy framework in the UK, in which local people and their accountable councils can produce their own distinctive local and neighborhood plans.

(5) Simplicity

The study findings indicated that the simplicity another key element for TDR success. In particular, it is essential that both the developers and the owner can understand the programmes (this factor scored the mean of 4.83), and it must be easy for municipal staff to administer the TDR programmes (scoring the mean of 4.5). In the context of TDR programmes, simplicity implies that they are clearly structured and relatively simple, making it easy for municipal staff to administer and the public to understand (Danner, 1997; Machemer & Kaplowitz, 2002).

However, in Hong Kong, while the public may have some general knowledge of TDR, very few are aware of the detailed procedures. Moreover, the TDR programmes are not always planned in advance, as the owner may start demolishing the building, thus

attracting attention of the community or governmental officials. This prompts a rapid response, usually resulting in the building being graded and temporarily protected. Only then the owner and the government start considering the solutions. As the government adopts case-by-case approach in dealing with the TDR programmes, no two cases are the same. If the owner and developer cannot understand the process, or it is time-consuming to understand it, they are usually unwilling to participate, as TDR is not the only way they can achieve their goals. If the procedure is not easy to administer, mistakes are likely, causing delays and increasing transaction costs. These obstacles will discourage the public participation in the TDR projects. Thus, simple administrative means and procedures ensure greater support of the diverse stakeholder groups.

(6) Market Incentive

Successful TDR programmes depend on a well-functioning market in which transferable credits are bought and sold in sufficient quantities. Enhanced transfer ratio, sufficient compensation, affordable TDR price, and maximum development potential of the receiving site are identified as essential factors by the study. However, these just indicate the community realizes the importance of benefiting the seller and buyer, but it cannot ensure the market is optimal. The market factors should be thought of as interrelated components with other factors within a coordinated regulatory framework, which has close relationship with political support and social equity.

“It is important to structure the receiving area so that developer will be willing to purchase credits and will offer sufficient compensation that landowners in the sending

area will be willing to sell" (Bruening, 2008). When the density of the receiving site increase, the property values per Acre decrease. When the marginal cost of producing the next unit of the building equals the marginal benefit of consumption, the economics of buying the development rights is efficiency. However, sometimes the developers do not need so many development rights. Thus, even there are sufficient development rights provided, the market is not effective. This also reminds the government should pay more attention to regulate the market's supply-and-demand interaction.

The market never exists in the ideal world such as perfect information, no transaction cost, buyers and sellers have the same needs and preference etc. Thus, there will always be risk and uncertainties. For instance, the benefit of TDR in receiving areas is not "by right", which may incur high transaction cost associated with the process such as time-consuming negotiations over price, preparation of purchase and sale agreements and other documents, and closings. To overcome this problem, for example, the King County in the US, instead of up-zoning case by case, increased density substantially throughout receiving areas. Instead of seeking zoning changes, the developer need only acquire TDR, which is less costly and less time-consuming (Nelson et al., 2011).

Another factor should be considered is the equity—who bears the ultimate burden of preservation (Field and Conrad, 1975). Unbalanced supply and demand of TDR results in different TDR prices, which create a different surplus to sellers and developers. Thus, a well-organized market with an active intermediate agency will distribute the surplus more evenly. Thus, a well-functioning and effective market should not be separated from

the government intervention and intermediate agency, which ensure no one is made worse off from the market exchange.

(7) Environment

This criterion was not identified in the literature review, but rather emerged during the interviews, as most participants viewed it as significant to the sustainable development and winning the public support. As any development should be within the capacity of the environment, , the framework reflects this through the use of three factors, namely (1) compatibility with the master plan, zoning plan and design standards, (2) minimal disturbance to the existing environment, and (3) physical capability to handle increased density. For the sending site, the new use of the built heritage should be compatible with the existing environment. Moreover, having a strategy for attracting a greater number of visitors, as well as provisions for additional parking and other supporting facilities, is essential. If the built heritage is not properly supported by the infrastructure, it will not be fully used by the public. For the receiving site, meeting the infrastructure capacities can be assessed with the data available in departments. Additionally, as the receiving site can sometimes be located outside the dense districts, this proposal should be more acceptable.

4.7 Summary of the framework

The results are based on the professionals' views on TDR for built heritage conservation. They demonstrate that the seven criteria are closely associated with TDR programme

success, namely political acceptability, TDR leadership, public support, social equity, simplicity, market incentive and environment. The analysis of the responses provided by the study participants enabled elimination of less important factors, as well as merging similar factors, which were thus reworded or regrouped. The refined framework contains seven criteria covering a wide range of aspects of successful TDR projects. Most importantly, each criterion is evaluated against two or three determinants that can ensure its effectiveness and specificity.

Using the TDR framework may help the local communities and other stakeholders identify both opportunities and challenges in TDR programme creation and implementation. This approach can assist citizens, officials, planners and legislators in identifying the most appropriate methods for conserving the built heritage. TDR offers an alternative to traditional land use management techniques and is thus becoming increasingly popular. Although the concept and principles of TDR are not new to Hong Kong, a new management system is clearly needed. The findings reported here confirm that, when used alongside existing land planning techniques, TDR may help to meet both development and preservation goals.

CHAPTER 5 INTERNATIONAL COMPARISON

5.1 Introduction

The important factors for successfully implementing TDR programmes have been explored in Chapter 4. However, these factors are not yet adequately to guide the practice directly, especially for those cities at the early stage of exploring TDR. It is significant to find out how different cities/counties put these successful factors into practice by adopting a TDR successful framework to conduct systematic comparison of 15 cities/counties internationally. The comparative study identifies six key factors included in most of the policy approaches of the 15 cities/counties in practice. They are legislation for TDR, incorporating TDR in planning mechanism, government support, public support, providing maximum development at the receiving site and its physical capacity to handle the increased density.

Based on these six factors, interviews are carried out with local experts in Hong Kong as case study to understand how these factors can be implemented in local context. Through coding by NVivo of the interview data, the analyses also show how these factors are interrelated to each other. The international comparison and the interviews are based on the framework developed in Chapter 4. In the international comparison, the policy or incentives implemented in other cities are reviewed according to this framework. In the interviews, questions about the problem of implementing these success factors in Hong Kong and the proposed measures are designed for the interviewees. In addition, a

questionnaire survey is carried out about the reasons why North Carolina does not have the actual TDR cases.

5.2 TDR Application in the Selected Cities/Counties

Based on information obtained from the literature (see sources of reference under Table 5.1 and Table 5.2), comparative studies on TDR policies were conducted with 15 selected cities/counties to explore what policy approaches contribute to effective implementation of these TDR success factors and to identify which factors have been included in the policy approaches of most cities/counties (i.e. factors included by over 50% the selected cities). Table 5.1 presents the general background information of the selecting 15 cities/counties which helps to understand the comparison table (Table 5.2).

Table 5. 1 General information about the TDR programme in 15 overseas cites/counties

Cities/counties	Description	Examples	Type of TDR
New York	Strong demand for additional density and a wealth of historic landmarks led the city to adopt TDR programmes since 1968.	The Grand Central Drama; the Tudor Parks;	Historic landmark
Chicago	Designed by Prof. Costonis to overcome the difficulties of NewYork plan.	Nil	landmark
Vancouver, Canada	To help protect our important heritage resources, the City has developed a transferable density programme.	200,000 sq. ft. per year	Heritage resources
Taipei, Taiwan	TDR was formally adopted in 1997 to preserve historical buildings and later was applied to achieve various land use goals, e.g. acquisition of preserved public facility lands. TDR is active tool in dealing with various land use conflicts.	Da-Dau-Cheng special historical district; the Cheng Mansion; San-Shia old street;	Historical buildings; acquisition of preserved public facility lands
Settle, Washington	In 1985, a new downtown plan was adopted that reduced as-of-right	Kreielsheimer place, a landmark	Historical preservation;

Cities/counties	Description	Examples	Type of TDR
	development potential but offered density bonus. The city adopted multiple TDR programmes.	with theaters and affordable housing	affordable housing; open space
Cupertino, California	In 1973, the vehicle trips would have to be limited to maintain acceptable levels of service on its two major streets. Transfer of trip right provision was allowed in its traffic intensity performance standard regulation to alleviate traffic congestion problems.	Office park built in the DeAnza/Stevens Creek corridor using 322 trip rights	Trip-limitation
San Francisco, California	In 1967, landmarks preservation advisory board was formed to promote the preservation; 1985 lowered density limits in the downtown, which creating greater incentive for developer to TDR. TDR is the only way to get additional development.		landmarks
Denver, Colorado	In 1982, TDR as an incentive for property owners to volunteer their building for landmark designation; rehabilitation of designated landmark can also get bonus floor area by TDR	Navarre building; Denver Athletic Club; Odd Fellow hall	Landmarks
Montgomery county, Maryland	In 1970s, the county lost 18% agriculture land to development; in 1973, the county council create a task to protect agricultural land, TDR is one of the option and was successful. In 1980 TDR go country-wide.	51,830 till 2008	
Calvert county, Maryland	In 1974, the county adopted comprehensive plan calling for the preservation of agricultural and forest lands. Fist TDR transfer in 1979, in the late 1980s to early 1990s, TDR gained strong sales	27,000 acres by 2010	Farm and forest land
North Brabant, Dutch	At the end of 1990, the government decided to reduce stock farming, convert the agricultural industry land to rural landscape, which resulting "space for space (red-for-green)" policy conversion housing in vulnerable areas into green area	As of 2005, 170 hectares of stables were removed	Environmental
Pinelands, New Jersey	Pinelands is designated as county's first national reserve in 1978. TDR is included in the CMP (comprehensive management plan) which became effective under state	55,905 till 2008	Agricultural and environmentally sensitive land

Cities/counties	Description	Examples	Type of TDR
	law in 1981		
Livermore, California	TDR programme including South Livermore (To maintain agricultural heritage and viticulture industry, the city adopt South Livermore specific plan) and North Livermore (to protect agricultural land and open space)	South Livermore preserve 370 acres parkland and 213 acres agricultural land	Agricultural land and open space
King county, Washington	TDR is adopted in 1993 to protect sites have agricultural potential, forestry potential, critical wildlife habitat, open space	91,500 till 2008	Rural resource and urban separators
Manheim Township, Lancaster county, Pennsylvania	Agricultural land is perceived as a valuable natural resource. When implement agricultural district designated in zoning in 1944, the landowner opposed it. Then lots of agricultural land disappeared. In 1987, comprehensive plan and 1989 downzoning trigger TDR programme much. TDR was adopted in 1991	Brighten development by Millfield construction company	Agricultural land

(Source: Aken et al., 2008; Arnold, 1992; Baker, 1975; Greenway and Good, 2008; Harman et al., 2015; Huang, 2010; Fulton et al., 2004; Johnson and Madison, 1997; Kaplowitz et al., 2008; Machemer, 1998; Machemer and Kaplowitz, 2002; Nelson et al., 2011; Putter, 2008; Pruetz, 1993; Pruetz, 2003; Pruetz and Standridge, 2009; Sheehan, 2007)

Criteria of selection of the cities:

- Landmark preservation case is given preference: San Francisco has the most successful historic preservation TDR programmes in US. New York has the earliest TDR project and Chicago plan aims to improve the New York plan.

- Successful and famous cases of conservation using TDR: King County, New Jersey Pinelands, Montgomery County are the top three programmes that have preserved the largest acreage and Calvert county ranks the sixth.

- Cities/counties with long history of TDR uses;

- The available references that are accessible to the author.

5.3 Comparison Results

After the critical comparative analysis, the six most important factors were identified as: Legislation for TDR, Incorporating TDR in planning mechanism, Government support, Public support (good TDR information, public participate in TDR process), Maximum development of receiving site, and Physical capacity to handle the increased density. Other aspects such as simplicity and social equity are seldom mentioned in those practices, although they are important factors. Thus, the details of the six important and popularly used factors for each of the 15 cities/counties are shown in the following table (Table 5.2). In the next section, the findings of comparative studies will be discussed and further verified for local implementation in Hong Kong with the support of NVivo analysis of interview data with 10 TDR experts in Hong Kong.

Table 5. 2 TDR promoting practices proposed by 15 cities/counties under six important and popularly used factors

	Political acceptability		**Leadership**	**Public support (good TDR information, public participate in TDR process)**	**Market incentive**	**Environmental factors**
	Legislation of TDR	**Including TDR in planning mechanism**	**Government support**		**Maximum development of receiving site**	**Physical to handle the increased density**
New York (Arnold, 1992; Stinson, 1996)	-legitimacy	- comprehensive plan (TDR & traffic congestion)	-purpose of TDR is clearly defined	- Conservation easements to give notice that certain parcels may not be developable	- Maximum of 20% bonus density	- carefully scrutinized for capacity (e.g. transportation, waste disposal; fire protection) -EIS report
Chicago (Arnold, 1992; Costonis, 1972)	-state zoning; -state preservation	- local preservation ordinance/zoning ordinance(TDR mechanism)	-preservation restriction; -study the inventories of the number and type of the prospective landmarks and estimate the amount of floor area			-Not increased by more than 15%; - ceiling on the amount of gross bulk increases; -public service and facilities
Vancouver, Canada (City of Vancouver Website)			-density management strategy (no alternative to TDR)	- Ongoing report; -public consultation	- Up to 10% bonus density	- Strict control of the receiving site;
Taipei, Taiwan (Huang, 2010; Jin and Dai, 2010; Lin and Chen, 1999; Xie and Zhang, 2006)	-"cultural assets preservation act" -"urban planning law"	- under the control of local plans to keep their consistency	-"regulation for landmarks building capacity transfer" -"Regulation for Building Capacity Transfer in Da-Dau-Cheng Special Historical District"	- provide sufficient information for involving parties; - government negotiated with the community residents about the mechanism of TDR	- Maximum 30% or 50% bonus density sectors; -the developer can purchase DR from different owners only if not exceed the limit set by the programme	- Clearly requirements of designated receiving areas, e.g. park or excellent transportation, good surrounding environment, prosperous business activities.
Seattle (Gov. website; Nelson et al.,			-"downtown plan" (reduce development) - Citizen's Alternative	- Strong public support		- Additional development is compatible

	Political acceptability		Leadership	Public support (good TDR information, public participate in TDR process)	Market incentive	Environmental factors
	Legislation of TDR	**Including TDR in planning mechanism**	**Government support**		**Maximum development of receiving site**	**Physical to handle the increased density**
2011)			Plan (CAP)(change downzoning)			
Cupertino, California (Nelson et al., 2011)		- Traffic Intensity Performance Standard (TIPS)regulation	-few alternative to TDR	- Educate the community -development intensity manual to explain how to use the transfer mechanism		
San Francisco (Pruetz, 1993; Nelson et al., 2011)			-New plan designating significant and contributory buildings; - no alternative to TDR; - difficult to alter or demolish landmarks			
Montgomery county, Maryland (Johnson and Madison, 1997; Machemer and Kaplowitz, 2002; Nelson et al., 2011)	-enactment of TDR	- Master plan for the preservation of agriculture and rural open space	-"Functional Master Plan" for the Preservation of Agricultural and Rural Open Space; -amend the general plans for growth area; -Establish a rural density transfer zone	- effort go into publications	-strong incentives 5:1 ratio; - affordable priced TDR;	- choose areas with sufficient infrastructure
Calvert county, Maryland (Nelson et al., 2011);	-as a matter of right	- Comprehensive Plan(establish Receiving areas)	-comprehensive plan calling for preservation of agriculture and forest lands; -Restrictive zoning; -down zoning; -establish a fund to purchase TDR	- Newsletters to show recent sales and current TDR prices; - Public hearing on the proposed receiving site	- different additional density for different receiving sites; -transfer ratio: 5:1	-"Adequate facilities ordinance" prohibiting development in receiving areas until adequate roads and schools are programmed into the county's master plan.

	Political acceptability		Leadership	Public support (good TDR information, public participate in TDR process)	Market incentive	Environmental factors
	Legislation of TDR	**Including TDR in planning mechanism**	**Government support**		**Maximum development of receiving site**	**Physical to handle the increased density**
						Charge to developers.
North Brabant, Dutch (Janssen-Jansen, 2008; Spaans et al., 2010)		- regional plan of the province (requirements for receiving areas)	- give priority to vulnerable locations; - important role in acquiring the receiving areas; - province's dual responsibility(corporate role and civil law role)	- Cooperative in the regional conversion process with some development company private parties		- Maximum total amount of new developable land (3000houses on 1000m^2 plots) was fixed
Pinelands, New Jersey (Fulton et al., 2004; Machemer, 1998; Machemer and Kaplowitz, 2002; Poole, 1984)			- conform plans and ordinance to ensure TDR implementation; - design and approve a system allowing developers to achieve density bonus	-Public outreach effort e.g. brochures, guidelines, website; -outings and educational programmes to present the benefits of preservation by Oversight commission	- Attractive Allocation rate; -funding for infrastructure; -four extra dwelling units allowable per credit - density bonus of up to 50%	-infrastructure capacity
Livermore, California (Aken et al., 2008; Nelson et al., 2011)	-TDR ordinance		- only means of exceeding baseline	- substantial public input to selection of receiving sites； - public understand the importance of preservation		
King county, Washington (King County Website; Nelson et al., 2011)			- Secure inter-jurisdictional agreements for willingness to accept TDR from distant parts of the county	-website facilitation the programme		
Manheim Township, Lancaster	-legislation -under zoning aspect of	-as a part of overall land use policy	- Downzoning of sending area; - Impact fees, cluster	-Public education, use display, presentation and discussions to	- density increase by 30% and 45% with TDR use in R-	- Candidate receiving parcels must be five acres

	Political acceptability		Leadership	Public support (good TDR information, public participate in TDR process)	Market incentive	Environmental factors
	Legislation of TDR	**Including TDR in planning mechanism**	**Government support**		**Maximum development of receiving site**	**Physical to handle the increased density**
county, Pennsylvania (Machemer, 1998)	planning code		development, planned residential development (PRD) and agricultural zoning are four policies that work in concert with TDR, -township role as designer, purchaser, initiator and facilitator	clarify what receiving areas and their effects were.	1 and R-2 respectively; -by 81% and 115%with TDR combined with clustering in R-1 and R-2 respectively	or more. -available public water and sewer service

5.4 Local Open-ended Survey and Interview

Based on these six factors identified in the international comparative studies, interviews were carried out with 10 local experts in Hong Kong as a case study to understand how these factors can be implemented in a local context. Through coding by NVivo of the interview data, the analyses will also show how these factors are interrelated to each other. NVivo is intended to help users to organize and analyze non-numerical or unstructured data. The software allows users to classify, sort and arrange information; examine relationships in the data; and combine analysis with linking, shaping, searching and modeling. They can make observations in the software and build a body of evidence to support their case or project. It depends on the researcher's design. For this research, NVivo was used to examine the relationship of strategies for implementing those TDR success factors. Coding and making nodes are the major tools. For the answers of interview, the process started with a detailed coding of all the answers and developing nodes (several words or sentences generate one node). The following paragraphs present the analysis and findings for each of the 6 factors:

(1) Legislation

It is generally accepted that legislation may greatly enhance the operation of TDR programmes. Legislation is an important factor for the success of TDR; however, it is unsure whether it is a precondition for TDR success. In the comparative studies, 8 out of 15 cities/counties have TDR legislation. The other 7 cities/counties did not have clear

legal basis for TDR but they also have success TDR programmes, e.g. New Jersey Pinelands (49,962 acres of land has been preserved) and King Ccounty (90,000 acres land has been preserved). From the experience of these cases, there is no definite causal relationship between legislation and successful TDR.

From the case of Taiwan, the critics argued TDR should not be allowed before legislation is available to protect the private property rights. In response to that challenge, the government amended urban planning law in 2002. The fact is that before this law, the government has already enacted "Regulation for Urban Plan Building Capacity Transfer" in 1999 which has the similar effect. The amendment of urban planning law was only to provide TDR a further legal base, rather than causing successful TDR. From the evolution of TDR before the legislation in Taiwan in 2002, at least it is noted that it is more meaningful to improve related institutions and integrate TDR with existing plans to reduce uncertainties of TDR programmes rather than only to argue about legislation or not.

In the Hong Kong situation, the interview result shows 9 out of 10 interviewees admitted it would make TDR more standardized, if it is a legislated practice. They believed legislation for TDR is feasible in Hong Kong but it is not the right time to do so. The objectives and framework of TDR regulations for built heritage conservation need to be developed and then put to public discussion whether or not to legislate for TDR and how. Before the TDR legislation is in place, we should have adequate policy and existing law to avoid the losing our built heritage. In the following, the factors contributing to TDR

legislation are shown presented in Table 5.3 and Figure 5.1. The network relationship between the underlying factors is worked out by the software called NVivo based on the interview data.

Table 5. 3 Coding using NVivo about the question in legislation

(For the question: "Do you think it is necessary to have TDR legislation in Hong Kong? Is there any difficulties? If yes, what are the difficulties?")

Parent node	Child node	Criteria: Legislation
Government support	High Attention	0
	Legislation	2
	Promoting Public Support	0
	TDR Policy and Supporting Policies	2
	Trusted System	0
Institutional arrangement	Adjustment of Related Regulation	1
	Community Involvement	0
	Compatible Development	0
	Department rearrangement and Cooperation	2
Technical	Accessibility of Heritage	0
	Available Receiving Site	0
	Compensation	0
	Database	1
	TDR Knowledge, Guidelines, Standard	1

Summary of NVivo analysis: all the questions based on the framework in Chapter 4 are coded into 3 parent nodes and 14 child nodes, shown in the left two columns of Tab 5.3. The keywords of each question are listed in the right column of Tab 5.3. This question is about 'Legislation'. For the implementing of 'legislation', 2 interviewees' answer can be summarized into node 'Legislation', 2 can be summarized into the node 'TDR policy

and supporting policy', 1 can be summarized into the node 'ajustment of related regulations', 2 can be summarized into the node 'Department rearrangement and cooperation', 1 can be summarized into the node 'databse' and 1 can be summarized into the node 'TDR knowledge, guidelines and standards'. Fig 5.1 shows the relations of the criteria and the parent nodes and child nodes directly. The analysis of the other factors are the similar, and shown in table and figure in their parts.

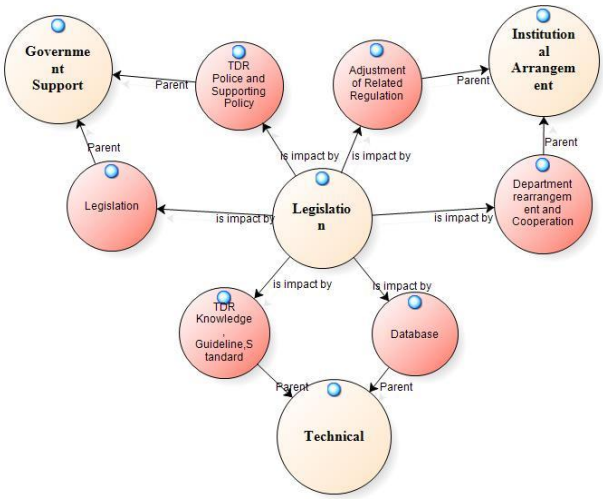


Figure 5. 1 The underlying factors contributing to "legislation"

From the Table 5.3, it can be seen that in order to achieve TDR legislation in Hong Kong, in addition to the legislation itself, we need TDR policy and other supporting policies which are under the parent node of government support. We also need adjustment of related regulations and government departmental rearrangement and cooperation, which are under the parent node of institutional arrangements. We also require a database (e.g. how many and what kind of heritage buildings can use TDR, etc.) and TDR knowledge, guidelines, which are under the parent node of technical. Figue 5.1 describes the relationship of those items mentioned in Table 5.3.

(2) Incorporating TDR in Planning Mechanism

From the practices summarized in the comparative study (see Table 5.2), 11 out of 15 cities/counties have practices to keep TDR consistent with the planning mechanism and regulation. It can be seen that zoning amendments to incorporate TDR were carried out in some cities/counties to the effect such as providing the approved receiving districts all the credits of a surplus of 12% (Pinelands, New Jersey); incorporating baseline densities and bonuses for using TDR credits (Livermore, California). TDR was also integrated in the comprehensive plan (Chicago; Montgomery county, Maryland; Calvert county, Maryland), regional plan (North Brabant, Dutch), and traffic standards (Cupertino, California). In Manheim Township of Pennsylvania, TDR was treated as a part of the overall land use policy rather than only a mechanism.

From the results of the Hong Kong interviews, more than half of the interviewees asserted zoning and built heritage conservation system should include TDR into their considerations. From Table 5.4, we can see "adjustment of related regulation" is mentioned eight times. One way to integrate TDR in the planning mechanism could be designating on amended statutory plan the conservation site/district that can use TDR in zoning or reserving potential receiving site for TDR on the plan. From the Table 5.4, these two suggestions are coded as "available receiving site" (mentioned 5 times) or regulating the additional plot ratio by TDR (coded as "database"). However, amendment of statutory zoning may encounter across difficulties such as time consuming due to waiting for approval; unclear objective in zoning how many built heritage to use TDR

(coded as “database” which includes how many heritages can use TDR, value, etc.).

Table 5. 4 Coding using NVivo about the question in Incorporating TDR in planning mechanism

(For the question: “How to incorporate TDR in planning mechanism e.g. zoning and built heritage conservation system?”)

Parent node	Child node	Criteria: Including TDR in Planning Mechanism
Government support	High Attention	0
	Legislation	0
	Promoting Public Support	1
	TDR Policy and Supporting Policies	2
	Trusted System	0
Institutional arrangement	Adjustment of Related Regulation	8
	Community Involvement	0
	Compatible Development	0
	Department rearrangement and Cooperation	0
Technical	Accessibility of Heritage	0
	Available Receiving Site	5
	Compensation	0
	Database	4
	TDR Knowledge, Guideline, Standard	0

(Note: refer to the illustration of the above table)

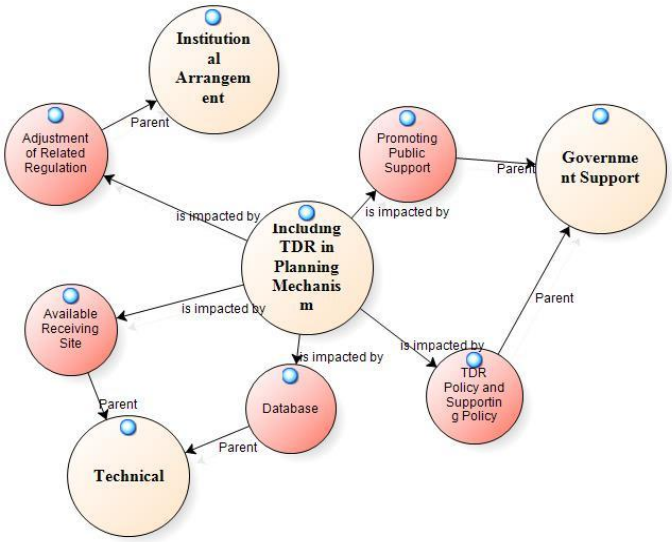


Figure 5. 2 How to incorporate TDR in planning mechanism

Summary of NVivo analysis: this question is about 'including TDR in planning mechanism'. For the implementing of this factor, 1 interviewee' answer can be summarized into node 'promoting public support', 2 can be summarized into the node 'TDR policy and supporting policy', 8 can be summarized into the node 'ajustment of related regulations', 5 can be summarized into the node 'available receiving site' and 4 can be summarized into the node 'database'. Fig 5.2 shows clearly the relationship of 'including TDR in planning mechanism' and the child nodes and parent nodes.

(3) Government Support

Government support is shown to be significant in the international comparison. 14 out of 15 cities/counties have practices of government support. Among those cities, Taipei, North Brabant, and Manheim Township have gained relative stronger government support. The government support can be summarized into two major forms. One form is the to develop supporting policy for TDR, e.g. no other alternative to get bonus density

except using TDR; down zoning; restrictive zoning or conservation of heritage, amendment of the statutory plan or ordinance to ensure TDR. The other form is to set the rules for TDR, e.g. designation of sending and receiving area; calculation of transfer ratio. In Taipei, the Ministry of Interior enacted the "Regulation for Landmarks Building Capacity Transfer" to govern the operation of TDR, which may include the conditions of TDR, the designation of sending and receiving area, and calculation of transfer ratio, setting clear transfer goals, establishing the rules for TDR, providing sufficient information, and amendments of two laws.

Interviews with the experts in Hong Kong confirm the government support is the basis to success TDR programme. However, the current government support is far from enough. The government's support to TDR is considered as passive administration. The evidence included no clear TDR policy, few research studies, and most of the public do not know about TDR. From the Table 5.5, it can be seen that government support has less correlation with other aspects. The nodes coded from the government support still belong to the parent node-government support. The analysis mainly regroups the interview data into four major aspects: highly attention to TDR; legislation; more feasible strategies to promote effective public support; and development of TDR policy and supporting policies.

Table 5. 5 Coding using NVivo about the question in government support

(For the question: "How the government should give support to promote TDR?")

Parent node	Child node	Criteria: Government Support
Government Support	High Attention	2
	Legislation	1
	Promoting Public Support	2
	TDR Policy and Supporting Policies	3
	Trusted System	0
Institutional Arrangement	Adjustment of Related Regulation	0
	Community Involvement	0
	Compatible Development	0
	Department rearrangement and Cooperation	1
Technical	Accessibility of Heritage	0
	Available Receiving Site	0
	Compensation	0
	Database	0
	TDR Knowledge, Guideline, Standard	0
Note: the government support in the parent node (the left column) and criteria (the right column) are different. The former one is coded by the author and the latter one is extracted from the table 2 which is one of the topics in the interview questions.		

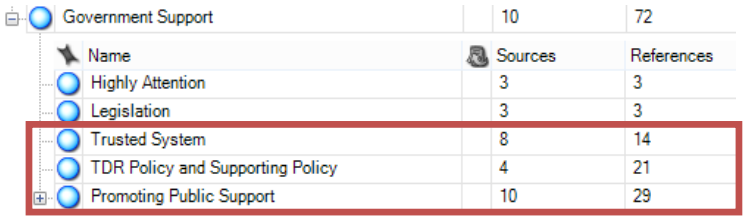


Figure 5. 3 Coding within the parent node "government support" of all the interview questions

Summary of NVivo analysis: this question is about 'government support'. For the implementing of this factor, as shown in Tab 5.5, 2 interviewees' answers can be summarized into node 'highly attention', 1 can be summarized into node 'Legislation',

2 can be summarized into node ‘promoting public support’, 3 can be summarized into node ‘TDR policy and supporting policy ’, 1 can be summarized into node ‘Department rearrangement and cooperation’. In Fig 5.3, 72 shows the number of times that parent node of ‘Government support’ are mentioned in the 10 interviews. It can be seen the Trusted system, TDR policy, Supporting policy and Promoting public support are three major forms of government support, which are most mentioned. It can be seen from Fig 3 that the government support is mentioned 72 times in total in the 10 interviews, which include five aspects: high attention; legislation; trusted system; TDR policy and supporting policy; and promoting public support (being mentioned 29 times and by each of the ten interviews), and the last three aspects are considered more important. Tab 5.6 shows that all the criteria in the interview have connection with “government support”. Thus, government support is really an important factor to successful TDR.

Table 5. 6 The relationship between the node “government support” with the all the interview questions

Criteria	Node: Government Support
Environment	2
Market Incentive	5
Political Acceptability	7
Public Support	19
Simplicity	9
Social Equity	8
TDR Leadership	17

Note: the criteria on the left column is the key criteria abstracted from the interview questions; the number in the right column means the times of government support mentioned by the interview about each criteria (interview question is based on the criteria in the left column of the table).

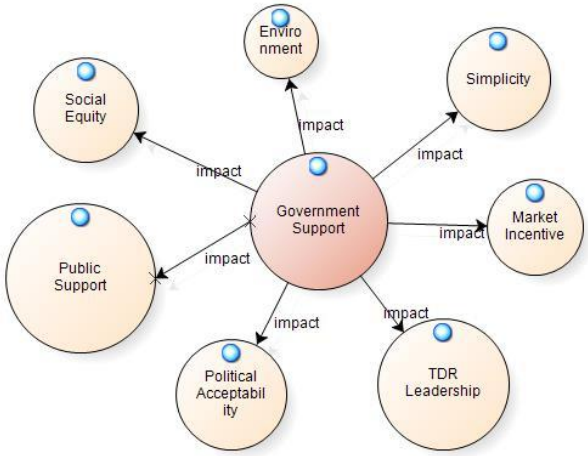


Figure 5. 4 The relationship between "government support" and other criteria in Table 5.2

(Note: the size of the bubble represents the degree the government support impact the criteria)

Summary of NVivo analysis: Tab 5.6 shows the relationship of the node 'government support' and other criteria in the successful framework developed in Chapter 4. From the numbers, public support and TDR leadership have the most closely relationship with 'government support', which mentioned 'government support' 19 times and 17 times respectively. Fig 5.4 shows the above relationships.

(4) Public Support

All of the 15 cities have practices of promoting public support in TDR, which demonstrates the significance of public support. There are four aspects of practices summarized as follows:

- Providing sufficient information for the parties involved e.g. effort go into publications/ newsletters to show recent sales /ongoing report display to clarify the receiving areas and effects to them by TDR

- Carrying out public hearing on the proposed receiving site and public input to select receiving site
- Educating the community the benefit of preservation and TDR;
- Cooperating with private parties; negotiating the TDR mechanism between the government and community.

From the Hong Kong interviews, all the interviewees considered the willingness of the owner to participate in the TDR projects would be critical and the public support to TDR in Hong Kong was far from enough. So far, few people in Hong Kong understand clearly about what TDR is and what kind of benefits can bring to the participants. Thus, the experts proposed some strategies for public support to promote TDR, which can be categorized as four major aspects (see Figure 5.5): educate the public (e.g. sometimes the public wants to protect the heritage but do not understand how to do it); social equity (e.g. public participation should not be utilized by the politician only); power to make decision (e.g. the public can affect/change the result rather than only be informed; the community can contribute to decide whether to preserve the built heritage); power to choose (e.g. the public or the owner can select the receiving area by themselves).

Promoting Public Support	10	29
Name	Sources	References
Educate the public	5	8
Power to Make Decision	5	5
Power to Option	3	4
Social Equity	2	3

Figure 5. 5 Coding from all the interview questions about node "promoting public support"

(Note: it shows four child nodes under the parent node "promoting public support")

Summary of NVivo analysis: Fig 5.5 shows the four major forms of public support. In the ten interviews, 'public support' was mentioned 29 times totally. Of these, 8 responses mentioned educate the public, 5 were about power to make decisions, 4 about power to option and 3 about social equity.

(5) Maximum Additional Development Permitted by TDR and Limited Physical Capacity

Maximum additional development permitted by TDR and the limited physical capacity for increased development are discussed together because the maximum development is confined by the physical capacity of the receiving site. The additional development through TDR is calculated according to two parameters. One is the transfer ratio regulated by the TDR plan, and the other is the maximum increased density that can be accommodated by the receiving area. Maximum development by TDR is included by 8 cities/counties and physical capacity to handle the increased development is mentioned by 9 cities/counties. It is noted that the three counties, Montgomery County, Calvert County and Pinelands, with most famous successful TDR projects all have a strong transfer ratio of 5:1. Taipei also has maximum 30% or 50% bonus density for TDR.

In the overseas cases, clear requirements were established for scrutinizing the receiving site, including transportation condition, sufficient water and sewer service, waste disposal and fire protection. Many cities indicate selecting the site where the environment, transportation condition, and service of public facilities are much better than those in other places as the candidate receiving site. Calvert County also has an

"Adequate Facilities Ordinance" prohibiting development in receiving site until adequate roads and schools are programmed into the county's master plan.

In the Hong Kong situation, maximum additional development by TDR and physical capacity for increased development are considered as very important factors to success TDR when the respondents were asked to give ratings to the success factors in a questionnaire survey. In the interview with experts, most of them suggested that additional developments through TDR can follow the density in zoning and take the increased development incurred by TDR into consideration in the next round of revising the zoning. In terms of calculating the physical capacity of the receiving site, the interviewees opined that it is not a difficult issue but rather a technical problem which can be resolved by the related government departments in possession of sufficient data.

5.5 North Carolina Case Study

North Carolina (NC) is a state in the southeastern region of the United States. NC is the 28th most extensive and the 9th most populous of the 50 United States. NC has the most rural population in the states of the U.S, where over half of the population are in rural area. NC's population is expected to grow by more than 30% by 2030, creating new urgency for conservation priorities such as watershed and open space protection around the state's growing population centers. Only 6.9% of North Carolina's 31 million acres are owned by state or federal agencies in 1995 (Natural Resources Council of Maine). 90% of the forested land in North Carolina is privately held in 2009 (North Carolina

Forestry Association). This suggests the largest gains to be made in conserving land will require working with private stakeholders.

In North Carolina (NC), TDR is encouraged by the general statute for the purposes of historic preservation, open space and watershed protection, and support of transit and transportation planning goals. North Carolina General Statute include the Transfer of severable development rights, in which Chapter 136, Article 3B§ 136-66.11.- Dedication of Right-of-Way with Density or Development Rights Transfer (2014) stated "*A city or county may provide in its zoning and subdivision control ordinances for the establishment, transfer, and exercise of severable development rights to implement the provisions of G.S. 136-66.10 and this section*."; "*In order to provide for the transfer of severable development rights pursuant to this section, the governing board shall amend the zoning ordinance to designate severable development rights receiving districts.*" This lays a legal foundation for the TDR, which is also studied by local governments and institutes. TDR has been proposed for many times ever since 1989 in Orange County in NC. The Orange County carried out three phases of Transfer of Development Rights Feasibility Study from 2004 to 2009, which demonstrate TDR is feasible in the county (OCPD, 2009). However, an interesting phenomenon is that NC never has had a practical implementation of a TDR case. Thus, a questionnaire survey is carried out to explore the reasons why NC does not have TDR implementations.

5.5.1 Questionnaire Survey

Whilst the author was having a 6-month exchange visit to North Carolina University in

2015, she made use of the opportunity to conduct a questionnaire survey and interviews with local experts there. This part of the research carried out a questionnaire survey across the state of NC on the reasons why NC never used TDR. Totally, 200 copies were sent out to the government, academic, non-profit organizations and private organizations. The survey investigates the major conservation goals of these counties and listed 11 reasons why TDR is not implemented and then let the respondents to choose the reasons in the form of multiple choices. The listed reasons are developed through the literature review of the problem of TDR and the success framework in Section 4.5.

5.5.2 Results

45 valid questionnaire sheets are received from twenty counties in North Carolina, of which 64.44% are from local government of different counties, 13.33% from the academic and 15.55% from non-profit organizations. The results found historic building are the major conservation goals in NC, 89% counties aim to protect built heritage. Farmland and environmental sensitive areas are the second and third goals of conservation. The results show none of the counties have practical implementation of TDR cases and only the Orange County have Purchase Development Rights (PDRs) programme. The findings are listed below.

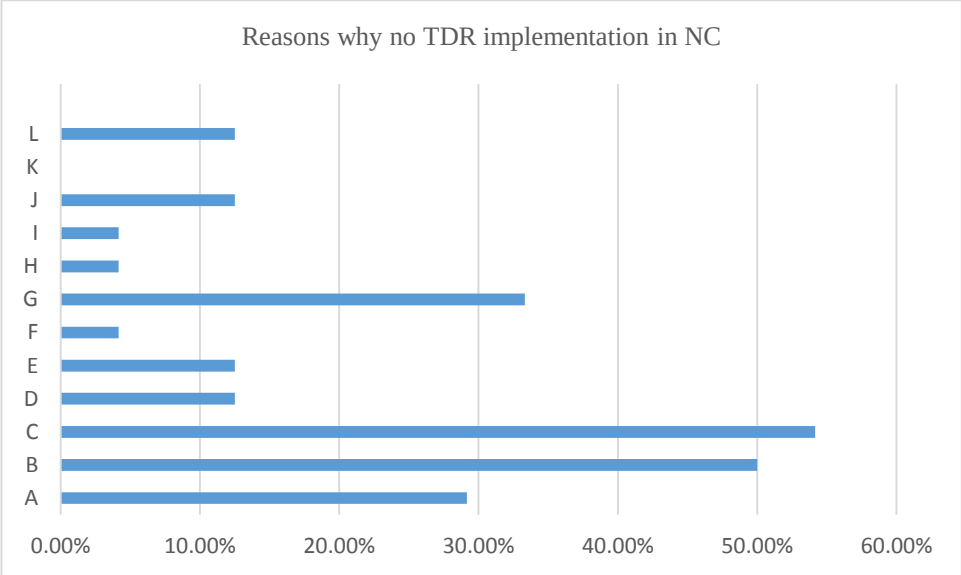


Figure 5. 6 The reason for not implementing TDR case on NC even though there is TDR legislation

(The letters A, to L represent the listed reasons; the percentage represents the percentage of respondents select the reason)

NOTE: A. We do not give TDR much consideration

B. We prefer to use zoning and development restrictions to achieve conservation goals

C. We mainly rely on direct purchases to acquire land, easement and development rights

D. We think TDR procedures are overly complicated and we are not prepared to use them

E. We found it is difficult to incorporate TDR into the existing land and planning system

F. It is difficult for the community to reach an agreement on the suitable sites to receive transferred development

G. We did not see much demand for TDR because the current allowed building density is sufficient for developers

H. The public thinks TDR may face legal challenges and does not trust the system to work

I. The property owners have no interest because the return on their investment in TDR is uncertain

J. There are other ways for the property owner/developer to get additional development density, so they do not need to participate in TDR

K. The property owners worry that any delay in the TDR process may result in economic losses

L. others

5.5.3 Discussion of findings of NC survey

From the result, four major reasons have been identified for not implementing TDR case in NC even though there is TDR legislation. Reason C "We mainly rely on direct purchases to acquire land, easement and development rights" is the first and foremost reason, of which 54.17% respondents selected it. Reason B "we prefer to use zoning and development restrictions to achieve conservation goals" is considered as the second reasons, of which 50% respondents selected it. Reason G "We did not see much demand for TDR because the current allowed building density is sufficient for developers" is selected by the 33.33% of the respondents and ranked the third. Reason A "We do not give TDR much consideration" is selected by the 29.17% of the respondents and ranked the forth. Other reasons are selected by few people.

(1) TDR is Not the First Choice for Conservation

TDR may only be used in the situation when the zoning and development restrictions cannot achieve the conservation goals and direct purchase is impossible. That demonstrates that TDR is not the first choice for conservation. The land price and

housing price is not that expensive in NC, such that the government/NPO can direct purchase the conserved lands/properties. For example, there was a NPO called “preserve North Carolina” that purchased the heritage building and then sold them to buyers, and the buyers can get “tax deduction and exemption” in the first five years. Buyers only need to keep the building façade and interior structures and they can decorate their buildings in their own way. Through these ways, they have preserved many buildings. Thus, TDR can be more feasible in the places where the planning systems do not involve so much conservation and more applicable to places which have a very high development pressure.

(2) TDR Need Supporting Policy to Create Market

From the survey, it can be seen that “We did not see much demand for TDR because the current allowed building density is sufficient for developers” is the third major reason which occupies 33.33%. In some counties in US, down-zoning is carried out by government in order to promoting developer’s pursue for more development rights and to achieve the goals for conservation. These demonstrate TDR supporting policy is very important as it can be adjusted to ensure more density needed and few alternatives available except TDR to get more density development. It can be seen TDR depends heavily on the government support.

(3) Much More Information is Needed by the Public

“We do not give TDR much consideration” is the fourth major reason which occupies

29.17%. The public do not know TDR well, thus there is a need for government support to provide more information about TDR to the government staff and community. When people are not sure about TDR, they are not willing to use it. International comparison and local interviews provide many options to let public know about TDR.

In summary, the NC case again demonstrates that legislation is not that important, even though TDR law exists in general statute in NC. This provides the legal backup for TDR, yet, no actual TDR cases happened. Thus, TDR can be feasible in the place where the planning control does not involve so much conservation, and in places where high development pressure exists such that the developer need more density, and where the land price and housing price are so expensive that the government/ NPO cannot afford to direct purchase the heritage buildings. Besides the above conditions, government support is extremely necessary in promoting TDR, such as developing supporting policy for effective market and enhancing public participation.

(4) Compare the North Carolina case and Hong Kong case from the social-political perspective

There is an interesting phenomenon that North Carolina's general statute include TDR but with no actual TDR implementation, while in Hong Kong there are several actual TDR cases but no TDR legislation. The research tries to explore the reasons behind. Firstly, North Carolina has a long history for heritage conservation since 1920s. They have a completed conservation system. There are various conservation methods for private heritage such as purchase the easement, donate the easement, heritage trust. Even

if they will not use it, they will put it there. If they want to use, they can use immediately. So they have TDR legislation but no implementation. However, most of the conservation works and conservation system in Hong Kong start after 2000. There is no clear policy aim for privately-owned built heritage conservation. Secondly, the government's attitude in North Carolina towards heritage conservation is proactive. If they find a building with great value, they may use policy power to preserve it. However, the Hong Kong government holds a reactive attitude towards heritage rather than proactive. The public does not pay attention to the built heritage. Thirdly, there are rich experiences for North Carolina to follow within the US. It is easy for one state to copy or make reference from another state because they are within the same country. However, for Hong Kong, it is a separated city that few references can made from directly. Thus, the government become very careful to deal with the private properties. If not, it may cause negative social impact. Even if they want to make reference from other countries. They should try first, on a case-by case basis. And if they are feasible they will generalize it. so it will take long time. Thus it has actual TDR implementation but no clear regulation/legislation

5.6 Discussion

(1) Legislation for TDR

From the international comparison and local interviews, the results show that legislation can make TDR more formalized and less likely to be challenged but they still lack the convincing evidence to show the causal relationship between TDR success and

legislation. The NC case demonstrates only legislation cannot generate TDR implementation from the practice perspective. Before working on the TDR legislation, it is more important to develop TDR policy and other supporting policies. Once the policy basis has been founded, legislation could happen naturally.

(2) Incorporating TDR in Planning Mechanism

It can be concluded that consistency of TDR practice with other statutory plans in the planning mechanism is important. It allows participants to be more confident in using TDR and trust the TDR system. With more people willing to consider TDR when considering any changes to their building, it will generate sufficient TDR market interest. The international comparative study result provides more guidance about what plans can incorporate TDR and in what forms, and of which designated receiving area in zoning is one of the most popular practices. Many of these practices are also suggested by Hong Kong experts in the interviews. However, designating the receiving area in zoning needs related governmental departments and institutions to work together starting from designing of policy for conservation of built heritages. Taking Hong Kong as an example, graded buildings in Hong Kong can still be demolished if the owners' development plan is permitted under the planning system, hence it is difficult to define the number of built heritages that can use TDR. Only when the built heritage is strictly protected, then TDR implementing system can be clear and formalized. Then it will be much easier to add the corresponding directions for TDR at different levels of statutory plans. Thus, setting clear directions and common bases to coordinate these plans are essential.

(3) Government Support

The findings show the significance of government support in TDR, of which TDR policy and supporting policy is repeatedly demonstrated as the major form of government support required. Without the supporting policy, even the clear TDR regulations are in place, it will still come across difficulties at different stages of implementation, such as no receiving site, not enough developer or owner involvement, facing legal challenges, delay or higher transaction cost. NC is such a right case.

(4) Public Support (Good TDR information, Public Participate in TDR Process)

From the findings, the importance of the public support is confirmed. Educating the public, allowing the public efficient access to TDR updated news and letting the public participate in the selection of the receiving site are the most popular strategies to promote public support as demonstrated by the results of both the comparative study of overseas practices and expert interview. From the NC cases, more information to the public is one principal step to promote public support. Most of above strategies are relatively simple to borrow for reference. However, ensuring social equity and allowing the public the power to make decision are referring more to political issues and there are few international practices to follow, and this aspect of difficulty needs further exploration.

(5) Maximum Development and Physical Capacity to Handle the Increased Density

From the findings of the comparative study and experts' view, maximum additional development allowed by TDR and the physical capacity of the receiving site to cope

with increased development are considered important to TDR. This is the basic economic consideration for developer or owner. It is essential to ensure the maximum additional development is achievable by using TDR. Otherwise, the developer or owner may not prefer to use TDR if they can get more development through other ways.

5.7 Summary of Findings

From the NC survey, it can be seen TDR is not the first choice for built heritage conservation. TDR fits the cities which have high density, high land price and housing price, such that the developer needs more density and also the government/agencies cannot afford the requisition fee. This part of the research study identifies six success factors which have been included in most of the policy approaches used by 15 cities/counties. The factors are: “legislation for TDR”, “incorporating TDR in planning mechanism”, “government support”, “public support”, “maximum development of receiving site”, and “physical capacity to handle the increased density”. The survey in NC exploring why TDR has no practical implementation properly supports the findings of the international comparison. Analyzing the policy approaches to see how they put those success factors into practice helps us understand how these factors interrelate with each other and what are the primary duties in using TDR.

TDR is a complex mechanism related to many fields of urban studies and only legislation TDR will not generate demands for TDR. It needs cooperation and support of related fields such as policy strengthening the conservation of privately owned built heritage.

Improvement of related institutions and the integration of TDR with existing planning mechanism are extremely important and necessary to TDR success. Thus, cities like Hong Kong at the beginning exploration of TDR and with weak progress on built heritage conservation, TDR relies heavily on government support, especially in winning the public support for government's action. Educating the community, providing public sufficient TDR information and letting the community participate in select receiving areas are the three most popular practices to promote public support. Other forms of public support such as incorporating social equity and sharing decision power with the public need further exploration in order to put TDR into practice.

Maximum development achievable in using TDR and clear requirements for assessing physical capacity of receiving sites are the two factors that restrictive each other. However, such technical problems are not difficult to deal with. Through combined analysis of the policy approaches used by overseas cities and the advice of local experts on implementing TDR, the research results have not only contributed to better understanding the theory of implementing TDR in general but also provided useful guidance for TDR practice.

CHAPTER 6 CASE STUDY OF HONG KONG

6.1 Introduction

Theoretically, TDR is a good approach, contributing to a city's conservation work in balancing the needs for development and conservation. Practically, the implementation of TDR is complex due to the different socio-political and legal contexts. This chapter aims to analyze how institutional arrangements can help the smooth adoption of TDR in built-heritage conservation. This part of the research examines the institutional arrangements related to TDR using Hong Kong as a case study based on the theoretical framework of the three levels of institutional arrangements (the framework is discussed in Section 2.6.6 Institutional Approach). This chapter does not intend to reflect all the institutional issues regarding TDR, but to highlight the controversies in regards to the constitutional, governance and operational institutional frameworks for TDR in Hong Kong.

In Hong Kong, there are totally 11 TDR cases, of which two are failed, one is Lee theater due to no appropriate receiving site, the other is Ho Tung Garden due to the owner disagreement of the transfer. The research selected three most controversial cases. Three cases with high architectural and social value that attracted attention of the general public were selected to illustrate the major controversial issues in TDR, and they reveal the gaps between the theory and practice of TDR. Findings are based on an in-depth analysis of the mass media, such as newspaper, internet and forums, governmental documents,

research papers, and communication with government, NGOs, residents and concerned groups. The identified issues were verified by 10 interviews with experts, professionals, and District Councillors. With a good understanding of these six issues by key stakeholders, corresponding policy implications and recommendations are proposed to enhance the institutional efficiency of TDR for future built heritage conservation in cities like Hong Kong.

6.2 Overall Review of the Institutional Arrangements for TDR in Hong Kong

6.2.1 Background of Built Heritage Conservation in Hong Kong

Built heritage plays an important role in the city as it reflects the history and social changes, becoming a matter of increasing public interest. It provides a deep sense of connection to the past and to lived experiences, and sustains our values and communities and allows us to share a collective history. However, with limited usable land and a rapidly expanding population, Hong Kong has experienced great changes in the past 100 years on its way to transform from a small fishing village to one of the most important international financial centres of today. Driven by the pressure of redevelopment of its old structures and neighbourhoods, many of the old buildings and traditional districts have been demolished. Thus, it is an urgent issue to conserve the limited remaining heritage assets. With good conservation and revitalization purpose, built heritage can benefit us greatly, for example, manifest the unique appearance and culture of the city,

enhance the quality of the city and aesthetics of the city landscape, promote tourism, reduce building density, and educate younger generation about the history of Hong Kong, among others.

In 1999's Policy Address, Mr. Tung Chee Hwa, the Chief Executive of Hong Kong, declared the significance of built heritage conservation in the pursuit of the objective for sustainable development and heritage tourism:

"It is important to rehabilitate and preserve unique buildings as this not only accords with our objective of sustainable development but also facilitates the retention of the inherent characteristics of different districts, and helps promote tourism…Hong Kong possesses a unique cultural history going back several thousand years. This not only helps us to establish our identity but also serves to attract tourists."

This is the first time that the government expressed concern about built heritage conservation after Hong Kong reunified with mainland China. An increasing interest in cultural heritage, awareness of enhancing of the life quality, changed urban values, growing appreciation of city and urge to strengthen a sense of place, emerged in the following years.

In 2007's Policy Address, the Chief Executive of Hong Kong, TSANG Yam-kuen promulgated the policy about objective of heritage conservation as follows:

"To protect, conserve and revitalise as appropriate historical and heritages sites and buildings through relevant and sustainable approaches for the benefit and enjoyment of

present and future generations. In implementing this policy due regard should be given to development needs in the public interest, respect for private property rights, budgetary considerations, cross-sector collaboration and active engagement of stakeholders and the general public."

It shed lights on the emphasis on the objective and development of strategies for conservation works. It requires the conservation should consider the public needs, and enhance the cooperation of different stakeholders without violating the private property right or using too much public funds.

In 2016 Policy Address, the Chief Executive of Hong Kong, Leung Chun Ying announced the continuous effort and several actual measures for built heritage conservation:

"The Government will continue to provide statutory protection for 111 monuments. Moreover, batch V projects under the Revitalising Historic Buildings through Partnership Scheme will be launched this year."

"In the past few years, the Government secured the consent of the owners concerned to conserve 12 privately-owned historic buildings. We encourage more private owners to conserve and revitalise their buildings. In this connection, the Government has recently refined the Financial Assistance for Maintenance Scheme for privately-owned graded historic buildings to attract more owners to apply for assistance to carry out maintenance works."

"The Government will earmark $500 million to implement recommendations of the Antiquities Advisory Board in its review of the built heritage conservation policy to establish a dedicated fund for the conservation of built heritage. The fund will provide subsidies for public education, community involvement and publicity activities and academic research. It will also cover certain existing government initiatives and activities on built heritage conservation."

From the above policy address from 1999 to 2016, it can be seen the government has a positive attitude in promotion of built heritage conservation. They pay more and more attention, especially in recent years. In 2016, the government established clear policy objectives and ascertained the effectiveness of three schemes named Partnership Scheme, Financial Assistance for Maintenance Scheme and Heritage Fund. However, obviously the above three schemes cannot sufficiently deal with the privately owned built heritage. Transfer of development rights (TDR) have great potential to solve the problems. Due to the limitation of Hong Kong e.g. high land price, limited buildable land and disadvantages of TDR, there need more research studies and government support to put TDR into better practice.

6.2.2 Related Departments to TDR

In Hong Kong, there are different kinds of bodies involved in built heritage conservation, governmental authorities, non-governmental agencies, statutory authorities and non-statutory bodies. The Development Bureau and the Antiquities and Monuments Office are the major government departments responsible for the conservation of Hong Kong's

historic heritage. Other statutory departments, such as the Antiquities Advisory Board and the Urban Renewal Authority (URA), are also involved in heritage conservation. The roles of these three are outlined in the sections below

(1) The Development Bureau

The Development Bureau was created on 1 July 2007 and took over the responsibility of planning and lands administration from the Housing, Planning and Lands Bureau, public works from the Environment, Transportation and Works Bureau and heritage conservation from the Home Affairs Bureau. It was an agency of the Government of Hong Kong responsible for urban planning and renewal, land administration, housing, infrastructure development and enhancing the heritage conservation work and striking a balance between development and conservation.

(3) Commissioner for Heritage's Office (CHO)

The CHO was set up on in 2008 under the Development Bureau. Its aim is to provide dedicated support to the Secretary for Development in implementing the policy on heritage conservation and keeping it under constant review, taking forward a series of new initiatives on heritage conservation and serving as a focal point of contact, both locally and overseas. The Office also provides support and guidance to the Antiquities and Monuments Office.

(4) Antiquities and Monuments Office (AMO)

The Antiquities and Monuments Office was established in 1976, under the Leisure and Cultural Services Department, to help the implementation of the A&M Ordinance that came into effect in the same year. AMO is the executive arm of the Antiquities Authority which provides secretarial and executive support to the Antiquities Advisory Board in conserving places of historical and archaeological interest. The specific responsibility is as follows:

(a) To identify, record and research on buildings and items of historical interest;

(b) To organize and co-ordinate surveys and excavations of areas of archaeological significance;

(c) To maintain and develop archives of written and photographic material relating to heritage sites;

(d) To organize the protection, restoration and maintenance of monuments;

(e) To assess and evaluate the impact of development projects on heritage sites, as well as organizing appropriate mitigation measures;

(f) To arrange adaptive re-use of suitable historic buildings; and

(g) To foster awareness of Hong Kong's heritage through education and publicity programmes such as exhibitions, lectures, tours, workshops and the setting up of heritage trails.

(4) Antiquities Advisory Board (AAB)

The Antiquities Advisory Board was established as a statutory body consisting of members with expertise in various relevant fields. The Board helps to advise the

Antiquities Authority on any matters relating to antiquities and monuments. The advices refer to two categories, one is to help decision making and the other is to facilitate promotion. The specifics are as follows:

I. Help to decide:

(a) Whether an item should be declared as a monument or a proposed monument; and

(b) Any matters relating to antiquities, proposed monuments or monuments.

II. Facilitate to promote:

(c) Restoration and conservation of the historic buildings and structures, including the annual programme of restoration works;

(d) Conservation and, where necessary, investigation of archaeological sites, including the granting of licences to excavate and search for antiquities; and

(e) Awareness of and concern for the conservation of Hong Kong's heritage.

(5) Urban Renewal Authority (URA)

Urban Renewal Authority was established in 2001 with the aim of speeding up Hong Kong's urban renewal. It is a quasi-governmental, profit-making statutory body in Hong Kong with its power and duties governed by the Urban Renewal Authority Ordinance (Cap. 563). The vision of URA is to "*create quality and vibrant urban living in Hong Kong – a better home in a world-class city*." URA's adoption of a holistic '4R' strategy – Redevelopment, Rehabilitation, Preservation, and Revitalization lays a solid

foundation to realize this vision. In the strategy "Preservation", URA aims to preserve and restore buildings with historical and architectural value and sustain the local characteristics.

(6) Architectural Services Department (ASD)

A special group of professional and technical staff under the Antiquities Section of the ASD works closely with the AMO. They are assigned to work on a wide range of maintenance and restoration programmes. The Department has rich experience in repairing historical buildings, retaining the original form of construction and material (Architectural Services Department website).

(7) Town Planning Board

The Board is a statutory body appointed by the Chief Executive under the Town Planning Ordinance. The duty of the board is to prepare and publish the statutory plans. For example, in preparing plans, the Board will consult the Antiquities Advisory Board (AAB) if the area has any declared monuments or relics on the AMO record. If the proposed development will pose a threat to the existing heritage, the Board may reject planning applications.

6.2.3 Institutional Framework Related to TDR in Hong Kong

(1) Constitutional Level

In Hong Kong, built heritage conservation interacts with a wide range of areas, including

land use planning, urban renewal, building regulations, the environment, and education and culture (HKIP, 2007). However, the ***Antiquities and Monuments (A&M) Ordinance*** (Cap 53) (the 'A&M Ordinance') is the legislation specifically dedicated to protecting monuments only. If the historic building is designated as a "monument", then it is protected by law and no demolition or alteration is allowed. If the historic building is designated as a "graded building", it only reveals the heritage value of the building without any legal protection against demolition. According to Articles 6 and 105 of the ***Basic Law***, it requires the Hong Kong SAR Government (HKSAR) to protect the right of private ownership of property, protect the right of individuals and legal rights to the acquisition, use, disposal and inheritance of property and their right to compensation for lawful deprivation of their property. It indicates when a historic building is designated as a "monument", it should compensate the owner first.

However, there is lack of an effective compensation mechanism in Hong Kong. ***The Antiquities Monuments Ordinance*** Section 8(1) states that *"...the Authority may, with the prior approval of the Chief Executive, pay to the owner or lawful occupier of a proposed monument or monument compensation in respect of financial loss suffered or likely to be suffered by him...*". The compensation amount shall be agreed between the Authority and the owners, or otherwise be assessed by the District Court. Although there are legal provisions for compensation, there are criticisms that the provisions in the Ordinance are ambiguously worded.

In particular, it is very difficult to define what is 'fair and just' compensation for built

heritage conservation, whether the compensation is paid out in cash money, or economic incentives in the form of land exchange, transfer of plot ratio, or relaxation in plot ratio. Thus, it is difficult to reach an agreement with the owner. If the owner disagrees with the designation of their building as a monument, the government will very likely give up the conservation because of the hefty compensation payable to the owner using public money.

Another ordinance related to the built heritage conservation is the ***Environmental Impact Assessment Ordinance*** (EIAO). Section 2 of Annex 10 and Annex 19 of the ***Technical Memorandum on Environmental Impact Assessment (ŒIA)' Process*** ("the TM") under the ***Environmental Impact Assessment Ordinance*** ("the Ordinance") requires the assessing of the impact on sites of cultural heritage in EIA studies. If the area of a designated project is identified as a 'site of cultural heritage', a *Built Heritage Impact Assessment* (BHIA) report is required to identify built heritage items within the Assessment Area, assess the potential direct and indirect impacts on these identified built heritage, and recommend mitigation measures during construction and operation phases. It aims to minimize the negative impact of the construction work to the built heritage, but it cannot protect the built heritage from demolition. In sum, the constitutional level provides a very weak legal protection for privately-owned built heritage in Hong Kong.

(2) Governance Level

In Hong Kong, although built heritage conservation involves many fields, no entity has a mandate to manage all aspects of heritage conservation. The ***Antiquity and***

Monuments Office (AMO) and the ***Antiquity Advisory Board*** (AAB) were established in 1976 in association with the A&M Ordinance. The Office is now under the ***Leisure and Cultural Service Department*** to provide secretarial and executive support to the Board in conserving places of historical and archaeological interest, and is the executive arm of the ***Antiquities Authority***. The AAB is an advisory body to grade and assess historical buildings. So far, 1444 buildings have been listed (AAB, 2016). ***The Commissioner for Heritage Office*** (CHO) was set up under the ***Development Bureau*** in 2008 to take forward the heritage conservation policy portfolio and work closely with the Government departments in implementing a variety of heritage conservation initiatives such as TDR (GHK, 2013). According to ***The Policy Address 2007-2008***, *"…Promoting the protection of privately-owned historic buildings is a complex issue which involves balancing interests such as safeguarding private property rights, the prudent use of public money, and meeting public expectations*." The need for new arrangements to provide economic incentives for private owners for heritage conservation is recognized. TDR was proposed as the major incentive to deal with the situation when the private owners want to redevelop any site with possible heritage value. The major transfer process involved negotiation between the ***Development Bureau*** and the private owner, zoning changes by ***Planning Department,*** and a new lease issued by the ***Lands Department***. Before using TDR, an important step is to designate the building as a "monument" or "graded building" (AMO, 2013). However, in practice, no further TDR policy was developed and TDR was carried out on a case by case basis.

(3) Operational Level

Although TDR needs to undergo a rather complicated procedure, only a few regulations can be found. Firstly, the existing framework of density control and the statutory town plans does not allow any TDR to apply across sites that are not contiguous. At present, TDR is only allowed between different parts of the same development site. Secondly, the transfer of development rights is not measured by the value, but, according to the case experience, it transfers equal land area or gross floor area. Thirdly, public consultation is needed on a case by case basis. Fourthly, a conservation easement, which regulates the owner's duties and obligations, is developed and contracted by government and the owner.

6.3 Overview of the TDR Applications in Hong Kong

There have been very few cases of successful implementation of TDR in Hong Kong. Through a review of the scholarly literature, websites and government archive, the following Table 6.1 presents a summary of those TDR cases reported in public.

Table 6. 1 Summary of the TDR applications in Hong Kong

	Built year.	Location	GFA	Arc. style	Level	Use(before and after)	Con. Year.	Transfer to where	picture
1.Tai Fu Tai	1865	Wing Ping Tsuen, Yuen Long		Traditional Chinese	Monument	Traditional Chinese dwelling of the scholar-gentry class;	1980	Adjoining site of the TAI FU TAI where was lychee orchard at that time; now is "Tai Fu Tai Garden"	
2.Ohel Leah Synagague	1901	70 Robinson Road, mid-levels		Eastern Jewish style	Grade I building	Served Hong Kong Jewry for over a hundred years; now is part of the Sheung Wan Route of the Central and Western Heritage Trail since 1999	1986	Neighbouring site behind the heritage; now is "Robinson place" twin residential tower block	
3.Morrison Hall	1936	Hoh Fuk Tong Centre, Tuen Mun	480 sq.m (site area 1250sq. m)	Art Deco style	Monument	Tertiary education by the Dade Institute; not open to public now	2004	Continuous site	

	Built year.	Location	GFA	Arc. style	Level	Use(before and after)	Con. Year.	Transfer to where	picture
4.Lee Theatre	1923	Causeway bay		Modelled after European opera house with traditional Chinese style decoration	Historic building	Historic cinemas Cantonese operas, and films	1995	Was demolished and redeveloped into a shopping plaza. The decoration on both sides of the proscenium arch was preserved and placed at the ground floor lobby of the new building.	
5.Lion house (Pun Uk)	1934	Yuen Long	6500 sq.f	Traditional Chinese	Grade I	Pun family's house	1995	Continuous site	
6.London Mission Building	1893	78/80 Robinson road, mid-levels		Western style	Grade II	Quarters for Missionaries, then accommodation for nurses of Nethersole Hospital, then private clubhouse.	1994	Continuous site	

	Built year.	Location	GFA	Arc. style	Level	Use(before and after)	Con. Year.	Transfer to where	picture
7.King Yin Lei	1936	Stubbs Road, Hong Kong	1,641 m2 (site area is 4,705 m2)	Chinese palatial architecture; "Chinese Renaissance" style	Monument	Residence of two renowned figures; open to the public for visiting in designated date but has not found the proper use in the future	2008	A piece of man-made slope	
8.Sheng Kung Hui	1848	Lower Albert Road in Central	15,115 sq.m	Tudor Revival style; Neo-Gothic; Neo-classical with Baroque style	Three Grade I, One Grade II	Residence and office of the Bishop of Victoria, owned by SKH	2007	Clementi road, Mount Butler, owned by SKH	
9.Ho Tung Garden	1927	The Peak	11520sq.m site area	Chinese Renaissance style	Grade I	Robert Ho Tung and his wife's Villa; it was demolished in 2013	2011	No transfer	

	Built year.	Location	GFA	Arc. style	Level	Use(before and after)	Con. Year.	Transfer to where	picture
10.Johnson road 60/62/64/66	1888-1900	Wanchai	7640 sq.m	Chinese arcade	Grade II Owned by URA	Tenement houses and shop house, "Tong lau"; now used as restaurant	2002	Continuous site	
11.Carrick Building,	1887	23 Coombe Rd, The Peak	6,130 sq.ft. floor area plus 8,775 sf garden	Victoria-style architecture	Graded I	Owned by Cheung Kong Hutchison Holdings	2011	The green belt which is six metres from the Aberdeen Country Park	

Reference: AAB website; AMO website; Government archive; Cody (2002);

Observation of the Overall Cases: The table summarizes the key facts of those TDR cases reported in public. Most of the privately-owned built heritage are the residence of celebrities' in Hong Kong. Of the 11 cases, two cases have failed to use TDR and the heritage buildings are demolished. Others have successfully transferred the development rights to the contiguous sites. One can observe that if the contiguous site is available to accommodate the additional density, the feasibility of TDR implementation would be greater. This overall view of all report cases provides a broad background understanding of TDR applications in Hong Kong and their characteristics and common problematic issues. This provides the basis for selecting the three controversial cases for in-depth case studies in the following sections, which are the most controversial TDR cases reported in Hong Kong.

6.4 Three Controversial Cases

6.4.1 Case One-Sheng Kung Hui Compound

(1) Background

The Hong Kong Sheng Kung Hui Compound (HKSKH), located in Lower Albert Road in Central, is an important religious landmark with four distinct historic buildings. The site has been used as the residence and office of the Bishop of Victoria (Anglican Church) ever since 1848. The total gross floor area (GFA) is 15,115 square meters and the site accommodates kindergartens, hospitals, church and welfare services, theological education and ancillary lodging facilities. Facing the growing needs of the church and

its service provision, HKSKH needs more space to develop.

(2) Value

There are three Grade one buildings namely: The Bishop's House, St. Paul's Church, the Church Guest House (also known as Martin House) and one Grade two buildings named Old Sheng Kung Hui Kei Yan Primary School within the site. (1) Bishop's house is the first building on the site as a boys' school, built in 1845-8. The building then was altered in "collegiate style" and housed St. Paul's College. The building is Tudor Revival style, quite unusual in Hong Kong (Figure 6.1); (2) St. Paul's Church, built in 1911, served the spiritual needs of expatriate British residents and visitors of the Anglican faith. The church is a mix of styles, predominantly Neo-Gothic with features and motifs drawn from Tudor, Dutch and Classical Revival styles (Figure 6.2); (3) The Church Guest House was built in 1919. The main function is residential use, purposely used as the hostel of St. Paul's College. The building is Neo-classical with Baroque style, which is rarely seen in Hong Kong (Figure 6.3); (4) Old Sheng Kung Hui Kei Yan Primary School, built in 1851, the south wing of St. Paul's college, provided English classes to Chinese pupils. It was originally a Tudor Revival style but unfortunately was drastically altered the appearance and height of the old building to a modernist look. Although it lost authenticity, the original structure appeals still there (Figure 6.4) (Historic Building Appraisal report, AMO).

Figure 6. 1 Bishop's House
(http://www.hkcna.hk/content/2011/0615/102702.shtml)

Figure 6. 2 St. Paul's Church
(http://the-sun.on.cc/cnt/news/20120510/00407_068.html)

Figure 6. 3 Church Guest House
(http://www.walkin.hk/cn/2014/03/mingpao)

Figure 6. 4 Old Kei Yan Primary School
(http://applications.chsc.hk/psp2014/pic/building_14.jpg)

(3) Conservation Plan

Due to their historical, architectural, social and group value, as Grade one historic buildings, the Bishop's House, St. Paul's Church, the Church Guest House with outstanding merit, every effort should be made to conserve them, while Old Sheng Kung Hui Kei Yan Primary School, a grade two building, may be selectively conserved. Thus, HKSKH proposed to redevelop the whole compound with conservation of the four historic buildings. However, such plan resulted in the height and bulk of two new buildings inevitably causing an incompatible contrast with the historic buildings and an undesirable visual impact on the surroundings (Figure 6.5). Thus, economic incentives,

and TDR was then proposed in this conservation plan by the government.

(4) Transfer Process

Sending Site: HKSKH proposes to conserve all four historic buildings and construct two new buildings named the community complex and the Lodge Building of 18 and 11 storeys respectively with a total GFA of no more than 36,000m^2. The new buildings accommodate facilities of a church and religious purpose with ancillary accommodation, a kindergarten, medical facilities, social welfare facilities and environmental protection facilities. In order to reduce the site's intensity, HKSKH proposed to relocate some of the existing uses and additional space (11,000m^2 of GFA) to the site at Clementi Road, Mount Butler (LCB, 2011).

Receiving Area: Mount Butler, belonged to the same owner of HKSKH, as the receiving site accommodates a new building (11,000m^2 of GFA) comprising two blocks with the facilities of a complex for theological and other education-related uses together with ancillary religious facilities, an ancillary hostel for students, teaching staff and visitors, and a kindergarten. The Mount Butler site currently only houses a kindergarten (Figure 6.6).

Lease Modification: for the sending site, lease modification for the Central site at nominal premium was made, allowing the facilities stated in the above (see sending site); for the receiving site, in-situ land exchange for the Mount Butler site because the lot would be slightly expanded. HKSKH will be granted a lease term of 50 years (the current

lease will expire in 26 years).

Public Consultation: consultation with the Legislative Council Panel on Development, the Central and Western District Council (DC) and the Antiquities Advisory Board; on-site briefings for members of the Central and Western DC and the Wan Chai DC at the Central site and the Mount Butler site, respectively, on its proposed preservation-cum-development project in April 2011.

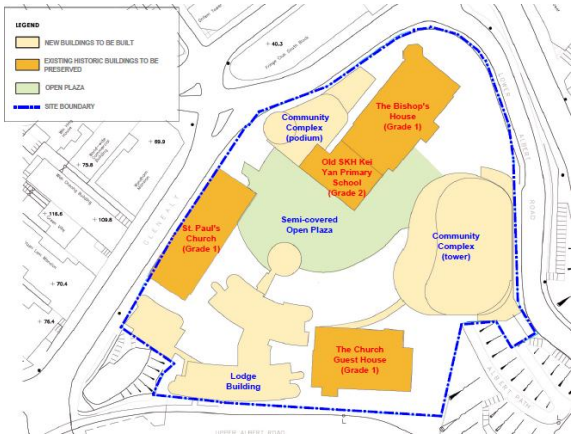


Figure 6. 5 Plan of the heritage site
(Source: LCB, 2011, Annex F)

Figure 6. 6 The receiving site
(Source: District Land Office Plan No. HKM8797-X)

(5) Impact of TDR

From the environmental perspective, the environmental impact of both projects on the Central site and Mount Butler site is minimal. The project of the Central site involve only minimal tree felling or disturbance to the natural greenery of the area; for the project of the Mount Butler site, some tree felling is involved but later will be compensated with tree replanting within the site. These should be approved by the Lands Department. The residents living in the Mount Butler pointed out during the construction period, very

serious traffic jam will occur due to the narrow road there. Dumping trucks and construction waste will affect the residential environmental seriously.

From the social perspective, positively, a group of historic buildings with high value are conserved which retain the wealth to the generations. Additionally, the conservation plan will provide a semi-covered plaza for public enjoyment. The community will benefit from the expanded range of social services after completion of the redevelopment project as well as enhanced public access to the Central site.

However, there are some negative social impacts. Firstly, the goal of the conservation is challenged because of incorporating "commercial" which refers to part of the community building can be rented to the private clinics. The whole plan is facilitated by one developer who takes part in the programme as a private advisor.

Secondly, not enough public consultation on the aspect of revisions of the plan e.g. incorporating commercial use to the GIC land use, increasing the building height, and non-continuous land change, detailed plan introduction to the public, as well as the negative impact to the affected group by the construction work e.g. noise, traffic jam, construction waste. The residents living in the Mount Butler show dissatisfaction, with not enough public consultation with the surrounding residents about the impact brought by the construction work.

Thirdly, when introducing the plan to the public, so much vague information makes the public to not trust the TDR system and lead to doubts that there would be many secrets

under the plan. Fourthly, the HKSKH does not need to pay the land premium on the Mount Butler site, which is challenged by the public because land premium should be paid in every land trading.

From the Institutional perspective, disagreement on the approval procedure about the transfer within the governmental institutional system shows there is not enough cooperation and integrated regulation about TDR procedure among different departments. For example, Town Planning Board members and Legislative Council members queried why the plan was increasing one of the buildings from 13 storeys to 18 storeys, and yet does not required to be submitted for approval by the Town Planning Board. Also, the Development Bureau justified that increase of the building height because of cancellation of the underground work due to the safety consideration of the historic building, which was permitted by the outline zoning (there is no plot ratio or building height about GIC site in the OZPs). Hence, there is no need to submit to the Town Planning Board. Some members argued even if the land exchange is in accordance with the requirements of the Town Planning Board, if the public disagree, the government should submit the plan for approval. Many points make the institutional staff confused. How the public can understand the TDR and justify who is right?

From the economic perspective, the lease modification and in-situ land exchange on a nominal premium basis will not lead to additional expenditure by the government. The construction cost of the preservation-cum-development project will be fully borne by HKSKH. The total cost of the project is estimated at about 1,100million HKD. But the

HKSKH is not able to bear any additional financial burden arising from the payment of land premium.

6.4.2 Case Two-Carrick Building

(1) Background

The “Carrick Building”, located on No. 23 Coombe Road at the Peak, was built in 1887. It used to be the residence of J.J. Francis who was the third barrister in Hong Kong at that time. Since then, the Carrick Building has changed several owners and it is now owned by Cheung Kong Hutchison Holdings, the largest company listed on the main board of The Hong Kong Stock Exchange. The two-storey house, provides 6,130 sq.ft. floor area plus 8,775 sf garden.

(2) Value

The building is a private luxury residential house with Victoria-style architecture, one of the two oldest surviving European houses on The Peak (Historic Building Appraisal report, AMO, Serial No.: N164) (Figure 6.7). Carrick was listed as a Graded I building by AMO in 2011.

Figure 6. 7 Building "Carrick" (Source: Wan Chai District Council, 2014)

Figure 6. 8 The proposed receiving site (Source: Wan Chai District Council, 2014)

(3) Conservation Plan

Subsequently, in 2013, the owner applied to exchange land with the Government. The plan proposed that the owner give "Carrick" to the Government and transfer the development rights totally from the original site to the green belt in the South of Hong Kong Island, a location which is six meters from the Aberdeen Country Park (Figure 6.8). After two years negotiation between the Government, owner and the public, the plan was finally approved by the Town Planning Board (TPB). The TPB rezoned the site opposite to 23 Coombe Road from "Green Belt" to "Residential (Group C)". However, the approval was made under a lot of objections by concerned groups, the public and residents near Coombe Road.

(4) List of Controversial Issues

- It will encourage the owner/developer to racketeer the government that if the government do not satisfy their demand, they will demolish the built heritage.
- The receiving area next to Aberdeen Country Park and near hiking trails, which is

also a bird-watching site for black kites, one of its largest roosts. There will be a dramatic negative visual and environmental impacts in such sensitive area, e.g. the array of columns and bracings below the proposed pool deck have an adverse visual impact; several individuals Artocarpus hypargyreus, threatened species which is assessed as globally Vulnerable by the IUCN Red List, will be affected.

- It create an undesirable precedent to permit the development encroaching the green belt and country park, which is “green lung” important to the city.
- The receiving site, located between Coombe Road and Aberdeen Reservoir Road, is very small steep site. A platform is needed to accommodate a new house, which will result in a great loss of greenery due to the slope stabilization work and engineering structures.
- There is a difference between the plan and the reality e.g. the existing vegetation will be destroyed because the new house is impossible hiding in the trees, which does not tell the truth in the plan which look as the existing trees and vegetation will be retained.
- It violates the social equity principle of the transfer. The value of the receiving site the developer wants is obviously higher than the heritage site e.g.a much better view.
- Coombe road, a very narrow road, cannot support more development.
- Residents of Carolina Gardens at Coombe Road opposed to this project in January 2014 and voiced many of the same concerns.
- It is unacceptable that green belt adjacent to the Country Park is sacrificed in a land exchange from government to a developer.

- It is against the planning intention to rezone the subject site from “Green Belt” to “Residential (Group C) 6” zone.
- The concern group questioned “Where is the balance point between keeping our valuable natural environment and heritage?” The green belt is of high conservation value as the forest habitat formed a continuous patch extending from the neighbouring Aberdeen Country Park. The integrity and connectivity of the forest habitat will be undermined in the Peak and Aberdeen areas.

6.4.3 Case Three- Ho Tung Garden

(1) Background

Ho Tung Gardens, known as 'Hiu Kok Yuen' in Cantonese name, was a villa on The Peak in Hong Kong. It was built by Robert Hotung and his wife Clara in 1927 on a site of 11,520 square metres. In 2011, it was listed as a Grade I historic building by the Antiquities Advisory Board (AAB). The owner, Hotung's granddaughter, submitted the redevelop plan of the site to the Buildings Department for permission in mid-2010, which had gained the approval as it satisfied planning requirements. According to the plan, the 2-storey building would be demolished and 11 blocks of four-storey houses would be built instead, a total floor area 60,000 square feet. In recognition of the high heritage merit and architectural value, it was declared a "proposed historic monument" by the Government of Hong Kong in 2011, which imposed a 12-month moratorium on redevelopment of the site and pended negotiations with the owner. However, negotiations between the owner and the government using TDR to save the mansion

failed in the end, and demolition work was completed in October 2013.

Figure 6. 9 Photo of Ho Tung Garden
(Source: Development Bureau)

(2) Value

Architecturally, "The main residence is basically two-storied in Chinese Renaissance style, with painted walls and rectangular windows of various sizes (Figure 6.9). A square tower with a Chinese tiled roof but resembling an Italianate campanile with arched windows and doorway is a striking feature of the main house. The pavilions and the pagoda in the site are reinforced concrete structures with Chinese tiled roofs. Ho Tung Gardens exemplifies a mixture of Chinese and Western cultural elements, and thus it gives expression to a unique culture in Hong Kong, where the East meets and integrates with the West". Historically, Ho Tung Gardens is the only remaining residence directly related to Sir Robert Ho Tung in Hong Kong. Who is an important historic figure not only in the history of Hong Kong but also in the history of modern China.

(3) Conservation Plan

In order to conserve the garden, the government proposed a land swap for the site,

encompassing two adjacent "green belt" sites surrounding the site, as well as two other plots of land within the garden which are of less heritage value, including a tennis court and a car port. The combined site, with a plot ratio of 0.5 and allowing for the construction of 10 low-density villas of not more than four floors each, would have been big enough that will give the owner almost the same development potential.

(4) Reasons' of the Failure

The owner disagreed with the transfer due to the different land development potential between the original site and the proposed site, for example, better view, more privacy of the original site, while more time-consuming of shaping the gradient land of the proposed site and waiting for the approval of changing the land use from green area to residential use. Additionally, the great different attitude on the value of the garden between the owner and government made the negotiation more difficult to be aligned. For example, the owner supposed that the garden has less historical value but the sites after redeveloped were valued at HK$7 billion, however the government considered the garden high historical value but the evaluation of the land value is about HK$3 billion. Some critics argue the owner feel their property right is being violated because the government without clear conservation policy and detailed procedures, declared the building as monument right after it noticed the owner planned to demolish the building.

6.5 Major issues of TDR in Hong Kong

The following issues were identified by the authors' comprehensive analysis of various

sources and comparison of the two cases. In-depth interviews were then carried out with different stakeholders about the issues. The interviewees show a general agreement with the identified issues and they also provide further elaborations on these issues and the potential recommendations as presented in the following sections.

(1) Lack of legal foundation for TDR

When the government proposes TDR as an incentive for heritage conservation, some owners take this opportunity to pursue their own economic benefit. They argue and play "games" with the government. In order to satisfy the private owner's requirement, the government makes every effort to find a receiving area for the TDR. If the government cannot satisfy their demand, they will demolish the built heritage without receiving any punishment.

Ho Tung Garden is such an example to illustrate this point. It is expected that few countries will let the private owner enjoy such a freedom. The opportunities for personal gain through rapid economic growth, property development and profit-making provide strong incentives for the private owners, who have no interest to sacrifice their profit for heritage conservation (Yung and Chan, 2012).

In the last two decades, the Hong Kong Government and citizens pay more attention to the heritage conservation. However, under the current legal foundation for TDR, there is still not sufficient mandatory basis to protect the privately-owned built heritage. The critics say "…*if every time the owner says they want to demolish the old building, the*

government looks for alternative land to transfer, which will encourages more and more owner/developers to blackmail the government."

(2) Conflict of TDR with nature conservation

For any ad hoc application of TDR that is not anticipated in zoning plans, it is difficult to transfer the development right to the built-up areas. By transferring the development to uninhabited land, a serious conflict between TDR and nature conservation exists.

In the case of the Carrick Building, one District Councillor said *"...the receiving area is next to Aberdeen Country Park and near hiking trails, which is also a bird-watching site for Black Kites, one of its largest roosts. There will be a dramatic negative visual and environmental impact in such a sensitive area, e.g. the array of columns and bracings below the proposed pool deck will have an adverse visual impact; also, several individual plants with common name Kwai Muk (Artocarpus hypargyreus), are already threatened species, assessed as globally vulnerable on the The International Union for the Conservation of Nature (IUCN) Red List, will be affected...*"

In addition, the receiving site, located between Coombe Road and Aberdeen Reservoir Road, is a very small steep site. A platform is needed to accommodate a new house, which will result in a great loss of greenery due to the slope stabilization work and engineering structures. The concern group questioned "*Where is the balance point between keeping our valuable natural environment and heritage*?" The green belt is of high conservation value as the forest habitat forms a continuous patch extending from

the neighbouring Aberdeen Country Park. The integrity and connectivity of the forest habitat will be undermined in the Peak and Aberdeen areas. In the case of SKHC, the construction work also involves tree felling or disturbance to the natural greenery of the area.

A real "win-win" solution refers to sustainable development, such that the conservation of both our natural environment and historic buildings can be achieved without compromising one for another. It should not be considered narrowly as the method which can save the government public funding and at the same time bring the owner economic benefit. The "win-win" solution should be evaluated from the perspective of social, economic, and environmental aspects. Otherwise, it will leave a "Tumour" for natural conservation, if it irresponsibly arranges a receiving site in order to conserve the "Carrick" building in such a hurry. It will lead to a vicious circle for urban development.

(3) Conflict of TDR with Land Use Planning and Urban Planning

There is no clear policy or specific legislation to regulate transfer of plot ratio between different zones, especially when the change of zone conflicts with its original planning intention. In the case of Carrick Building, one of the NPO argued "*approval of the plan creates an undesirable precedent to permit the development to encroach the green belt and country park, which is a "green lung" important to the city*." It is against the planning intention to rezone the subject site from "Green Belt" to "Residential (Group C) 6" zone. In addition, Coombe Road, is already very narrow road, and cannot support more development.

In the case of SKHC, the plan has incorporated the community building that can be rented to the private clinics injecting “commercial” factors to the GIC land, , which is also not permitted without the special approval and public consultation. Additionally, any development would worsen traffic on Mount Butler Road.

(4) Institutional Cooperation Problems

In the case of SKHC, the plan cancelled the underground work while increasing the number of storeys above the ground. However, these changes were made without consultation, which led to a challenge by the Town Planning Board and the Legislative Council. The Development Bureau agreed to the cancellation of the underground work due to safety considerations of the historic building, and also agreed to the increase in height, which was permitted by the outline zoning plans (OZP) because there is no plot ratio or building height restriction for GIC site in the OZPs. Hence, SKHC claimed there was no need to submit the revised plan to the Town Planning Board for consultation. While some members argued that even if the land exchange was in accordance with the requirements of the Town Planning Board, if the public disagreed, the Government should submit the plan for approval. Disagreement on the approval procedure about the transfer within the governmental institutional system shows that there is not enough cooperation or integrated regulations for TDR procedure among different departments.

Based on this review of the Hong Kong institutional framework, it can be found that there is no entity in charge of all aspects of built heritage conservation. The only two government agencies related to built heritage conservation, CHO and AMO, are

administered under different departments, which results in difficulty in the cooperation between the two. In addition, neither of the two agencies have decision-making power. TDR is related to so many different departments, so that making decisions on a case-by-case method without any clear policy or regulations, nor any published code of practice or guidelines will make each department very uncertain about what it can do to help TDR. The situation will result in a lack of coherency and conformity, and create tremendous problems at the operational level. There is also a very serious problem that the owners hesitate to participate in the TDR. They worry about affording too much time cost waiting for the application process, which was also one of the reasons that the HTG's owner disagrees with the TDR plan.

(5) Lack of Regulation to Ensure Social Equity

TDR in Hong Kong involves social equity problems. Firstly, the questions on 'who pays for the conservation and who benefits' is a controversial debate. In the case of "Carrick", the receiving site was " green-field " and transferring the development to this area, in fact, used the public land to compensate the private owner. The owner has no loss. However, the residents near the receiving site suffer the additional development density, loss of greenery space and negative impacts due to the construction activities. The residents living in the Mount Butler area expressed their dissatisfaction about the negative impact during the construction period. They said the negative impacts included *"...very serious traffic jams due to the narrow road, dumping trucks and construction waste. We were not told about these interruptions during the construction*

period" "*It is unacceptable that a green belt site adjacent to the Country Park is sacrificed in land exchange from government to a developer*." Sacrificing the natural environment to preserve a built heritage with uncertain value to the public is questionable. Some District Councillors point out that, as members of society, the owners have the responsibility to conserve the built heritage and should not claim private benefit through the built heritage conservation.

Secondly, how to ensure equal value is transferred? It is proposed by the government that the receiving site should be in a close location, and with the similar conditions to the original site. But, in the case of "Carrick", the value of the receiving site proposed by the developer was obviously higher than the heritage site e.g. with a much better view. Such an outcome would be challenged by the public as to whether or not the project involved government- business collusion.

Thirdly, what is the goal for conservation? In the case of SKHC, it aims to serve the public better when proposing the transfer plan to the government. However, the whole plan was facilitated by one developer who took part in the programme as a private advisory agent. The SKHC did not need to pay the land premium on the Mount Butler site, an outcome which is strongly challenged by the public because a land premium should be paid in every land transaction. For TDR, a market-based incentive, the principle of social equity is very important (Chan and Hou, 2015). If people find the programme unfair, it will lose more and more participants that make it a success.

(6) Public Participation Problems

Hong Kong has been lacking effective public participation mechanisms (Yung and Chan, 2011). Firstly, vague and insufficient information was provided to the public when conducting consultation or workshops. In the case of SKHC, one representative argued *"...when introducing the plan to the public, the government did not tell the public the new building will incorporate commercial functions.*" Vague information leads the public to mistrust the TDR system and to doubts about whether there will be any hidden agenda in the plan.

Secondly, the public only have the right to know the plan and express their idea, but no decision-making power. In the case of "Carrick", there were so many objections from surrounding residents, public, District Councillor, and NPOs, etc.. Nevertheless, the plan was approved.

Thirdly, the public participation is often like a "political show". In the case of "Carrick", in fact, there was a difference between the plan and the reality. For example, much of the existing vegetation was destroyed, because it is impossible for the new house to be hiding in the trees as shown on the plans. These idealized images do not tell the truth as to the likely condition of existing trees and vegetation after construction work is finished. The critics say sometimes the public's ideas cannot change the plan, which is often already decided and public participation is regarded as merely a procedure, paying lip-service to the ideals of planning. For both the case of "Carrick" and SKHC, not enough public participation was organized and the residents were not informed of the serious traffic problems during the subsequent construction period.

6.6 Discussion on the Three Levels in the Institutional Framework in Practice

In summary, it was found that the three levels of institutions governing the TDR, namely ***Constitutional***, ***Governance*** and ***Operational***, are inadequate to form an effective system. The Hong Kong Government does not have strong powers for built heritage conservation, which, in turn, provides a weak foundation for adopting effective TDR. From the ***Constitutional level***, TDR does not have legislative power. There is no specific TDR ordinance, and related laws do not include TDR. From the ***Governance level,*** conservation policy does not establish the role of TDR clearly. It was originally proposed as an incentive, but in application it is impaired, as there is no TDR implementation policy. From the ***Operational level,*** it is lacking detailed TDR regulations, code of practice or guidelines.

The institutional arrangements of TDR in Hong Kong in practice, do not match the theory of institutional arrangements. The constitutional level cannot provide sufficient legal basis and guidance to the governance level nor the operational level, and the governance level cannot play a coordination role between the constitutional level and the operational level. TDR mainly relies on the limited practice experience from the operational level, and yet, insufficient clear regulations are set. Since the TDR cases so far have been implemented on a case-by-case approach, these do not set sufficient precedent for future cases to follow. As such, in every case, the owner may negotiate afresh for the best compensation and/or incentives from the government, a process which

takes excessive time and encounters uncertainties.

The above issues identified could be mitigated by a more effective institutional arrangement. Based on the review of the Hong Kong institutional arrangement for TDR, the analysis of two controversial cases, and suggestions from the interviewees, a new conceptual institutional framework (Table 6.2) is proposed and discussed in the following paragraphs.

From the ***Constitutional level***, the legal basis for TDR in Hong Kong is not sufficiently developed. Firstly, depending only on government to look for alternative sites is not sustainable for TDR. There are over 1000 privately-owned graded buildings which are not protected by law. The government should enact legislation to enhance its power for the conservation of the built heritage. If the built heritage framework is made such that it is not that easy for target buildings to be demolished, TDR will be a good choice for the owner. Secondly, related ordinances and regulations e.g. land use policy, environmental regulation, urban planning, building ordinances, should add in provisions for the TDR to make it more formalized. For example, some interviewees proposed designating the potential receiving site first in the zoning plan, and then the government departments are more certain about their roles, with the result that implementation of TDR will be well-coordinated.

From the ***Governance level***, it is necessary to re-arrange the governance structure and to develop clear TDR policy and procedures. Specifically, there is a need to establish an agency in charge of all aspects of TDR. Each related department including Lands

Department, Planning Department, Buildings Department, and Environmental Protection Department should clearly add in their respective duties /responsibilities for implementing TDR. It would be helpful to engage in educating the public to participate in the conservation activity, conducting workshops to let the public know how the TDR works, and organizing various forms of public participation for TDR programmes. For example, some interviewees proposed letting the community choose a receiving site by themselves. This would help reduce the conflicts of TDR cases and increase the public's sense of belonging with the private heritage. In addition, strategies to ensure social equity would be helpful for TDR to win more participants. Due to the characteristics of TDR being incentive driven, strategies for maintaining equity are important to avoid TDR goal being mis-appropriated by solely the developer's interest.

From the ***Operational level***, detailed transfer regulations and guidelines should be developed, as wished by many of the interviewees. For example, setting transfer ratios and land valuation criteria will help the transfer to have a clear and transparent basis. Designating the potential receiving site in advance helps to eliminate the time cost and ad hoc conflicts of the programmes. Evaluating the traffic and environmental capacity objectively can promote social equity and guarantee the surrounding residents will not suffer too much. Issuing contractual obligations for the TDR participants guarantees the owner/developer does not just enjoy the development but also motivates efforts for conservation. Although the case-by-case method allows TDR to be flexible for different cases, it will generate so many uncertainties such as delay of application process, public objections, unclear transfer schedule and value. These uncertainties make people lose

trust in the transfer system and then they are unwilling to participate in TDR. Thus, formal rules should be developed and publicized to increase certainty of outcomes, although informal rules in terms of guidelines are also necessary for keeping sufficient flexibility to recognize that each piece of land has its own unique characteristics.

Table 6. 2 Conceptual institutional framework for implementing TDR

	Constitutional Level	Governance Level	Operational Level
Instruments to facilitate implementation of TDR at different institutional levels	TDR Ordinance	TDR policy and procedure	TDR Contractual obligations
	Conservation law	Land use control	Land evaluation
	Land use planning	Planning control	Designation of receiving site
	Town planning Ordinance	Environmental control	Environment capacity
	Environment Ordinance	Building control	Traffic capacity
	Building Ordinance	Public education and participation	Social equity rules
	Delegation of governance	Governance structure	Informal rules

6.7 Summary of the Key Issues Arising from the Hong Kong Case

This part of the research highlights how improved institutional arrangements can help TDR programmes in practice. TDR can be a good method for conservation of privately-owned built heritage in theory. However, the difficulties are in the practical problems of implementation. If the government does not make effective institutional arrangements for TDR, it will continue to lead to many conflicts. In turn, these will undermine the TDR potential and conservation goals in favour of "development" or allow for "appropriation by development interest".

In-depth analysis of three cases in Hong Kong shows the conflicts of TDR with the existing planning and conservation system, as well as the threats to the public interests due to the economic pursuits of the private sector. Two socially and historically

significant TDR cases, the Sheng Kung Hui Compound and Carrick Building were used to demonstrate some of the institutional issues in the TDR. In Hong Kong, the institutional arrangements for TDR are not comprehensive and are too uncoordinated, which are far from sufficient to guide the practice. From our study, the lack of a solid legal foundation, and the experience of so many conflicts with the nature conservation and planning systems for land use, reflects that, in current practice, institutional arrangements at both constitutional and governance levels for TDR are ineffective. Problems with social equity and public participation reflect that TDR is lacking detailed regulation from the governance and operational levels. There are no certain rules for reference, and so the programmes can be exploited for the interest of development only, to the neglect of preserving heritage.

The conceptual framework based on this study, lists the major aspects that should be considered from the constitutional, governance and operational perspectives when preparing for TDR programmes. The lessons learned from current practice of TDR in Hong Kong, as seen through the proposed framework in this paper, will also offer relevant insights to other cities, particularly for dense cities.

CHAPTER 7 DISCUSSION AND RESEARCH HIGHLIGHTS

7.1 Introduction

This chapter summarizes all the findings and develops the recommendations and conclusions of the thesis. It first presents the triangulating analysis of all the findings, and then carries out discussions and recommendations to show how the research has addressed the research questions, followed by policy implications for Hong Kong. Finally, this chapter presents its contributions to the existing knowledge. This chapter concludes with a discussion of the limitations of the study and explores future possible research on TDR for built heritage conservation.

7.2 Triangulation of Findings

Through different research methods, this research has obtained 4 sets of findings, namely from TDR and property rights analysis, TDR success framework, International comparison studies, and Hong Kong case study. These findings are analyzed through triangulating process to consolidate a set of overall results to address the research questions set out in the beginning of this thesis (Table. 7.1). The follow discusses how the results address the four research questions.

In addition, based on the success framework developed in Chapter 4, a range of policy options for TDR are developed (Table 7.2) based on the study as presented in previous

chapters and the triangulation analysis. The policy options range from low authority power to high authority power for the policy-makers to select the proper ones to suit their situations.

Table 7. 1 Triangulation analysis of the research findings

	Findings from Chapter 3 TDR and property rights	Findings from Chapter 4 Framework of success factors for TDR	Findings from Chapter 5 Comparison/local interview/NC case study	Findings from Chapter 6 Hong Kong case	Remarks (consolidated findings)
Question1: Relationship among property rights, TDR and zoning	Zoning will affect or attenuate the value of private property right; property rights will set barriers to the implementation of zoning; TDR can mitigate the impact between zoning and property rights; clear definition of property rights and integration of TDR with zoning can help to TDR implementation	Minimal zoning changes and variance is considered as success factor; environmental sustainability of TDR is important which prevent from the decrease of the value of the surrounding residents' property	Incorporating TDR in planning mechanism especial consistency of TDR with zoning; maximum development is confined by the physical capacity of receiving site actually guarantee the value of property in the receiving site and surrounding site. However, TDR is not the only means as mitigation role between property rights and zoning. If the property is not expensive the government can buy it	Basic law protect the private property make conservation in Hong Kong difficult; Conflicts between TDR and planning make TDR controversial	Property rights and zoning negatively impact each other; TDR can act as mitigation role in high density development areas with high land price and housing price; integration of TDR with zoning is important for successful TDR; however, poor design of TDR will affect property value in the surrounding site
Question2: Success factors to TDR	Market efficiency and low transaction cost can make TDR serve better as mitigation role of the attenuation of property rights due to government regulations	7 criteria and 22 determinants contribute to successful TDR	6 factors have most policy approaches, named legislation, incorporating TDR in planning mechanism, government support, public support and maximum development and physical	Legal foundation for TDR; consistency with planning; institutional cooperation; social equity; public participation	7 criteria and 22 determinants constitute success framework, of which legislation, incorporating TDR in planning mechanism, government support,

	Findings from Chapter 3 TDR and property rights	Findings from Chapter 4 Framework of success factors for TDR	Findings from Chapter 5 Comparison/local interview/NC case study	Findings from Chapter 6 Hong Kong case	Remarks (consolidated findings)
			capacity to handle the increased density.		public support are much more important and necessary for developing TDR market, which lay a solid foundation for other factors.
Question3: Difficulties and controversial of TDR in Hong Kong	Inefficiency market problems including not enough demand for TDR; owners are not willing to participate; difficult to find receiving areas; unstable real estate market and high transaction cost especially uncertainty due to no clear TDR policy	Case-by-case TDR is not sustainable; very few people no the details of TDR; every time is the owner want to demolish the building and government propose TDR; Whether TDR can be successfully legislated needs to be further explored	no TDR policy and supporting policy; not enough government support; not enough public support	Lack legal foundation for TDR; conflicts with land use planning, urban planning, and nature conservation; institutional cooperation problems; lack regulation to social equity; public participation problems	Three levels of institutions governing the TDR, namely constitutional, governance and operational, are inadequate to form an effective system; case by case is flexible but not sustainable
Question4: Implementation of the success factors in Q2	formal TDR with legislation and clear policy and regulations help to increase market efficiency and decrease the transaction cost compared to informal TDR; formal TDR include formal	The exploration of implementing these factors based on the success framework.	Six factors are identified have most policy approaches, which help to implement other factors. Government support and institutional arrangement are significant. Technical problems are not	Three levels of conceptual institutional framework are proposed, which have some options from different levels of	Institutional arrangement helps to implement TDR success factors, of which incorporating TDR in planning mechanism and government support

	Findings from Chapter 3 TDR and property rights	Findings from Chapter 4 Framework of success factors for TDR	Findings from Chapter 5 Comparison/local interview/NC case study	Findings from Chapter 6 Hong Kong case	Remarks (consolidated findings)
	rules and informal rules		difficult to deal with if clear policy and objective have been developed. This chapter gives some options for implementing success factors.	institutional arrangement	are most important.. Policy options from the international comparison and local interview are useful. Analysis using Hong Kong cases helps to make success factors into local context

Table 7. 2 Framework for TDR implementation: Range of policy options

Criteria	Determinants	Range of options					
		Low authority power	**Medium authority power**		**High authority power**		
Political acceptability	**Legislation**	No legislation	TDR ordinance		TDR ordinance; Include in other related legislation e.g. Preservation ordinance/urban planning law		
	Zoning changes	Zoning changes individually before transfer	Designated heritage area can use TDR and receiving area		Designated additional density in different zones through TDR		
	Incorporating TDR in planning mechanism	No coordination with other planning	In conservation plan	Specialized plan/regulation (e.g. traffic regulation)	Comprehensive plan/land use plan		
TDR leadership	**Authority of the administering agency**	No authority, staff on secondment	The agency special for TDR but no authority e.g. Central processing union		Authority of a independent agency special for TDR		
	Government support	Public education; Public hearing	TDR regulation; policy; leadership; database	Strengthen the private built heritage conservation	Few alternative to get additional development except TDR	Amendment of plans and ordinance to include TDR	
	review mechanisms and protocols for updating TDR values	No such mechanism	Review by related departments when needed	Review by related departments at a fix schedule	Required by TDR Ordinance		
	No delayed	Not violate public interest	Clear TDR regulation		Consistency with zoning	TDR legislation and process is clearly set	
Public support	**Good information**	Brochures, guidelines, website	Outings and educational programmes to present the benefits of preservation by Oversight commission		Cooperative in the regional conservation process with some development company private parties		
	Neighbors not oppose	No not care	Public consultation timely; public		Compensation		

Criteria	Determinants	Range of options				
		Low authority power	**Medium authority power**		**High authority power**	
			education			
	Timely key participant involvement	The same as public participation in zoning	Arrange public participation for TDR	Fix schedule from beginning to the end of TDR	TDR Ordinance to regulate when involved participation	
	Community monitor mechanism	Monitor the maintenance of heritage site	Power to choose which building to preserve and receiving site		Power to make decision	
Social equity	**Value of the building after transfer to the public**	Money investment	New function+ develop revitalize		New function+ develop revitalize+ environment	
	Transfer ratio	Depend on negotiation case by case	Develop valuation criteria		TDR Ordinance regulation in different areas	
Simplicity	**Developers and landowners can understand**	Illustrate to the participant how TDR carried out	Brochures, guidelines on the website to illustrate how to transfer		Special agency in charge of publicize and reveal the TDR cases timely	
	Easy for the government staff to administer	Illustrate to the staff involved in TDR how it carried out	Uniform Calculation and process let the staff know; training the staff		TDR regulation	TDR Ordinance
Market incentive		Negotiation on additional density; less transaction cost; Affordable TDR price; land premium decrease;	Develop criteria for TDR to check what incentive is proper		Different additional density for different receiving sites in TDR ordinance or zoning on the potential area	
Environment		Scrutinizing the receiving site(transportation, water and sewer, waste disposal and fire protection)	Clearly requirements of designated receiving areas,		Environment sustainability; consistency with natural conservation	"Adequate facilities ordinance"

7.3 Discussion and Recommendations for Policy-Makers

Based on the analysis as presented in Table 7.1, the consolidated issues and recommendations are discussed in the following:

7.3.1 Property Rights, TDR and Zoning Closely Impact Each Other

Development rights are important parts of the bundles of property rights. If development rights can be separated from the bundles of the property rights, it can be transferred to other sites. The relationship among property rights, TDR and zoning can be described as following:

(1) Property rights and zoning constrain each other, as zoning will affect or attenuate the value of private property rights. In turn, taking property rights into consideration will make the implementation of zoning difficult due to unclear impact on property rights, and high compensation for the affected rights etc. (2) TDR can reduce the negative impact of property rights and zoning to each other. TDR is a "mitigation" agent for the attenuation of the development value of the heritage building due to government's regulations and it also mitigates the difficulties of the implementation of zoning due to the problems of private property rights. (3) Clear definition of TDR and integration with zoning control can enhance the implementation of TDR.

However, in practice a poorly design TDR will result in decrease of the property value and the economic loss of the private property owner. Ineffective market and transaction

costs are identified as the two major barriers to the TDR as a good mitigation method. Through analysis of inefficiency market and transaction costs in TDR in Hong Kong, the research identifies formal TDR can be very help to mitigate the market inefficiency problems of TDR by the fact that with formal requirements it can develop good supporting policy and incentives to promote TDR; it can changes the public attitude to built heritage and TDR, and it can include TDR receiving site in the related zoning or heritage conservation plan to create for operational certainty. It also helps to eliminate the problems of government failure in establishing a complete transfer system, providing open transfer information and clear procedure, and setting up fixed compensation rules.

Formal TDR with certainty in law can reduce the transaction costs of TDR coming from time consumption and the uncertainty of the result, which are the major contributors of transaction costs in TDR. After the analyzing why these problems exist, the research concludes that markets for TDR need the government administrations to establish market rules and to promote them by reducing transaction costs as much as possible. Although, formal TDR with legislation and clear regulations help to increase market efficiency and decrease the transaction costs, some of informal rules, in term guidelines will still be needed to provide flexibility in dealing with complicated TDR programme.

7.3.2 TDR Success Factors for Conservation of Built Heritage

Seven criteria, namely: political acceptability; TDR leadership; public support; social equity; simplicity; market incentive; and environment are identified in the success framework for TDR under three themes of Regulatory, Community and TDR

Programme characteristics which have been analyzed from the perspective of institutional, social, economical and environmental. A total of 22 determinants are identified in the framework, of which “legislation for TDR”, “incorporating TDR in planning mechanism”, “government support”, “public support”, “maximum development of receiving site”, and “physical capacity to handle the increased density” are the significant factors for developing TDR market. They lay a strong foundation for other success factors.

The key issues under the seven criteria the success of TDR are as follows. For the political acceptability, the framework proposed in this study considers legislation, zoning plans, and built heritage conservation as evidence of good political and legal foundations for successful TDR programmes. The form of the TDR leadership (e.g., whether to establish a new TDR agency/ office/ team) is important and the working mechanism of the leadership should be refined. For the public support, exploring the ways for the public to get information about TDR and to participate in the TDR programmes in the right manner at the right time is important. “Community monitor mechanism” is proposed to promote better public participation.

Social equity to ensure that the stakeholders have an equal access and use of TDR is important for the market-based tool. It should also ensure the heritage is valuable to the public and not use the public resource to compensate the private property. Simplicity is essential to ensure both the developers and the owner can understand the programmes and easy for municipal staff to administer the TDR programmes. Developing attractive

market incentives are the key criteria to successful TDR, e.g. enhanced transfer ratio, sufficient compensation, affordable TDR price, maximum development potential of the receiving site, and low transaction cost. Compatibility with the master plan, zoning plan and design standards, minimal disturbance to the existing environment, and physical capability to handle increased density are identified as the major factors to environment sustainability. Environmental sustainability of TDR is important which may avoid the decrease of the value of the surrounding residents' property. These factors help to contribute to the effective TDR market, which help TDR to play a mitigation role on the property rights due to government regulations.

7.3.3 Difficulties and Controversial Issues of TDR in Hong Kong

Problems with the inefficient market of TDR in Hong Kong includes not enough demand for TDR; owners' unwillingness to participate; difficulties to find receiving areas; unstable real estate market and high transaction costs, especially due to unclear TDR policy. If TDR have no effective market, the owners' property will incur economic loss.

Six major controversial issues in TDR are identified, namely: (1) the lack of a legal foundation for TDR; (2) conflict of TDR with nature conservation; (3) conflict of TDR with land use and urban planning; (4) problems of cooperation between stakeholder institutions; (5) lack of regulation to ensure social equity, and (6) problems with public participation.

It was found that the three levels of institutions governing the TDR, namely

Constitutional, Governance and ***Operational,*** are inadequate to form an effective system. The Hong Kong government does not have strong powers for built heritage conservation, which, in turn, provides a weak foundation for adopting effective TDR. The institutional arrangements of TDR in Hong Kong in practice, do not match the theory of institutional arrangements. The constitutional level cannot provide sufficient legal basis and guidance to the governance or the operational levels, and the governance level cannot play a coordination role between the constitutional and the operational levels. Implementation of TDR mainly relies on the limited practice experience from the operational level, and yet, regulations or guidelines are insufficient.

7.3.4 Implementing the Success Factors of TDR

The research reveals the gaps between the theory and practice of TDR, such that in applying TDR, there are often conflicts with planning systems and threats to the public interest. The results show that much effort should be made to minimize the bi-lateral challenge between the private sector's development interests and the public's conservation goals.

A conceptual framework for implementing TDR is developed to enhance the institutional framework for TDR. ***From the constitutional level,*** enacting TDR ordinance, incorporating TDR into the laws such as conservation law, land use planning, town planning ordinance, environment ordinance, and building ordinance, delegating of governance for TDR is necessary. ***From the governance level,*** except TDR policy and procedure, controls like land use control, planning control, environmental control, and

building control should include TDR implementation provisions. ***From the operational level,*** TDR contractual obligations, land evaluation, designation of receiving site, environment capacity, traffic capacity, social equity rules should be developed to regulate the TDR programmes. In addition, Formal TDR with legislation and clear policy and regulations help to increase market efficiency and decrease the transaction cost compared to informal TDR.

As TDR is a complex mechanism related to many fields of urban studies, only legislation TDR will not generate demands for TDR. It needs cooperation and support of related fields such as policy strengthening the conservation of privately owned built heritage. Without the supporting policy, even the clear TDR regulations are in place, it is difficult to implement TDR. Improvement of related institutions and the integration of TDR with existing planning mechanism are extremely important and necessary to TDR success. Thus, cities like Hong Kong at the beginning exploration of TDR and with weak progress on built heritage conservation, TDR implementations have to rely heavily on government support. TDR depends on government administrations taking steps to establish market rules and to promote them, reducing transaction costs and winning the public support for government's action.

Educating the community, providing public with sufficient TDR information and letting the community participate in select receiving areas are the three most popular practices to promote public support. Other forms of public support such as incorporating social equity and sharing decision power with the public need further exploration in order to

put TDR into practice. Clear requirements for assessing physical capacity of receiving sites is also essential for not attenuate the property value of surrounding residents. However, it was opined that such technical problems are not difficult to deal with.

7.4 Policy Implications

The policy options as presented in Table 7.2 ranging from low authority power to high authority power provide a guiding principle for policy-makers to select the proper options to suit the situations in different cities. From the international studies, based on the cities with successful experience of TDR programmes, for the factor of legislation, about 50% of the cities use medium authority power, of which a few cities utilize high authority power, such that they not only have a TDR Ordinance (or Act) but also include TDR in the related laws, such as with Town Planning legislation.

For the factor of consistency with zoning, most of the cities choose legal instruments of high authority power, from which can be seen the importance of integrating TDR with town plan zoning. For the factor of including TDR in other planning mechanisms, cities often adopt authority power of either medium or high power. For the criteria of TDR leadership, the degree of government support often belongs to the high authority power by cities with successful experience of TDR programmes. However, this is beyond our imagination that such market-based mechanism can operate successfully without much government support. On the contrary, it still needs government intervention to develop regulations and create conditions for an effective market.

Other aspects of the leadership belongs to the medium authority power. For the public support, most of the cities adopt medium authority power, which may be because the mechanism of public support still needs to be improved, not only in the field of TDR. For the social equity and simplicity, most of the cities have high authority power which is necessary for the market-based tool. If the mechanism for TDR is too difficult to understand, or is perceived as being unfair, people are not willing to participate.

The criteria of market incentive and environment are two criteria that impact closely with each other, so that the more the incentives are provided to the participants, the higher the possibility of the environment is to be threatened. In turn, the more attention to the environment, the much stricter are the incentives provided. Thus, most of the cities adopt medium power to these two criteria, while there are only a few cities that utilize high authority power, which have less flexibility compared to those using the medium power, but the latter can create a more sustainable environment.

Based on the options analysis in Table 7.2, the policy implications for Hong Kong are summarized as follows: For political acceptability, it is not the right time to discuss legislation since the TDR foundation has not yet been laid. Designating the potential conservation site and receiving areas for TDR in zoning and including TDR in the conservation plan are appropriate for Hong Kong to avoid political challenges.

For the TDR leadership, a governing agency specially set up for TDR is needed to be in charge of all matters relating to TDR programmes. The government support should cover the range of policy options from low authority power to high authority power which

include: educating the public; enhancing public hearings; strengthening the conservation of private built heritage; amendment of plans to include TDR; and setting up a review mechanism for TDR at a fixed time schedule.

For public support, various ways of providing information about good practice of TDR to the public is needed. Mechanisms of public participation should be developed. For example: (a) the appropriate timing for public participation at a fixed schedule should be carried out; and (b) letting the community have a bigger say in selecting the receiving site.

The problems of transfer ratio, simplicity to be understood, market incentives and environmental issues, are of a technical nature, and are not difficult to deal with. The need for regulation of TDR in Hong Kong falls within the range of "medium authority power", because the alternatives are not yet feasible. A low authority power approach, such as in a case-by-case approach is not sustainable, while a high power option is difficult to be designed, at the current stage of limited experience with the few implemented TDR cases.

7.5 Research Contributions

The contributions of this study could be viewed from two different perspectives; i.e. (a) the contributions to the body of academic knowledge; and (b) reference for policy-makers worldwide

7.5.1 Contribution to Academic Knowledge

The research examines the role of TDR from the property rights perspective, by exploring the relationship among property rights, zoning and TDR, and enhancing the TDR from the perspective of institutional arrangements. This research provides a strong theoretical foundation for TDR from the perspective of property rights and institutional considerations. In addition, there are only a few studies about the successful implementation of TDR for built heritage conservation programmes, and this research develops a novel framework of success factors for TDR for the conservation of privately-owned built heritage.

7.5.2 Contribution to Urban Policy-makers Worldwide

The research identifies the market problems, transaction costs and institutional arrangement problems and controversies in TDR cases, using Hong Kong as an example. It can be seen clearly what the difficulties are, why the difficulties exist, and how to solve these problems based on international studies. The research also developed a conceptual institutional framework with guiding principles, and highlights the policy implications of transfer development rights (TDR) for built heritage conservation for policy-makers worldwide to make reference.

7.6 Limitations of This Study and Recommendations for Future Research

As TDR in Hong Kong is implemented on a case-by-case basis, through negotiation between a property owner and government, there are difficulties in discovering the key issues, since they involve confidentiality. Due to such limitations of the Hong Kong's situation: e.g. on a case-by case basis; no clear TDR regulations; only a few cases; and limited access to certain information, this research study has been based on data from the literature review, interviews, government review papers and newspapers.

In addition, experts with practical experience are limited, both in Hong Kong and overseas (such as North Carolina, in this study). Even if they are interviewed, respondents may not have been involved in all the processes in TDR, such that it relies on the researcher to piece them together to get the full picture. Some analysis may be based on relatively subjective data, but based and evaluated on the guidance of the response from interviewees and international TDR experience. The most comprehensive and reliable pictures could come from very senior government officials who mastermind the few TDR cases in Hong Kong, and yet they are duty-bound to keep their confidentiality obligation.

For future research relating to policy and implementation of TDR, the best results could be through working in collaboration with government agents and with the blessing of the top government officials. This research focuses on the success factors of TDR for built heritage conservation. Further research could study specifically on the market

problems for built heritage conservation, when more and more cases may be implemented in future, and the data are more open to the public.

7.7 Concluding Remarks

This research aims to explore how TDR can be successfully implemented in the conservation of privately-owned built heritage, whilst addressing the issue of property rights. Hong Kong is selected as a case study, which can shed light for other similar dense cities in the world. The research study first explores the relationship between property rights, TDR and zoning. It explores a deeper understanding of TDR, and how these rights may serve better as a mitigating role, by the attenuation of property rights, due to the government regulations, TDR success factors and how to implement these success factors. Both the difficulties and controversial issues in Hong Kong are examined in order to put the success factors into a local context.

Past studies worldwide have focused mainly on the application of TDR on natural land conservation, and yet few of them have explored the relationship between property rights, TDR and zoning, or analyzed TDR from the perspective of institutional arrangements. In particular, there are very few studies available about the TDR implementation in Hong Kong. Thus, this research fills the research gaps and develops some guiding principles for TDR practice. These are not only relevant to Hong Kong, but also of value to the international community. Based on the triangulation analysis of findings from different research methods, this research proposes a range of policy options for the reference of

policy-makers worldwide, and highlights some policy implications for Hong Kong.

APPENDICES

Appendix A –Questionnaire Survey for Evaluating the TDR Successful Factors for the Conservation of Privately Owned Heritage Building

Thank you for your participation in this questionnaire survey. This survey is to find out the importance of different criteria and determinants identified from the literature that can help to produce successful TDR (transfer development right) projects for the conservation of heritage building in Hong Kong.

Based on the literature, TDR is a market-based tool that uses the "economic engine" of new growth to accommodate pressures for growth and development and at the same time preserve essential resources such as land marks, heritage buildings. TDR programs allow landowners to sever development rights from properties that communities identified for preservation such as farmland, forest (known as sending area), historic buildings and sell them to purchasers who want to increase the density of development in areas that can accommodate additional growth (known as receiving area

PART I THE IMPORTANCE OF TDR SUCCESS FACTORS

a. please rate the importance of the following successful TDR factors

Example:

Factors	Rating
D1, Enabling legislation for TDR	□1 □2 √ 3 □4 □5

Scale for rating the importance of successful TDR factors

	Least important	Less important	average	More important	Extremely important
scale	1	2	3	4	5

Criteria	**Determinants**	**Rating**
Political acceptability	**Description:** strong political foundation will make TDR stable and consist which will get more public support. Not in conflict with the development in the receiving area	
	D1, Enabling legislation for TDR	□1 □2 □3 □4 □5
	D2, Minimal zoning changes and variances	□1 □2 □3 □4 □5
	D3, TDR should be included in the comprehensive plan	□1 □2 □3 □4 □5
	D4, TDR should be included in built heritage conservation	□1 □2 □3 □4 □5
	D5, Meet with design standards	□1 □2 □3 □4 □5
	D6, Can PDR work in Hong Kong?	□1 □2 □3 □4 □5
TDR leadership	Description: strong leardership and clearly duty disribution will make the objective clearly, process smoothly and consensus easily	
	D1, the authority of the administering agency (if legislation, the authority is clear)	□1 □2 □3 □4 □5
	D2, New layers or branches of administration	□1 □2 □3 □4 □5
	D3, The state and local government support	□1 □2 □3 □4 □5
	D4, TDR programme co-ordinator is useful and important	□1 □2 □3 □4 □5

Criteria	Determinants	Rating
	D5, Key development community participants	□1 □2 □3 □4 □5
	D6, Timely key participant involvement	□1 □2 □3 □4 □5
TDR bank facilitation	Description: TDR bank serve several important functions to facilitate the TDR process	
	D1, Bank acting as facilitator	□1 □2 □3 □4 □5
	D2, Line-item in budget for TDR program	□1 □2 □3 □4 □5
	D3, Create an ongoing preservation revolving fund by buying and selling TDR	□1 □2 □3 □4 □5
	D4, educating the community	□1 □2 □3 □4 □5
	D5, providing program stability, credibility and confidence	□1 □2 □3 □4 □5
	D6, Leveraging funding sources	□1 □2 □3 □4 □5
Public support	**Description:** Obtain consensus from major stakeholders on the transfer of development rights from the sending site to the receiving site	
	D1, Good information through the use of clearing house, TDR bank or newsletter, auctions, meetings, hearings and votes, comprehensive, well-maintained webpage	□1 □2 □3 □4 □5
	D2, Set up review mechanisms and protocols for updating TDR values over time	□1 □2 □3 □4 □5
	D3, Determine useful method for tracking and evaluating the program	□1 □2 □3 □4 □5
	D4, third-party brokers to facilitate transactions	□1 □2 □3 □4 □5
	D5, neighbors of the receiving site not oppose the higher density	□1 □2 □3 □4 □5
	D6, The community should monitor transfers and make adjustments if needed	□1 □2 □3 □4 □5
Social equity	**Description:** The major stakeholders are having equal access and use of TDR, minimize conflicts in development, property and resource by adding the "livability" component	
	D1, stability in TDR prices	□1 □2 □3 □4 □5
	D2, credibility of the TDR program maintained by consistently	□1 □2 □3 □4 □5

Criteria	Determinants	Rating
	required TDR for all bonus density	
	D3, Who pays for land preservation? (usually new residents face higher housing price)	□1 □2 □3 □4 □5
	D4, sense of place for both in and outside the sending and receiving areas	□1 □2 □3 □4 □5
	D5, Uniform credit transfer ratio	□1 □2 □3 □4 □5
	D6, Valuation using a list of criteria (e.g. Land type and location; Past and future use; soil quality; property size)	□1 □2 □3 □4 □5
Viable receiving areas	**Description:** physical and political acceptable to accommodate the additional development in the receiving site; Minimum adverse impact on the existing site and the surrounding environment including townscape, streetscape.	
	D1, High rate of home construction	□1 □2 □3 □4 □5
	D2, baseline density must be low enough	□1 □2 □3 □4 □5
	D3, Market for bonus development	□1 □2 □3 □4 □5
	D4, Market for type of TDR-based development	□1 □2 □3 □4 □5
	D5, Fit with master plan, zoning plan and design standards	□1 □2 □3 □4 □5
	D6, Physical capability to handle increased density	□1 □2 □3 □4 □5
	D7, Compatible with existing development	□1 □2 □3 □4 □5
Simplicity	**Description:** Simple administrative means and procedures held to build support among the diverse group	
	D1, TDR allocation formula easy to understand	□1 □2 □3 □4 □5
	D2, Developers and sending area landowners understand programme	□1 □2 □3 □4 □5
	D3, Easy for the municipal staff to administer	□1 □2 □3 □4 □5
	D4, Too many requirements for the owner will dampen the participation	□1 □2 □3 □4 □5
TDR studies	**Description:** knowledge educated the TDR stakeholders and the public. A good knowledge will promote the public participation.	
	D1, clear understanding of the local real-estate market by local officials, TDR leader and developers	□1 □2 □3 □4 □5

Criteria	Determinants	Rating
	D2, Studies on the willingness and ability of local residents to influence high-density development	□1 □2 □3 □4 □5
	D3, Developer and landowners know the TDR option, how it works, and how it can help them	□1 □2 □3 □4 □5
	D4, regular reminded the public of TDR program benefits	□1 □2 □3 □4 □5
	D5, recreational and educational programs aimed at school-age children and adults	□1 □2 □3 □4 □5
Market incentive	Description: incentives to benefit and attract the heritage owner and developer from the aspect of market control	
	D1, Strict sending-area development regulations	□1 □2 □3 □4 □5
	D2, **Few or no alternative to TDR**	□1 □2 □3 □4 □5
	D3, Offer sufficient compensation to sending area owners	□1 □2 □3 □4 □5
	D4, enhanced transfer ratio	□1 □2 □3 □4 □5
	D5, Low transaction costs and administrative costs	□1 □2 □3 □4 □5
	D6, Communities can give developers greater certainty (such as the maximum density, the approval process will not delay, unanticipated costs, and whether or not their projects will be approved or not)	□1 □2 □3 □4 □5
	D7, Conversion factors through TDR (such as exemption from open space, setback, coverage, landscaping and parking requirements)	□1 □2 □3 □4 □5

b. Can you suggest other successful TDR factors excluded from the above?

☐ Yes._____

_____

☐No.

PART II PERSONAL INFORMATION

(a) Gender

□ male □female

(b) Nature of work

□property development □town planning □ architectural design □building □heritage conservation

(c) Total work experience in the property/building/construction industry/ institute

□ < 10 years □10-14 years □ 15-19 years □20-24 years □ 25-29 years □30 years or above

(d) Have you participated in the conservation of privately-owned heritage building by using TDR

□Yes, please specify the project_____ □No.

(e) Would you like to receive the preliminary results of this study, and participate in the future surveys related to this topic?

□Yes. □No.

Please give some comments of on the survey procedure & questionnaire design in the following section.

(1). would you like to receive and answer the questionnaire through the email?

□Yes. □No.

(2). Length of the questionnaire

□ too short □average □too long

(3) General comments on the content

Ease of reading & understand: _____

Vagueness of wording: _____

Others: _____

※※※※※※This is the end of questionnaire. Thank you for your participation. ※※※※※※※

Appendix B – Questionnaire Survey for Successful Factors for Transfer Development Right in the Conservation of Privately Owned Heritage Building in Hong Kong

Thank you for your participation in this questionnaire survey. This survey aims to develop a framework for successful implementation of TDR project in Hong Kong.

Based on the literature, TDR is a market-based tool that uses the "economic engine" of new growth to accommodate pressures for growth and development and at the same time preserve essential resources such as land marks, heritage buildings. TDR programs allow landowners to sever development rights from properties that communities identified for preservation such as farmland, forest (known as sending area), historic buildings and sell them to purchasers who want to increase the density of development in areas that can accommodate additional growth (known as receiving area).

This is an open-ended questionnaire. Main study includes three parts. Part I are two general questions about TDR. Part II are the questions based on seven criteria for successful TDR implementation. Part III are personal information.

Part I general questions about TDR

1. Do you think TDR is a proper method to deal with the privately owned heritage building?
2. In the cases using TDR to conserve the privately owned built heritage in Hong Kong, is there any controversial? (such as Sheng Kung Hui compound; Tiger Balm Garden; CLP Power Hong Kong Administration Building (Head Office Building); King Yin Lei). What do you think about the difficulties/barriers/constraints of TDR in HK?

Part II specific questions

1. Political acceptability

1) Do you think it is difficult to have TDR legislation in HK? If yes, what are the difficulties?
2) Should land use zoning take consideration of TDR? In what forms?

3) Do you think TDR should be as a method included in built heritage conservation system? any difficulty? why not include TDR currently?

2. TDR leadership

1) Do you think the authority of TDR administering agency is important for TDR to be successful? How does it work?
2) Do you think the government has given enough support to promote the TDR? What aspect should be enhanced?
3) Do you think set up reviewing mechanisms and protocols for updating TDR values over time is difficult? If yes, what are the difficulties? What strategies can be used?
4) Due to the complex process, TDR implementation may encounter delay, so what strategies will be used to ensure the approval process will not be delayed?

3. Public support

1) Do you think the current strategies and practices to promote public participation for implementing TDR is enough? When to introduce public participation? How can public participation be enhanced? How to carry out public participation rather than public consultation?
2) What strategies can be used to reduce the opposition from the residents within the TDR receiving site?
3) How to carry out community monitor mechanism in Hong Kong?

4. Social equity

1) What strategies can be used to make the reuse of the building valuable to the public?
2) How to take "social equity" into consideration when evaluating transfer ratio? (one-to-one ratio means 100 m^2 from the sending site can be transferred 100 m^2 to the receiving site)

5. Simplicity

1) Do you think the current TDR program is easy for developers and sending area landowners to understand? If not, how to make it simple?

2) Do you think the current TDR program is easy for government departmental staff to administer? If not, how to make it simple?

6. Market incentive

1) What market incentives are used for the owner and developer currently? What other incentives could be used to attract the owner and developer?
2) Do you think the current transaction cost (hidden) is low enough?
3) What effective incentives could be used to attract the operator who is in charge of the reuse of the built heritage?

7. Environment

1) To what degree should TDR compatible with master plan, zoning plan and design standards?
2) What are the disturbances that TDR projects brought to the existing environment? What methods can be used to avoid/reduce the disturbance?

Part III personal information

(a) Nature of work

□property development □town planning □ architectural design □building □heritage conservation

(b) Position _____

(c) Total work experience in the property/building/construction industry/ institute

□ < 10 years □10-14 years □ 15-19 years □20-24 years □ 25-29 years □30 years or above

(d) Have you participated in the conservation of privately-owned heritage building by using TDR?

□Yes, please specify the project □No.

Appendix C – questionnaire survey for Transfer of Development Rights (TDR) in North Carolina, US

Welcome,

My name is Jun Hou. I am a PhD student from the Hong Kong Polytechnic University and a visiting scholar at the University of North Carolina-Chapel Hill. My research focuses on Transfer Development Rights (TDR) as a tool for nature conservation and historical site preservation. Thank you for your willingness to participate in this survey. It will take you several minutes.

TDR allows the unused development rights from the site which the community wants to conserve transfer to the site which the community wants to see more development. It is a voluntary and market-based tool. In US, many states such as Maryland, New Jersey have many TDR cases to conserve farmland, forest, built heritage etc. TDR has also been encouraged by the North Carolina State (NC general statute, Chapter 136, Article 3B - Dedication of

Right-of-Way with Density or Development Rights Transfer). Some researches are carried out about TDR in different counties in NC. But unfortunately there are few practical TDR cases. This survey aims to investigate the reasons why Transfer of Development Rights (TDR) have not been widely implemented in the NC state.

All information collected is for statistical analysis and used for academic purposes only. All data obtained from participants will be kept confidential and will only be reported in an aggregate format (by reporting only combined results and never reporting individual ones). All questionnaires will be concealed, and no one other than then primary investigator and assistant researches listed below will have access to them. The survey has been exempted by IRB from UNC (IRB# is 16-1028)

If you have any questions, please contact Ms. Jun HOU (Email: jun.hou@)

Thank you.

Q1. Which county/city/town do you come from?

Q2. Which organization do you come from?

□Government

□Academic

□Private organization

□Non-Profit Organization

□Others (please specify_____)

Q3. Choose the major conservation goals set by your county/city/town (Multiple choices)

□Farmland

□Forest land

□Historic buildings

□Wildlife and habitat conservation

□Environmental sensitive areas

□Others

Q4. Does your county/city/town have any Transfer Development Rights (TDR) plan/strategy for conservation works?

□Yes

□No

□Don't know

Q5. Does your county/city/town have TDR ordinance?

□Yes

□No

□Don't know

Q6. Does your county/city/town have any practical TDR cases?

□Yes

□No

□Don't know

Q7. If your county/city/town have any TDR plan/ordinance/cases, please specify the name of the project?

Q8. If no practical TDR cases, please choose the reasons why no TDR implementation? (Multiple choices)

□We do not give TDR much consideration

□We prefer to use zoning and development restrictions to achieve conservation goals

□We mainly rely on direct purchases to acquire land, easement and development rights

□We think TDR procedures are overly complicated and we are not prepared to use them

□We found it is difficult to incorporate TDR into the existing land and planning system

□It is difficult for the community to reach an agreement on the suitable sites to receive transferred development

□We did not see much demand for TDR because the current allowed building density is sufficient for developers

□The public thinks TDR may face legal challenges and does not trust the system to work

□The public knows little about TDR

□The property owners have no interest because the return on their investment in TDR is uncertain

□There are other ways for the property owner/developer to get additional development density, so they do not need to participate in TDR

□The property owners worry that any delay in the TDR process may result in economic losses

□others (please specify)

Q9. If no TDR, what methods do your county/city/town used for conservation work, especially the conservation of privately owned built heritage and private land?

Q10. Based on the above questions (Q9), to what percentage do these current methods can meet the conservation goals?

□0-25%

□25%-50%

□50%-75%

□75%-100%

Any survey suggestions? Please write them here.

Appendix D – Glossary of Terms

Conservation easement--A legal agreement between a landowner and a land trust or government agency that permanently limits uses of the land to protect its conservation values.

Receiving areas--sites eligible for development bonuses through the purchase of TDRs. The TDR program designates receiving areas, specifies the type and amount of bonus available on these sites, and details the process for approval of projects using the TDR bonus.

Sending areas—designated areas where landowners may sell their development rights in exchange for placing conservation easements on their property. Sending areas are typically agricultural lands, forest areas, or environmentally sensitive sites.

Transfer ratio—a term used in many TDR programs to describe the numerical relationship between the amount of development potential forgone on sending sites and the amount of additional development allowed on receiving sites.

Allocation rate—the relationship between the number of development rights allocated to a sending site and the amount of development bonus available on a receiving site.

TDR bank—an entity operated by a local jurisdiction, regional government, or private nonprofit organization for the purpose of buying, selling, and holding development rights or facilitating private TDR transactions.

Development bonus—a zoning-code provision that allows more intensive development in exchange for provision of specific public benefits. Development bonuses often allow increased building height or density but can also include flexibility in use restrictions or other development standards.

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