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**THE UNIVERSITY OF HONG KONG**

**REDEVELOPMENT OR REHABILITATION?  
THE CHOICE OF DIFFERENT URBAN RENEWAL  
MEASURES FROM THE PERSPECTIVES OF  
BUILDING SURVEYORS AND TOWN PLANNERS**

**A DISSERTATION SUBMITTED TO  
THE FACULTY OF ARCHITECTURE  
IN CANDIDACY FOR THE DEGREE OF  
BACHELOR OF SCIENCE IN SURVEYING**

**DEPARTMENT OF REAL ESTATE AND CONSTRUCTION**

**BY**

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**HONG KONG**

**APRIL 2007**

## Declaration

I declare that this dissertation represents my own work, except where due acknowledgement is made, and that it has not been previously included in a thesis, dissertation or report submitted to this University to any other institution for a degree, diploma or other qualification.

Signed: \_\_\_\_\_

Name: Chan Ho Ling

Date: 10<sup>th</sup> April, 2007

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## **Abstract**

Urban renewal is a complex, time-consuming and resources demanding issue which requires efforts and cooperation from different parties. To tackle the problem of urban deterioration properly, precise decisions on the location and mode of urban renewal are truly important. In this regard, the constituent of the decision making body of urban renewal are fundamental to prevent the rise of bias in the decision. This dissertation aims at investigating the views of different professions in making the choice between redevelopment and rehabilitation. In particular, the focus is put on the building surveying and town planning professions.

In order to compare the perceptions of building surveyors and town planners, relevant factors affecting the choice of urban renewal measures are firstly identified, followed by comparison of the questionnaire results collected from both professions. The findings show that both professions regard the sustainability of the environment, urban traffic conditions and architectural merit of building as relatively more important factors to be considered in the selection between redevelopment and rehabilitation. Nevertheless, significant differences are found between the views of both professions toward the condition of the building, retaining the historical image of the area and maintenance of social network among the community. These reveal that biases have appeared among different professions.

This study figures out the key factors affecting the choice of different urban renewal measures for better allocation of resources in urban renewal planning. The differences between the views of building surveyors and town planners suggest that

the involvement of these two professions in the decision making body of urban renewal is essential to facilitate comprehensive planning and achieve better urban renewal.

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# CHAPTER 1

## Introduction

### 1.1 Background of the Study

In view of growing problem of urban decay and deterioration of buildings in the Hong Kong Special Administrative Region (SAR), urban renewal has become a matter of great urgency (Tsang, 2005). As mentioned in *the 1999 Policy Address*, "...out of existing 8,500 urban buildings which are over 30 years, 2,200 require redevelopment or extensive repair and 3,900 or so require repairs of varying scale. In ten years' time, the number of buildings over 30 years old will increase by 50%." (Tung, 1999, p.42) In other words, the urban renewal problem which Hong Kong is facing is quite massive.

The public awareness on the emergency of urban renewal gradually increases because a series of urban renewal projects such as Kwun Tong Town Centre Project and Sai Yee Street Project have been appearing to the market, especially after the establishment of the Urban Renewal Authority. It is necessary to have such series of urban renewal projects because serious consequences will be raised if leaving urban deterioration untreated. Physically, old, dilapidated and over-crowded buildings in the urban area will impose dangers to the society in the form of fire hazard, crime generation and poor hygiene of the living environment. For the environmental and

social issues, high population density and lack of community and welfare facilities and open space create a poor living environment for the residents. Also, urban deterioration may weaken the business image and bring unwanted effects to the economy. To solve urban deterioration, urban renewal has played an undeniably important role in Hong Kong.

Urban renewal provides a great chance to improve poor living environment, utilize scarce urban areas and maximize return from permissible development potential of the urban land. According to *the Developing Hong Kong*, urban renewal is defined as the rejuvenation, re-planning and restructuring of older urban area by way of redevelopment, rehabilitation and conservation (Planning, Environment and Lands Bureau, 2001). For redevelopment, the replanning and restructuring of area can achieve a better utilisation of land and improve the overall district environment. For rehabilitation, the improved condition of old buildings can belatedly encourage banks to provide more favourable mortgage terms to buyers of well-maintained flats and more healthy and safe living environment can be created and for the conservation, valuable collective memories, heritage and social ties can be maintained. These urban renewal measures facilitate more active property transactions and are conducive to better living environment for the society. In addition, the long-term impacts affect the community and the economic, environmental and social spin-offs cannot be underestimated. Consequently, significant values can be created among the whole urban area as well as the Hong Kong's economy.

However, criticisms are received about the speed and effectiveness of the urban renewal in Hong Kong. Tsang (2002) and Lau (2005) criticized that Hong Kong's

urban renewal strategy has placed a lopsided emphasis on redevelopment to address the issue of deterioration in the urban environment. The mode of operation tends to be piecemeal and carries little scope for district-wide improvement. It is probably due to inadequate considerations on influential factors which lead to incomprehensive planning. For urban renewal planning, the decision making body have to consider different kinds of factors affecting the choice on urban renewal method. In Hong Kong, particularly, various dimensions such as participation, community, equity, economy and environment are required to be recognised in urban renewal to make a decisive and persuasive decision (Ng, *et al.*, 2001). Owing to the prevalence and complexity of the urban renewal planning, it is important to pull together various resources and to work in partnership with the professional groups and the industry to resolve the urban deterioration problem properly.

The availability of resources and professions are determinants to the applicability of the urban renewal measure. To make a balanced planning, different parties such as social workers, surveyors, economists, conservation experts and other professions are participated and cooperated throughout the urban renewal process. They devote their professional knowledge and skills to helping determining the most suitable urban renewal method. Since people of different professions may have different point of views and opinions on the issue, the constituent of the decision making body and the coordination between their efforts are key factors in any successful urban renewal project. Hence, the knowledge of the similarities and differences between their perspectives on selecting urban renewal measures is essential to better planning.

To study the perception of these professions, building surveyors and town planners are important to be considered. It is not only because of their expertise in building and town planning but also their significant role in the conception stage of urban renewal planning. Concerning urban renewal in Hong Kong, buildings are the core element involved in every project whilst planning is a tool to improve the area. In the conception stage of all urban renewal projects, building survey must be conducted to assess the conditions and quality of the buildings before deciding the mode of urban renewal. Building surveyors, who are similar to the “Doctor of Buildings” (Department of Building and Real Estate, 2003), take a major role in this job and if defect is found on the building which may be related the structural stability, the case will be transferred to structural engineers for checking. Later on the planning of the urban renewal will be handled by experts in town planning and architecture in coordinating new development with the current district use and complementing to the government policies. In light of their professionalism, the involvement of building surveyors and town planners in urban renewal planning can increase the width and depth of investigation on the basis elements of urban renewal.

In this regard, the perceptions of building surveyors and town planners towards urban renewal are important professional inputs to achieve better resources allocation and facilitate better urban renewal planning. In this study, therefore, the author would like to study the perceptions of practitioners of both professions to see whether there is any similarity and differences in the pattern of weightings on influential factors during selecting between redevelopment and rehabilitation.

## **1.2 Research Questions**

As said, there are various factors affecting the decision in urban renewal planning. In this study, the following questions will be investigated:

- (i) What are the factors affecting the professionals' decision in choosing different renewal measures?
- (ii) What is the relative importance of these factors from the perspectives of town planners and building surveyors?
- (iii) What are the similarity and difference between the views of town planners and building surveyors in the decision-making process of urban renewal?

## **1.3 Objectives**

This dissertation aims at examining the determining factors of the choice of different urban renewal approaches (i.e. redevelopment and rehabilitation) from the perspectives of building surveyors and town planners. 4 objectives are formulated and summarized as follows:

- (i) To explore the factors affecting the choice of different urban renewal measures (i.e. redevelopment and rehabilitation);
- (ii) To identify the relative importance of these factors from the perspectives of town planners and building surveyors;
- (iii) To compare and contrast the views of town planners and building surveyors in the decision-making process of urban renewal; and
- (iv) To make suggestions for better urban renewal decision.

## **1.4 Outline of the Study**

This dissertation comprises five chapters. Chapter 1 introduces the background, objectives and structure of this dissertation. Chapter 2 provides a review of literature about the importance of building surveyors and town planners in urban renewal planning, the factors that may potentially affect the choice of urban renewal approaches and an overview of the building surveying and town planning professions in Hong Kong. Their scopes of works and education backgrounds are then clearly stated and analysed. In Chapter 3, hypotheses of this dissertation are presented and followed by an introduction of the methodology adopted in this study to evaluate the hypotheses. The comparison of the weighting scales for influential factors and the method in analysing their relative weighting are explained. Analysis of the data and discussion of the results are presented in Chapter 4. Descriptive statistics of data are given for evaluation of the hypotheses. Accordingly, the implications of the results are discussed. This dissertation is concluded in Chapter 5 which summarises the results and implications of this dissertation. Limitations and areas for further study are also presented.



## **CHAPTER 2**

### **Literature Review**

The literature review gives the theoretical framework by examining the significance of urban renewal in Hong Kong after giving the definition of urban renewal, redevelopment and rehabilitation. Influential factors which affect the choice on urban renewal approaches will be introduced and the importance of these factors will also be explained. Lastly, an overview of building surveying and town planning professions in Hong Kong will be made.

#### **2.1 Definition of Urban Renewal**

Urban renewal is a function of town planning that solves city problems through several means. The term “urban renewal” is a term with broad meanings in many of the urban planning textbooks. It means a process through which deteriorated neighbourhoods are upgraded through clearance and redevelopment or through rehabilitation and through the installation of new, or modernization of existing, public improvements (Dumouchel, 1975). This sentence implies that urban renewal does not mean complete clearances of urban area for new uses but includes rehabilitation, conservation and rebuilding (Prasad, 1989).

In the context of Hong Kong, the Hong Kong SAR Government (hereafter the Government) also shows a similar interpretation of the definition of “urban renewal”. According to *the Developing Hong Kong*, urban renewal is defined as the rejuvenation, re-planning and restructuring of older urban area by way of redevelopment, rehabilitation and conservation (Planning, Environment and Lands Bureau, 2001). Another principally similar interpretation of the term is put forward in *the Urban Renewal Strategy* which stated that ‘Urban renewal is not a “slash and burn” process. A comprehensive and holistic approach should be adopted to rejuvenate older urban area by way of redevelopment, rehabilitation and heritage preservation.’ (Planning and Lands Bureau, 2001, p.3)

Urban renewal is a large project in reversing inner city failures such as dilapidation of buildings. Zielenback (2000) expresses the meaning of “urban renewal” to be the physical redevelopment of blighted areas, the creation of additional jobs, the improvement of local infrastructure, and/or the elimination of “undesirable” individuals and business. In more detailed, it deals with the physical environment with the purpose of upgrading a whole neighbourhood, where renewal of housing is an important part but is supplemented with improvement of open space, traffic regulation and better urban infrastructure (Andersen, *et al.*, 1999) to produce economic and social results by generating employment opportunities and community provisions (Couch, 1990).

## 2.2 Definition of Redevelopment

“Urban renewal” and “redevelopment” are commonly referred to the same meaning. However, it should be noted that the meaning of redevelopment in this study is related only to the physical replacement of buildings and is one of the urban renewal approaches used in Hong Kong. The difference between the definition of urban renewal and urban redevelopment is addressed by Townland Consultants Ltd. (1990) in the Tai Kok Tsui Urban Renewal Study which stated the following three points:

1. “Urban redevelopment” as physical replacement of existing buildings taken effect in an un-coordinated and piecemeal manner due to lack of an overall strategy. It is only a mechanism within the overall “urban renewal” framework.
2. “Urban redevelopment” rarely addresses the socio-economic problems of the older urban areas.
3. Most so-called “urban redevelopment” projects opt for monetary maximization thereby disregard inherent problems associated in “urban renewal”. On the other hand, “urban renewal” aims at optimization to achieve a sustainable level of development. Though it intends to maintain respect for financial concerns, but within the wider framework of the cost/benefit implications.

Moreover, Town Planning Office (1988) defines “redevelopment” as the development or improvement of cleared or undeveloped land; technically includes the

demolition/erection of buildings or other development and improvement of the land by private or public agencies to the land which has been made available.

### **2.3 Definition of Rehabilitation**

Rehabilitation can act as a catalyst and a motivator for sustained development by reusing old diversified building groups. Berce-Bratko (2002) defines rehabilitation as putting the premises back in a condition suitable for living. The term is distinct from “clearance” or demolition where the whole area was knocked down, under a policy also known as redevelopment. As supplemented by Kadushin (1996), the process of building rehabilitation not only serves spatial and functional needs, but also acts as a tangible symbol of regeneration and new growth, which support healthier urban life.

According to the Glossary of Town Planning prepared by Town Planning Office (1988), it implies “rehabilitation” as below:

1. The ideas of repairing, redecorating and in some cases converting existing structurally sound property to a standard compatible with present amenity and health requirements.
2. The improvement of buildings and the provision or improvement of amenities in dilapidated, overcrowded or obsolete urban areas.

From above definitions, the function of rehabilitation of building can be concluded as improving the built environment and reducing the need or urgency for redevelopment.

## **2.4 Factors Affecting the Choice of Different Urban Renewal Measures**

Urban renewal is a project with great complexity and will cause long-term effect to the society. When deciding the form of redevelopment of a building or blocks of building, the decision makers will carry out detailed comparison on the merit and demerit of different urban renewal measures. Walker (2002) points out that in an early stage of the decision-making process, influences can be categorized into six parts including the political, legal, economic, institutional, sociological and technical influences. Such influences would determine the initial decisions. In Hong Kong, particularly, different dimensions includes participation, community, equity, economy and environment are needed to be recognised in urban renewal so as to make a decisive and persuasive decision (Ng, *et al.*, 2001). Moreover, Soen (1981) has another idea concerning rehabilitation which concludes that direction of rehabilitation activities should be based on severity, externality and urgency and it requires the incorporation of a multitude of characteristics: socio-demographic, economic, physical, transportational and environmental. For this study, the influences are summarised into 4 categories: economical, environmental, physical and social. Under each category, there are 4 factors as shown in Table 2.1.

Table 2.1: Categories and factors to be considered when making the choice on urban renewal approaches

CATEGORY	FACTOR
Economical	<ul style="list-style-type: none"> <li>• Profitability of the development</li> <li>• Cost different between rehabilitation and redevelopment</li> <li>• Availability of funding to the development</li> <li>• Capacity to generate employment</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Availability of open space and greenery</li> <li>• Urban traffic condition</li> <li>• Environmental friendly</li> <li>• Sustainability</li> </ul>
Physical	<ul style="list-style-type: none"> <li>• Age of building</li> <li>• Conditions and quality of building</li> <li>• Location of building</li> <li>• Architectural merit of building</li> </ul>
Social	<ul style="list-style-type: none"> <li>• Maintenance of social network among the community</li> <li>• Availability of amenities, community and welfare facilities</li> <li>• Retaining the historical image of the area</li> <li>• Removal of unwelcome uses (e.g. prostitution business)</li> </ul>

#### 2.4.1 Economical Factors

The decision regarding whether or not to refurbish an existing building revolves around the potential economic advantages. It is common to all that profitability is a necessity in each economical activity. Khaki, *et al.* (1999) express that urban renewal has often led to an increase in property prices but forcing less-advantaged groups to migrate to other district. This kind of migration will often lead to break up of social networks (extended family contacts, clubs, associations, *etc.*). Moreover, they further suggested that physical planning controls and local policies might also be important. Because of the change in physical planning controls and local policies, the

development potential of the site would be less than before, for example, change in the plot ratio, height restriction and site coverage. These elements are important considerations in measuring the profitability of an urban renewal project.

Apart from the profitability of the development project, cost difference between redevelopment and rehabilitation and the availability of funding are also essential factors affecting the choice on redevelopment and rehabilitation. As proved by Kirby (1979), rehabilitation is cheaper than redevelopment from past cases, but rehabilitation need not be more economic. Similar conclusion also made by Highfield (2000) who stated that refurbishment and re-use will be substantially cheaper than redevelopment only where a suitable building is selected which is in a reasonable physical condition, and which does not require excessive structural alterations in order to adapt it to its proposed new use. Otherwise, the complexity of rehabilitation is highly increased so as the cost of development.

Furthermore, 4 factors that favour to rehabilitation are listed by Highfield (2000). First, through refurbishment, the time required to provide “new” accommodation is only half to three-quarters of the time needed for the redevelopment option, and the cost of rehabilitation cheaper than a new building, resulting in considerable financial benefit to the developers. Ratcliffe (1993) also recognizes that a comprehensive rehabilitation can be undertaken at a cost around 20-25 percent lower than new development in some circumstances. However, in some circumstances, most of the substandard buildings are dilapidated and short of community facilities, it often costs much more to rehabilitate than to completely rebuild them (Pun, 1996).

There is growth in awareness of the fact that demolition is very expensive and that rehabilitation technology had greatly improved. Thus the normal concept of renewal was transformed to one where most of the buildings were restored and upgraded, and only those with construction problems demolished, with the new buildings were nicely assimilated by sympathetic positioning and design (Berce-Bratko, 2001). However, the urban renewal method is chosen for economic reasons in the majority of cases, and a major incentive is the availability of various forms of financial aid. It is clear that if the rehabilitation option being considered for an existing building is eligible for grant, or even soft loan, aid, and a grant or loan can be obtained, the refurbishment option will become even more attractive when compared with the alternative of redevelopment (Highfield, 2000).

The capacity of the urban renewal project to generate employment is suggested by Zielenback (2000). He claims that successful revitalization creates a neighbourhood whose conditions help enable all of the residents to succeed economically and socially. Particularly, it deals with the improvement of physical environment with the purpose of upgrading a whole neighbourhood so as to produce economic and social results by generating employment opportunities and community provisions (Couch, 1990).

#### **2.4.2 Environmental Factors**

Factors such as public space, traffic and transport, existing building physical condition, internal building condition and “Greening of City” should be considered in planning urban regeneration projects as suggested by Ng, *et al.* (2001). Availability



of open space and greenery are important to create a better living environment because residents need green spaces such as parks and gardens to unwind, enjoy leisure activities, observe others, seek solitude or appreciate the natural environment. (Grewal, 2006)

Apart from physical provision of green environment for the residents, the accessibility of the area also affects the living condition. Berce-Bratko (2001, p.50) states that “town planners seek ways of adapting strategy more closely to human use and conform, that is to say, more easily accessible to everyone including disabled, old people and children by improving the pedestrianisation and traffic calming policies for city centres”. However, if the area is not well-planned, road/residential interface problems, including noise, dust and fume pollutions, will be happened. This may aggravate adverse consequences such as congested pedestrian flow and threaten pedestrian safety, especially during peak hours (Ng and Tam, 2000). Hence, decision makers should strike a balance between accessibility by road works, health and safety of residents and destruction of natural environment during urban planning.

In regard to the natural environment, massive worldwide consumption of energy causes adverse implications on the world including global warming. One of many ways in which worldwide energy consumption can be reduced is to recycle and re-use existing resources as much as possible. By putting this method into building industry, whenever a building is recycled by opting for refurbishment rather than redevelopment, a considerable amount of energy is saved by avoiding the need to extract raw materials and convert them into a replacement building (Highfield, 2000). The energy required to demolish the old building and remove detritus from the site

can be reduced. Moreover, redevelopment brings another problem to the society. Massive demolition and construction works cause noise and air pollutions to the public which cannot be eliminated.

To make a comprehensive urban regeneration, sustainable urban renewal should be adopted to improve the overall living and working environment and promote health, safety and enjoyment. It should safeguard resources and prevent environmental degradation. The word “sustainability” has a very broad meaning. In the Post Conference Report of The Sustainable City 2000, the meaning of sustainable development is defined as the ability of an urban area and its region to continue to function with a quality-of-life that is desired by the community, without restricting the options available to present and future generations and without causing adverse impacts inside and outside the urban boundary (Wessex Institute of Technology, 2000). In this study, the focus is put on environmental sustainability. Ng, *et al.* (2001) elaborates the meaning of environmental sustainability as follows:

- Improve the physical environment
- Conserve and /or recycle non-renewable resource
- Adopt ‘green’ building techniques
- Rehabilitate buildings where feasible
- Maintain buildings and structures in good repair
- Build to last
- Maximise public transport accessibility

Both redevelopment and rehabilitation can fulfil part of defined characteristics of environmental sustainability. This reveals that redevelopment and rehabilitation will make different influences on the surrounding area.

### **2.4.3 Physical Factors**

There are three agents that affect the choice of redevelopment options of decision makers raised by Ball (2002), including the overall situation of the local economy, the characteristics of the existing property and the attitudes, approaches and involvement in the property development industry. The characteristics of the existing property, including the age, condition, architectural symbolism and location could underpin the choice of development options and these 4 characteristics are regarded as physical factors in this study.

#### ***Age of building***

Generally, observed by Highfield (2000), the older the building and the longer it has been empty, they greater will be the costs of repairing and restoring the existing structure and fabric. Due to natural deterioration over a long period of time, special attention is needed to be paid to certain items in the old buildings. In addition, items that remain in good condition will often need replacement solely because of their obsolete or old-fashioned design.

#### ***Conditions and quality of building***

Many of old, redundant or obsolete building are well built and structurally sound. Highfield (2000) concludes that some of the building structure, fittings and

services may be run-down, neglected and unfit for modern usage as they stand, but the time-tested methods of construction used to build them have left potential developers with an abundant legacy of sound, durable structures which provide an ideal basis for refurbishment and re-use. With proper rehabilitation of the buildings, the life expectancy of the building can extend for 20 years more which can delay the instant need of redevelopment.

### ***Location of building***

The location of the site will decide the potential users of the refurbished or renewed building by means of affecting the cost of acquisition, the total development costs and the capital value of the buildings (Highfield, 2000). Particularly in Hong Kong, land price fluctuates greatly according to the location. If the land lot is located at urban area, the redevelopment cost will be increased due to high acquisition cost and total development cost.

### ***Architectural merit of building***

Architectural merits can be found from modern building such as unique architectural structure of Hong Kong Convention and Exhibition Centre and historical buildings in Hong Kong. In this study, this factor focuses on the latter.

Architectural merit of building is one of the major elements that furnish the building with heritage value. It can be in the form of symbols on the building fabrics or the building physical structure. Many symbols are remained and found on the architectural design of the old buildings. To examine the importance of architectural symbolism, Relph (1976) defines the meaning of symbols that they expressed

profound meanings in and attachments to landscape, and maintained those meanings and attachments. Furthermore, Berce-Bratko (2001) indicates that meaning is expressed through symbols, especially in matters of town planning and architecture. Many older buildings possess for greater character than their modern counterparts, incorporating skilled craftsmanship and high-quality natural materials in their design and construction. As a result, the preservation policy for historic monuments is important.

#### **2.4.4 Social Factors**

Social network has been defined as “linkage between people” (Heaney and Israel, 2002, p.186). It is one of the basic human needs when they live in a society, especially for the elderly. In Hong Kong, about 11 percent of 7-million populations are aged 65 and over and many of them live in old urban areas (Phillips, *et al.*, 2005). As aging problem become more and more serious in Hong Kong, urban planning should provide adequate community and welfare facilities for the elderly. As suggested by Phillips, *et al.* (2005), there should be structures that facilitate social interaction, such as common areas or parks in order to create positive effect on the older persons’ psychological well-being. A study conducted by the Joseph Rowntree Foundation (2004) also agrees to recognize that some public spaces provide valuable opportunities for social contact between different ethnic groups in government policy. Apart from social interaction in open space, social network also refer to the relationship between neighbours and within an association. Thus, building and maintaining social network and community cohesion within the city are important to create a harmonious living environment.

Apart from providing area for social interaction, it is important to keep the integrity of established communities. The rehabilitation of existing housing, by preserving established, stable communities, is therefore considered preferable to the alternative of wholesale clearance and new development (Highfield, 2000). To a further extent, a city not only has precious social network between individuals, it also has its own culture and living-style which reveals on the building structure, street layouts, monuments and physical organization of town and city. It can also reserve the collective memory among the society. As pointed out by Berce-Bratko (2001), historical buildings become elements of cultural identity, especially of historical roots. Moreover, cities not only revitalised and humanised, but also “re-culturalised” in the sense of preserving, re-creating and developing its own cultural identity in an anthropological understanding of that phrase. In order to reduce the adverse effect of urban renewal, rehabilitation sometimes acts as a social policy to make the indigenous people to return to the revitalised area.

One of the purposes of urban renewal is restructuring the urban fabrics. Sometimes, it is also used as restructuring of businesses components within the district (Television Broadcasts Limited, 2004). Times Square in Causeway Bay and Mongkok Argyle Street/Shanghai Street Project projects provide examples of successful urban renewal in Hong Kong. In the case of Mongkok Argyle Street/Shanghai Street Project, the completion of Langham Place brings tremendous influences on the neighbourhood economically and socially. The Government took this chance to tackle and eliminate amative businesses along Portland Street. After the completion of Langham Place and a series of clean-up operations, the overall feature of Portland Street adjacent to Langham Place has improved from low-grade to

mid-class business nature, with enhancement of rental cost, quality of life and quality of pedestrian.

The previous review is related to the factors affecting the choice of redevelopment and rehabilitation which can be concluded into 4 aspects. Consequentially, these 4 aspects are included in the questionnaire as shown in Appendix A.

## **2.5 An Overview of the Building Surveying and Town Planning Professions in Hong Kong**

Since the sample in this study are building surveyors and town planners who are currently in practice, the analysis of education background of these two professions are ended at the 2003/04 academic year. Their scopes of works in the Government and private practice will be discussed.

### **2.5.1 Building Surveyors**

The Building Surveyor is generally recognized as the “Doctor of buildings” (Department of Building and Real Estate, 2003). The original purpose of developing building surveying in British is used to tackle aged and deteriorated buildings. The building surveyor possesses expert knowledge and ability to give advices on the construction and management of buildings, the law relating to building, construction and development and on the maintenance matters of properties. Building surveyor is able to act in a wider role of project manager on new development, re-development and major conversion projects. Based on the data held by Hong Kong Institute of

Surveyors (HKIS) in early May of 2006, the employment profile of all building surveyors is listed in Table 2.1.

*Table 2.2: Employment Profile of All Building Surveyors in Hong Kong*

<b>Employers</b>	<b>Year 2002</b>		<b>May 2006</b>		<b>Growth /Decline</b>
1. Government	434	36.1%	<b>518</b>	38.3%	19.4%
2. Surveying Firms	258	21.4%	<b>291</b>	21.5%	12.8%
3. Developers	130	10.8%	<b>140</b>	10.3%	7.7%
4. Management Companies	103	8.6%	<b>130</b>	9.6%	26.2%
5. Public Corporations	58	4.8%	<b>73</b>	5.4%	25.9%
6. Construction Companies	74	6.2%	<b>105</b>	7.8%	41.9%
7. Universities & Educational	29	2.4%	<b>31</b>	2.3%	6.9%
8. Architectural Firms	42	3.5%	<b>40</b>	3.0%	-4.8%
9. Hospitals	9	0.7%	<b>11</b>	0.8%	22.2%
10. Others	66	5.5%	<b>14</b>	1.0%	-78.8%
<b>Total</b>	<b>1203</b>	-	<b>1353</b>	-	<b>12.5%</b>

Note: There is no technical members or trainees under BSD so far.

Source: Hong Kong Institute of Surveyors (2006)

### **2.5.1.1 Education Background**

According to *the Rules and Guide to the Assessment of Professional Competence (APC) in Building Surveying* published by the Hong Kong Institute of Surveyors (HKIS), one of the eligibility of entering the APC is that a student must hold a relevant academic qualification in Hong Kong or overseas recognized by the HKIS (Hong Kong Institute of Surveyors, 2001). In Hong Kong, three out of the nine tertiary institutes have surveying degree course accredited by the HKIS and The Royal Institution of Chartered Surveyors. They are The Hong Kong Polytechnic University, The University of Hong Kong and City University of Hong Kong.

The former of the degree programme of B.Sc. (Building Surveying) in The Hong Kong Polytechnic University (POLYU) was called Higher Diploma in Surveying and Building Technology of the former Hong Kong Technical College. In



1988, the degree programme of B.Sc. (Building Surveying) was established as the oldest building surveying programme in Hong Kong. The programme comprises of the management and design of building, the construction and economics of buildings, the law relating to building and construction and the maintenance of all types of properties.

The degree programme of B.Sc. (Surveying) in The University of Hong Kong (HKU) is the first integrated surveying degree programme in the world, started in 1988. It is an integrated course which encompasses building surveying, general practice surveying and quantity surveying under the Department of Real Estate and Construction. For the building surveying field, students will be equipped with knowledge about building control, building services, relationship of building elements, properties of basic construction materials, structural concepts, contractual arrangement, procurement methods, project management and facility management after graduation.

City University of Hong Kong is the third university having the degree programme of B.Sc. (Surveying) in Hong Kong. Different from HKU and POLYU, the programme is an integrated programme which includes Building Surveying and Quantity Surveying. For Building Surveying field, the programme particularly focuses on professional knowledge such as building control, building and maintenance technology, building design, facilities management, contractual arrangement, procurement methods, construction materials and structural mechanics aspects.

These well-developed surveying programmes can serve as a foundation for the growth of graduates to become building surveyors and infuse more trained inputs into the building industry.

### **2.5.1.2 Scope of Work**

In Hong Kong, building surveyors are normally engaged in the public and private sectors in one of the following capacities<sup>1</sup>:

- Project planning and design
- Project management and monitoring
- Project supervision (as technically competent persons required by Buildings Department to ensure construction safety)
- Project revitalization (alteration, addition, improvement, refurbishment and renovation)
- Building management and maintenance (repairs and maintenance)
- Building measurements, surveys and fire insurance valuations
- Building safety and fire safety inspections and works supervision
- Facility management
- Disputes resolution (expert witness and arbitration).

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<sup>1</sup> Website of the Building Surveying Division of the Hong Kong Institute of Surveyors is: [http://www.hkis.org.hk/hkis/html\\_bsd/areas\\_of\\_spec.jsp?spec\\_id=5](http://www.hkis.org.hk/hkis/html_bsd/areas_of_spec.jsp?spec_id=5)

## **Scope of work in public sectors**

Building surveyors are mainly recruited by Buildings Department (BD), Architectural Services Department (ASD) and Housing Authority (HA) responsible for different aspects of works.

In BD, building surveyors help to set and enforce safety, health and environmental standards for private buildings. They provide services to owners and occupants in both existing and new buildings in the private sector through enforcement of *the Buildings Ordinance (BO)* (Chapter 123 of *the Law of Hong Kong*). For existing buildings, building surveyor monitor and reduce dangers and nuisances caused by unauthorized building works, promote proper repairs and maintenance of old buildings, improve fire safety measures in buildings and provide advice on the suitability of premises for the issue of licenses for specified commercial uses. For new buildings, building surveyors scrutinize and approve building plans and issue occupation permits upon completion of new buildings.

ASD acts as works agent of all the government departments. Building surveyors take a major role in maintaining, repairing all government buildings and facilities, and carrying out refurbishment, fitting-out, alteration, addition and improvements and emergency repairs to all properties. Although all government projects are exempted from the provision of *the BO* according to Section 41 of *the BO*, building surveyors also take roles in vetting the building plans in order to reach the health and safety requirement under *the BO*.

Since the role of HA is stood between developer and property management, building surveyors' works in HA will be mainly involved in maintenance works and project management on public housing and industry. Properties under HA are mostly industrial buildings and public housing estate. All facility management on these buildings will be carried out by Senior Clerk of Work and Maintenance Surveyors who are also regarded as building surveyors. HA also involves in property management in the private market, technical inputs which similar to private practices are required for competition.

### **Scope of work in private sectors**

Building surveyors are recruited by developers, consultants, contractors and property management companies. Because of the client-oriented approach, a broad variety of project such as residential, commercial, industrial and governmental works will be handled by private corporations. Building surveyors will devote their professional knowledge in areas of building maintenance, property development, facility management, licensing and tendering *etc.* Furthermore, building surveyors take role in promoting building management and maintenance in quasi-government bodies such as Hong Kong Housing Society to enable the owners of private buildings to have a safe and hygienic living environment

### **Comparison between building surveyors' work in public and private sectors**

The comparison will be divided into two parts which shows the similarities and differences of building surveyors in public and private sectors.

### ***Similarities***

Professional input and scope of work are found to be similar in both sectors. First, the professional inputs are required in every single project regardless of the type of nature of corporation. In the case of building maintenance, professional inputs must be provided throughout the maintenance process from diagnosis of building condition to supervision on maintenance project.

Professional inputs include understanding of building defects for quality checking, expert in building-related regulations, honesty in writing building survey report, familiarity with tendering and contractual arrangement and competent knowledge of construction procedure for close supervision. No matter which corporation they work for, the professional knowledge and ethics of building surveyor should not be neglected because it is the fundamentals of the practitioners of building surveying profession. Second, both public and private building surveyors are proficiency in general building surveying works. The scope of work handled by building surveyors in public and private sectors are more or less the same except the approval of building plans.

### ***Differences***

The administrative process of building surveying works in public sectors is more complicated than that in private corporations because of the bureaucratic structure of the Departments. Since the Government is accountable to the general public, all procedures are standardised and restricted by Government Policies and Ordinances. Building surveyors work professionally in all aspects within a restricted boundary which may lead to inelastic and close-minded management. Compared with

public sector, Mr. Dy, the Assistant Manager of Standards and Contract Management of Urban Renewal Authority, thought that the mindset of private corporations may be more creative and innovative so as to maintain their competitive advantages in the market. That is the reason why the Government outsource their works to private building surveying consultants to collect more professional inputs for the projects.

Above comparison shows that only few differences between the scope of works of building surveyors in both sectors and they have the same professional ethics and training. When analysing the perception of building surveyors, the combination of the data collected from both sectors will not cause much error to the results.

### **2.5.2 Town Planners**

Town Planners master planning and urban design. Bercon-Bratko (2001) regarded urban planners as professions preoccupied with prescriptions for development of overall urban structure of settlements, land uses and activities. They are involved with detailed layout, or its control, and with functional and aesthetic relationships between the constructed and the natural components of sites. They possess the expert knowledge and the ability to advice on the development planning, development control and land administrative issues. They are also able to plan on new development, re-development and major conversion projects. To dates, there are 240 Registered Professional Planners in Hong Kong with more than half working for the Government (Planners Registration Board, 2007).

### **2.5.2.1 Education Background**

Among the nine tertiary institutions in Hong Kong, merely The University of Hong Kong provides accredited postgraduate programme in urban planning. Urban planners require a wide variety of knowledge as the background for practising their profession because they need to balance different aspects during planning. The programme is known as M.Sc. (Urban Planning) which is an international postgraduate programme that provides a comprehensive professional training in the theory, method and practice of urban and regional planning.

A multidisciplinary programme is required for training a graduate to become a town planner. In the M.Sc. (Urban Planning) programme, the core courses comprise urban development theories, law and ethics relating planning, sustainability, values in planning and urban design. Optional specialization courses in transport policy, environmental policy, housing policy and integrative studies such as globalization, urban planning and practice in China and geographic information system in planning are also provided in the programme for specialism. In addition, some town planners in Hong Kong obtain their academic qualification in America, Canada, Australia and the United Kingdom.

### **2.5.2.2 Scope of Work**

In Hong Kong, town planners are engaged in the Government and private practice in one of the following capacities:

- Planning Officers
- Research Officers
- Development consultant
- Planning consultant

#### **Scope of work in public sector**

More than half of town planners in Hong Kong are working in Planning Department. Under the structure of the Planning Department, it is divided into 2 branches – District Planning Branch and Territorial and Sub-regional Planning Branch.

There is a close relation between Hong Kong and the Pearl River Delta Region on sustainable urban and regional development issues. Town planners in the Territorial and Sub-regional Planning Branch deal with broad medium to long-term planning strategies for the whole territory and its five sub-regions and are responsible for making territorial studies on the Co-ordinated Development of the Greater Pearl River Delta Township. To formulate a co-ordinated development strategy for the cities in the Greater Pearl River Delta Region, it is important to ensure the coincidence of Territorial Planning by the Planning Department and the planning in the Mainland. Hence, during the territorial studies, they may need to discuss with District Governments and Municipal Government on the suitability of the surrounding



area in the form of land use, development potential and constraint of land. In the District Planning Branch, town planners are responsible for formulating of statutory plans such as Outline Zoning Plan, implementing development control through investigation on alleged unauthorized development and processing development proposal and serving Town Planning Board as secretary in accessing planning application. These two branches collaborate to generate comprehensive planning in Hong Kong.

### **Scope of work in private sectors**

Town planners are usually hired by planning consultants, public organizations and developers. In the past, many planning studies were contracted out to the planning consultants by the Government to draw sufficient planning inputs such as different specialists available in the market. Thus, town planners in private sectors are involved in the preparation of the planning studies. Moreover, quasi-government bodies such as Urban Renewal Authority (URA) have many real estate developments. If it is a large-scale redevelopment such as Kwun Tong Town Centre Project, master layout plan is required to be submitted to the Planning Department for approval. As the town planners have expert knowledge about planning procedure and planning requirement, the preparation of master layout plan will be conducted by them. Apart from public sector, developers also have a lot of real estate developments for generating profit. Town planners are responsible for examining the statutory plans, the Notes, land lease and *the BO* to investigate the type of development on the land. When the development involve change in land use or the lease conditions, town

planners are then employed to provide advisory services on the planning design, application, review and even planning appeal if necessary.

### **Comparison between town planners' work in public and private sectors**

The comparison will be conducted in three sections – planning study, development control, and planning application and approval – of the town planners' work in public and private sectors.

#### ***Planning studies***

Planning studies done by town planners are used to examine the development potential and constraints of the area by taking account of its environmental, ecological and socio-economic characteristics. Both public and private sectors are required to prepare planning studies for different purposes. In the Government, they are recruited to assess the district for formulating statutory plans, provide a broad framework for continuous and integrated planning and the scale of which are much larger than those done by private planning consultants. However, the focus of developers may be mainly on the profitability whereas the Government focuses on the sustainability of the development.

#### ***Development control***

As mentioned, town planners worked in the Government are responsible for drawing up statutory plans for an area to guide future uses and control unauthorised developments. Town planners in private sectors have no authority to prepare and approve statutory plans.

### ***Planning application and approval***

The role of private town planners is to prepare planning application to increase the chance of planning approval while the town planners worked in the Government is to examine and certify the plan submitted from private sectors. Thus, both town planners in public and private sectors are required to be familiar with the planning procedures and requirements.

The scopes of works of town planners in both sectors are more or less the same except they situate at different positions for the same nature of works. Hence, the combination of the data collected from both sectors will not cause much error to the results.

### **2.6 Importance of Participation of Building Surveyors and Town Planners in Urban Renewal**

Urban renewal is a complex project which requires tremendous professional inputs in dealing with various matters. The selection of urban renewal issues are therefore required to be discussed with different professions in order to make a comprehensive and acceptable decision.

Concerning blocks of old buildings with different conditions involved in each urban renewal project, building surveyors, who backed up with the education background in building surveying and working experience in the industry, are able to work with building-related matters. Furthermore, building surveyors are knowledgeable and competent to provide expert advices in the urban renewal project, taking into consideration of the management difficulties of buildings, long-term

influences on the target area and distribution of resources. Because of the expertise in these areas, the view of building surveyors may put more building specific. The involvement of building surveyors can increase the depth of investigation on the basis elements of urban renewal.

The planning nature of urban renewal is obviously categorized into town planning and directed to town planner. The professional training of town planners allows them to cope with variety of considerations and legal requirements during planning process. Moreover, they are capable in coordinating new development with the current district use and complementing to the government policies in order to create a sustainable living and working environment for the public. With the expertise in these areas, the involvement of town planners can increase the width of investigation on the influences of urban renewal on the surrounding area.

Based on above analysis on professional knowledge and experiences of building surveyors and town planners, it is clear that they are well-equipped to take up different roles in the urban renewal, provide expert opinions on choosing the suitable urban renewal approach and their participation is of equal importance.

## **CHAPTER 3**

### **Hypotheses and Methodology**

In this chapter, hypotheses based on the previous chapters and the method for hypothesis evaluation will be introduced. Methodology adopted to evaluate hypotheses and examine the factors affecting the choice of different urban renewal measures will also be given.

#### **3.1 Hypotheses**

The background and literature review established important fundamentals for this study. It revealed that urban renewal is an important but complicated issue to be urgently solved in Hong Kong. For better and successful urban renewal planning, the involvement of different professions such as building surveyors and town planners is important because the integration of professional inputs can balance long-term benefits and harms caused to the society. To study the perceptions of different professions on the choice of urban renewal measures, it can facilitate coordination among different professions and improve the component of decision making body. Among the professions, building surveyors and town planners were chosen to investigate their views as explained in Chapter 2. In order to test whether there are any similarities and differences in their views, three hypotheses are proposed:

**Hypothesis 1: When making a selection between redevelopment and rehabilitation, building surveyors and town planners have different weightings on the influential factors**

Due to different education, training and profession, the view of building surveyors and town planners on the urban renewal measures will be different. These lead to different weightings on the influential factors during selection between redevelopment and rehabilitation. If this hypothesis is refuted, it is inessential to have the involvement of different professions in the decision making body of urban renewal.

**Hypothesis 2: Town planners give equal weightings to all factors**

Planning for sustainable living and working environment is the vision of urban planning. The core of sustainability is to consider all stakeholder's considerations, balance problems and benefits between different parties so as to coming up with a decision that minimize harmful impacts on the future generation. As urban renewal will bring a long-term effect to the society, considering different factors are determinants to the planning of urban renewal. Being professional in town planning, different aspects will be considered by town planners during investigating a possible solution to restructure an area. If this hypothesis is refuted, bias is appeared in the view of town planners and the participation of different professions in the decision making body of urban renewal become important to give balanced planning.

**Hypothesis 3: Building surveyors give heavier weightings to physical factors**

Physical factors are related to the building-related factors. The focus of physical factors is to measure the necessity of "demolish and rebuild" a building. It is important to be considered because demolition of a building will cause problems as

explained in Chapter 2 which include breaking the social network and improper allocation of resources (labour, material and money). Since building is one of the major components in urban renewal project and building surveyors, who regarded as the “Doctor of Buildings”, are familiar with all matters about buildings, they will have heavier weightings on building-related factors when selecting urban renewal measures. If this hypothesis is refuted, it shows that the view of building surveyors is not confined to the building-related factors but also others. The role of building surveyors in urban renewal should be adjusted to fully utilize this profession.

## **3.2 Methodology**

To evaluate the above three hypotheses, interview and questionnaire are adopted. This research method provides an in-depth investigation on the perspective of building surveyors and town planners.

### **3.2.1 Interview**

With the main purpose of face-to-face interview is to obtain the education background and scope of works of building surveyors and town planners in public and private sectors. Conducting in-depth interviews with selected individuals allows the author to collect valuable and updated information about the research. Follow-up interviews are conducted after obtaining the questionnaire results with the purpose to check the reasonability and validity of the results in the view of building surveyors and town planners.

### 3.2.2 Questionnaire

The attitude towards the choice of urban renewal approaches from buildings surveyors and town planners cannot be fully identified through literature review solely. Questionnaire is used to sort out the direction and factors to which building surveyors and town planners put their weightings during making the choice on redevelopment and rehabilitation in Hong Kong. To avoid unfairness, all questionnaires are conducted individually without clarification from the author.

As urban renewal planning is affected by various determinants, focus of the questionnaire was put on 4 categories of factors – economical, environmental, physical and social factors. Apart from choosing influential factors, it is important to use the most suitable method to deal with weightings and rankings among factors. According to Lo, *et al.* (2000), there are lots of assessment tools such as the direct weighting, paired comparison and equal/unit weighting to synthesize the prioritization process. Among these methods, direct weighting is the simplest method. Under this method, the respondents directly weight all the factors with facilitation through the use of checklists. Although it is simple and easy to complete the process, it could be difficult for the respondents to give a set of consistent weighting as there are 16 factors. Therefore, it is doubtful on the reliability of the results.

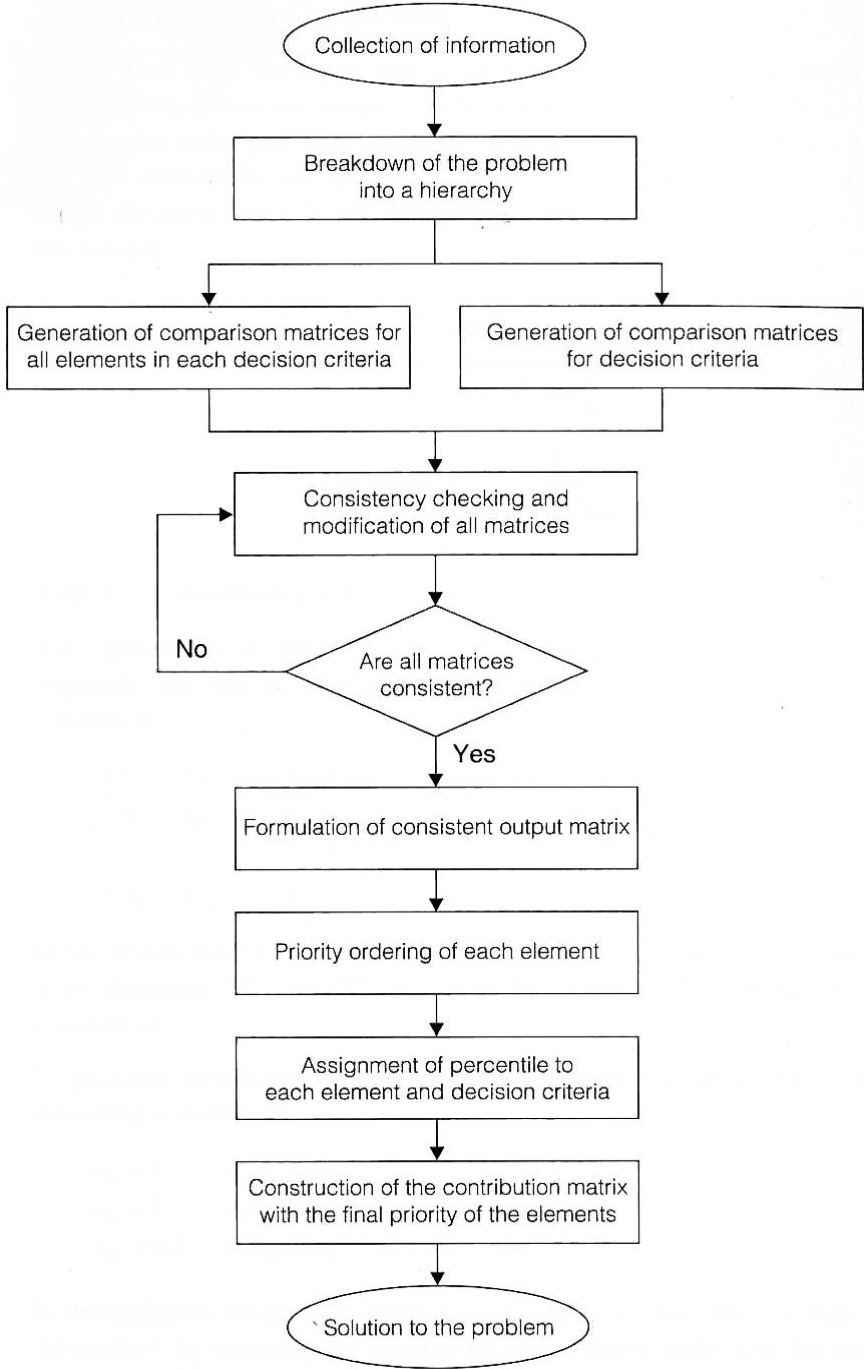
For the purpose of this study, the Analytic Hierarchy Process (AHP), which was developed by Saaty (1982), is regarded as a suitable method to access the weighting on each factor in this study. It is particularly suitable for the multi-criteria problem in which accurate quantification of the impact of alternatives on the decision making



problem is impossible. Pairwise comparison process is adopted in the AHP for the decision makers to evaluate the importance of every attributes under an intuition approach. Under this method, the problem is firstly required to be broken down into multi-levels in meeting the goal. Pairwise comparisons are then made between factors with respect to each criterion and consistency checking is offered to the pairwise comparison matrix, ensuring the rationalization of the final decision. Finally, the relatively importance of the attributes are synthesized to meet the goal (Lo, *et al.*, 2000).

Another system developed to prioritize complex multi-criteria problems is called the Non-structural Fuzzy Decision Support System (NSFDSS) (Tam, *et al.*, 2002). There are three basic principles in using the NSFDSS which are similar to that of the AHP: decomposition, comparative judgment and synthesis of priorities. The problem is firstly broken down into multi-levels and compares each pair, one by one. Then offer consistency checks to the pairwise comparison matrix, ensuring the rationalization of the final decision (Tam, *et al.*, 2002). It is an effective method for the respondents to conduct pairwise comparison easily and the form of data input is more straightforward and convenient than the AHP. In addition, the NSFDSS has a step as “priority ordering”, which has 21 semantic operators, to measure difference in magnitude of the first ordered decision and others. When compare with 17 of the AHP, the NSFDSS has more division of semantic operator for the ordering. Accordingly, the NSFDSS is chosen for this study for analyzing professional human judgments and generating the relative weightings for the various decision categories and factors. The flow chart of NSFDSS is illustrated in Figure 3.1.

Figure 3.1: Flow Chart of the Non-structural Fuzzy Decision Support System (NSFDSS)



Source: Ho, *et al.* (2004, p.103)

### **3.2.2.1 Language**

The language adopted in the questionnaire is English so as to create coherence and avoid misinterpretation in translation.

### **3.2.2.2 Sample**

Due to the multi-disciplinary nature of urban renewal project, the involvement of different professions is also very important. However, due to time constraint, the targeted respondents of this research are confined to building surveyors and town planners who are practised in Hong Kong. Since the projects handled by public and private corporations are different, they may hold different attitudes towards the choice of redevelopment and rehabilitation on urban renewal issues. In order to get an overview of the issue in these two professions and prevents bias on the results from a particular group, both public and private building surveyors and town planners are randomly selected for the investigation in this study. Furthermore, comparisons of each profession on both sectors are carried out to ensure the validity of the combination of results.

### **3.2.2.3 Questionnaire Design**

The Questionnaire is divided into three sections, namely General Information, Categories and Factors. The whole set of questionnaire is compiled in the Appendix A.

The first part of the questionnaire simply collects the respondents' professions and working organization. It is used to ensure that the questionnaire is finished either by the building surveyor or town planner from public and private sectors. The second part of the questionnaire is designed to weight the relative importance among 4 categories of factors. They are economical, environmental, social and physical categories. This section aims at finding out how they put their focused incentive on economic returns, physical structure and quality of buildings, environmental concerns and social issues when making the choice of different urban renewal measures. Therefore, respondents are asked to rank the importance among different categories by putting three scales – 0, 0.5 and 1 – which will be explained later at point (v). The last part of the questionnaire investigates the view of the respondents on the priority of factors within each category and finally the overall priority of 16 factors could be generated.

#### **3.2.2.4 Format of the Questions**

In this study, the format of the questions is composed of a 4 x 4 criteria matrix. The categories are (1) economical, (2) environmental, (3) physical and (4) social. Within each category, there are 4 factors, as shown in Figure 2.1, relevant to consideration of urban renewal approaches. To make it more user-friendly, a table-form is used to facilitate priority input.

### 3.2.2.5 Assessment Method

In the process of prioritization, pairwise comparison is conducted to assess the relative importance of one against the other. According to Tam, *et al.* (2002), there are three scales for pairwise comparison: 0, 0.5 and 1, where 0 means that X is less important than Y, 0.5 means that X and Y are equally important and 1 means the first X is more important than Y. After the pairwise comparison between any two elements, an input matrix is formed and shown in Table 3.2. An example of using these scales is shown on Appendix A. For easy assessment, X means element shown on x-axis and Y means element shown on y-axis.

*Table 3.1: Scale for pairwise comparison*

Comparing X to Y	Scale
0 =	Element X is less important than Element Y
0.5 =	Both are equally important
1 =	Element X is more important than Element Y

Source: Tam, *et al.* (2002, p.308)

### 3.2.2.6 Method of Data Analysis

The analytical method is adopted from Tam, *et al.* (2002) and Ho, *et al.* (2004) which includes 4 steps and they are explained in the following.

### Step 1 - Consistency checking

Consistency checking of the matrix is required after collection of the input matrix. The matrix of a pairwise comparison of the corresponding element is:

$$iE \begin{bmatrix} ie_{11} & ie_{12} & \dots & ie_{1m} \\ ie_{21} & ie_{22} & \dots & ie_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ ie_{m1} & ie_{m2} & \dots & ie_{mm} \end{bmatrix} = (ie_{kl})$$

$$k = 1, 2, \dots, n \quad l = 1, 2, \dots, n$$

Where  $ie_{kl}$  is the logical indicator of pairwise comparison of element “k” and “l”; m is the number of element to be considered. Then the input matrix is transformed into the iE form of output matrix in by subtracting the upper triangle of the input matrix from

1. Examples of input and output matrix are shown in Table 3.2 and Table 3.3.

*Table 3.2: Input evaluation matrix form for Category 1*

Element No.	Output values			
	1	2	3	4
1	0.5	1	0	0.5
2		0.5	0	0
3			0.5	1
4				0.5

*Table 3.3: iE form of output matrix for Category 1*

Element No.	Output values			
	1	2	3	4
1	$ie_{11} = 0.5$	$ie_{21} = 1$	$ie_{31} = 0$	$ie_{41} = 0.5$
2	$ie_{12} = 0$	$ie_{22} = 0.5$	$ie_{32} = 0$	$ie_{42} = 0$
3	$ie_{13} = 1$	$ie_{23} = 1$	$ie_{33} = 0.5$	$ie_{43} = 1$
4	$ie_{14} = 0.5$	$ie_{24} = 1$	$ie_{34} = 0$	$ie_{44} = 0.5$

After consistency checking five output matrices are generated for further evaluation. If inconsistencies are found from any questionnaire received, it is assumed that the upper rows and the system will re-set the values of the lower rows. In other words, the earlier comparisons made are assumed to be more accurate, which resembles human beings' cognitive behaviour. However, if blank box is found, that sample will send back to respondent immediately for correction.

## **Step 2 - Priority ordering and assignment of priority scores to element**

The aim of this step is to give priority ranking to the elements (i.e. categories and factors). After consistency checking, the priority matrices of pairwise comparison among the categories themselves and the factors with respect to the decision category  $C_n$  are confirmed. The values in each column are summed up and rearranged in descending order with respect to each criterion. Based on the priority order, four percentile are assigned to each element with the top element score as 100 percent, the remaining elements are compared to it one by one to distinguish the importance between them. Each percentile is then assigned a semantic score,  $s_j$ , in the range of [1, 0.5] while 1 means "same importance" and 0.5 means "not important", as shown in Table 3.1. The semantic score will then be converted into a priority score  $r_j$ , in the range of [1, 0] by applying fuzzy set theory through the following equation:

$$r_j = \frac{1 - s_j}{s_j}, 0.5 \leq s_j \leq 1$$

where  $s_j$  is the semantic score and  $r_j$  is the priority score.

The calculation of the semantic score and priority score of the 16 factors under the perspective of building surveyors and town planners are shown at Appendix B and Appendix C.

*Table 3.4: Priority score*

<b>Percentile (%)</b>	<b>s<sub>j</sub></b>	<b>r<sub>j</sub></b>
100	0.500	1.000
95	0.525	0.905
90	0.550	0.828
85	0.575	0.739
80	0.600	0.667
75	0.625	0.600
70	0.650	0.538
65	0.675	0.491
60	0.700	0.429
55	0.725	0.379
50	0.750	0.333
45	0.775	0.290
40	0.800	0.250
35	0.825	0.212
30	0.850	0.176
25	0.875	0.143
20	0.900	0.111
15	0.925	0.081
10	0.950	0.053
5	0.975	0.026
0	1.000	0.000

Source: Ho, *et al.* (2004, p.105)

### **Step 3 - Derivation of weightings by normalizing semantic score**

After obtaining the priority order of decision categories and factors in Step 2, it is necessary to measure the magnitude of the pairwise comparison by assigning



weightings to these decision categories and factors. The set of weighting (w) is developed from normalization of the priority scores. Example is shown in Table 3.5.

*Table 3.5: Example of normalization of decision categories priority scores into weightings*

<b>Category</b>	<b>Priority score (r<sub>j</sub>)</b>	<b>Normalization</b>	<b>Weighting (w<sub>i</sub>)</b>
Physical	1.000	1/2.302	0.4345
Environmental	0.739	0.739/2.302	0.3211
Economical	0.481	0.481/2.302	0.2092
Social	0.081	0.081/2.302	0.0352
Total	2.302		1.0000

**Step 4 – Determination of the contribution of each factor**

A contribution matrix (CM) is constructed after gathering the weighting of each category and factor. It is used to show the overall ranking of each element. The general ranking is obtained by multiplying the weighting of each element with the weight of the respective decision category by the following equation:

$$CM_{ij} = w_i \times r_{ij}$$

where  $CM_{ij}$  = contribution of each element in the problem  
 $w_i$  = the weighting of decision category “i”, and  
 $r_{ji}$  = the weighting of element “j” for decision category “i”

The element with the highest percentage of weighting indicates the most important factor considered by the respondent.

## CHAPTER 4

### Analysis and Discussion of Results

In this chapter, findings of the questionnaire will be firstly presented and then analysed. The comparison of the results between building surveyors and town planners is divided into two parts – Similarities and Significant Differences. Lastly, conclusion will be made at the end of this chapter.

#### 4.1 Results of the Questionnaire

The survey period was 5<sup>th</sup> January, 2007 to 28<sup>th</sup> February, 2007. 207 questionnaires were distributed to 120 town planners and 87 building surveyors through electronic mails and short interviews. After around 2-month period, 35 completed questionnaires were received with 12 questionnaires failed in the consistency checking and returned back to the respondents for correction. As last, there were 33 valid questionnaires and response rate was 16 percent. The distribution of respondents is shown at Table 4.1.

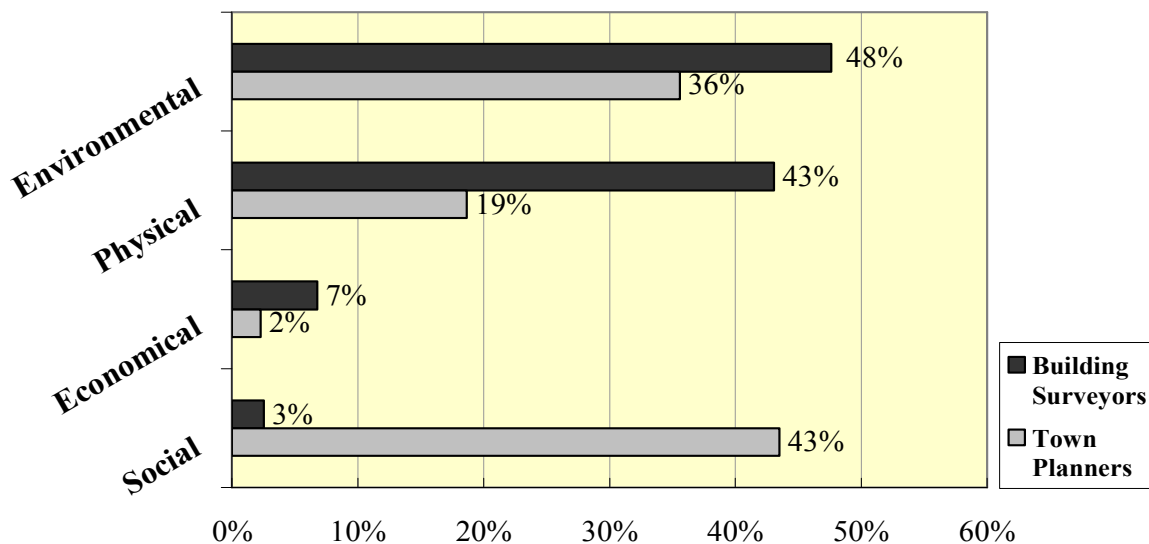
*Table 4.1: Distribution of respondents*

<b>Profession</b>	<b>Public Sector</b>	<b>Percentage (%)</b>	<b>Private Sector</b>	<b>Percentage (%)</b>	<b>Total</b>
Building Surveyor	18	86	3	14	21
Town Planner	8	67	4	33	12
				<b>Total</b>	<b>33</b>

### 4.1.1 Results collected from Part A

Part A of the questionnaire was designed to gather the opinions from building surveying and town planning professions. 4 categories of factors were prioritized by building surveyors and town planners to show their attitudes towards the choice of redevelopment and rehabilitation. The results are represented in Figure 4.1. The higher the percentage, the more important the category to the respondents is during selection of urban renewal methods.

*Figure 4.1: The weighting of each category from the perspectives of building surveyors and town planners*



According to Figure 4.1, in the view of building surveyors, the vast majority of weighting were given to “Environmental” and “Physical” categories with 48 percent and 43 percent respectively. They weighted 7 percent to “Economical” category and merely 3 percent of weighting was left for “Social” category. On the other hand, town planners have shown completely different weightings on these 4 categories. “Social” category covered more than 43 percent of weighting among the 4 categories so that it occupied the greatest portion on the pie chart. 36 percent fell onto the

“Environmental” category while “Physical” category (19 percent) had the third highest weighting. The least important category was remained to “Economical” with merely 2 percent.

It is a bit surprised to find out that the building surveyors have considered environmental factors more important than physical factors. Indeed, the results clearly imply that town planners have more concern on social factors but not economical factors. To conclude, the current results indicate that the greatest attention of building surveyors is paid on environmental factors and town planners is more concerned on social factors.

Because of the simplicity of the comparables, the results of Part A were insufficient to reflect the actual differences and similarities between the perception of building surveyors and town planners on urban planning issues. For this reason, a more in-depth analysis was designed at Part B of the questionnaire and the results are discussed in detail.

#### **4.1.2 Results collected from Part B**

The assessment method used by the respondents in part B is the same as that in Part A. The only difference is that the comparables have been changed to 16 factors in 4 categories. In Figure 4.2 and 4.3, the higher the percentage of a factor, the more important the factor is to the respondents during selection of urban renewal methods.

Figure 4.2: The contribution of each factor from the perspective of building surveyors

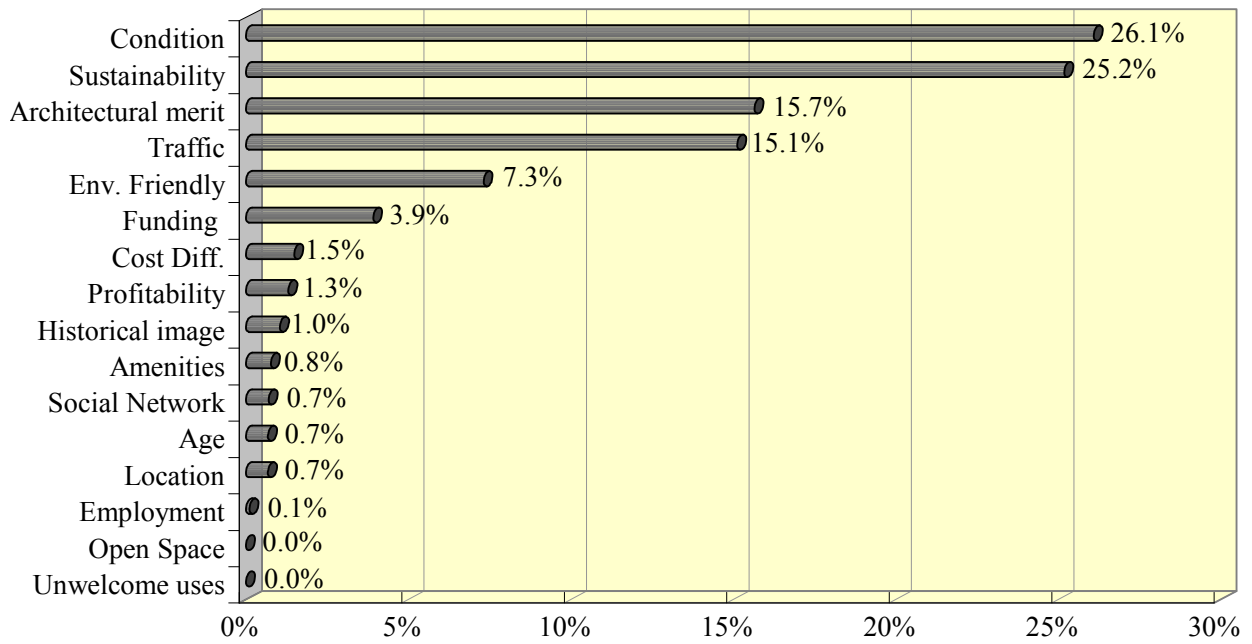
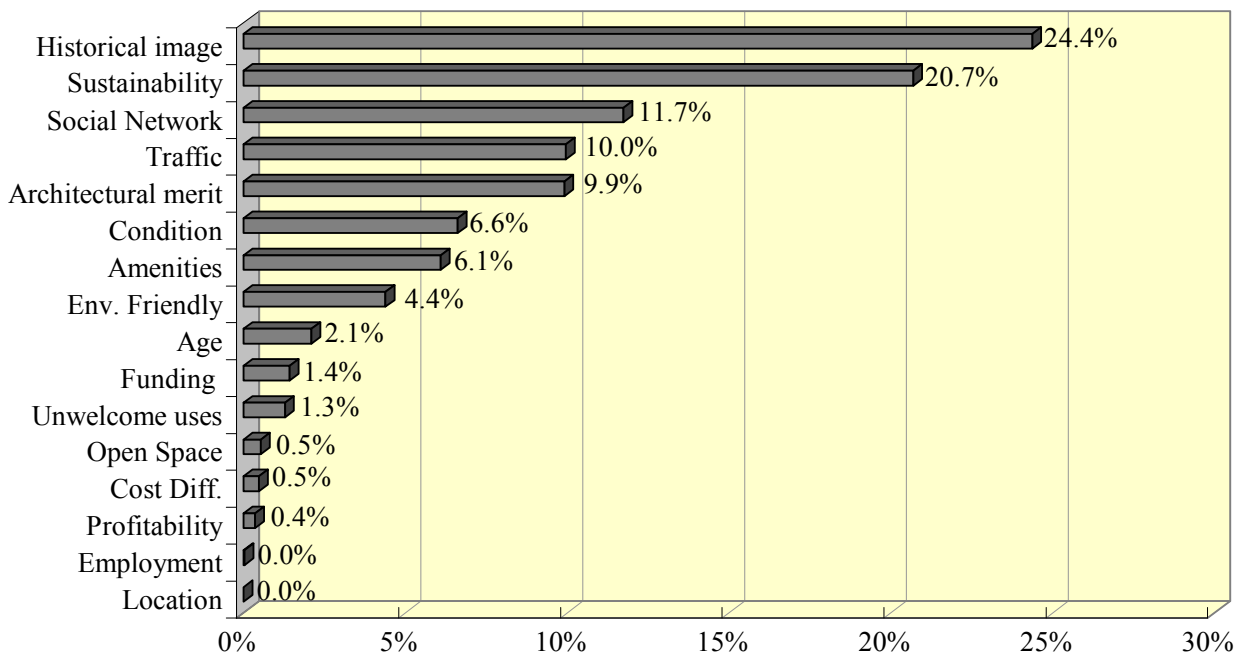


Figure 4.3: The contribution of each factor from the perspective of town planners



#### **4.1.2.1 Priority of Factors from the Perspective of Building Surveyors**

As shown in Figure 4.2, the pattern of the weightings heavily biased to the upper part of the graph. There were two physical factors within the first three ranking of the factors. They were “Conditions and quality of building” with 26.1 percent and “Architectural merit of building” with 15.7 percent of the weighting. The finding was in agreement with the findings of previous discussion that building surveyors shows more concerns on the physical matter of the building during selecting urban renewal approach. Other factors ranking at the top-5 were “Sustainability” (25.2 percent), “Urban traffic condition” (15.1 percent) -and “Environmental friendly” (7.3 percent). Such findings obviously were contrary to the finding in Part A that building surveyors paid the greatest attention on factors related to environment.

“Availability of funding to the development” (3.9 percent), “Cost difference between rehabilitation and redevelopment” (1.5 percent) and “Profitability of the development” (1.1 percent) ranked in the midst of the chart. Although they only occupied about 5 percent in total, this shows that building surveyors recognize the feasibility of the urban renewal project in term of financial concern. These cost-related factors were followed by two physical factors – “Age of building” and “Location of building” - which had the same percentage of the weighting - 0.7 percent.

All social factors were found at the lower half of the chart with proportion of weighting equal to or less than 1.1 percent. They were “Retaining the historical image of the area” (1 percent), “Availability of amenities, community and welfare facilities” (0.8 percent), “Maintenance of social network among the community” (0.7

percent) and “Removal of unwelcome uses” (0 percent), which were of relatively low importance from the building surveyors’ point of view. This situation is consistent with the finding in Part A that “Social” factors are not much considered by building surveyors.

#### **4.1.2.2 Priority of Factors from the Perspective of Town Planners**

According to Figure 4.3, the length of the bar gradually increased towards the top but the level of tendency is much less than Figure 4.2. It is not surprising to find out that three social factors rank at top-5 of the chart. About a quarter of weighting was given to “Retaining the historical image of the area” while “Sustainability” accounted for 20.7 percent. “Maintenance of social network” was the third important factor with 11.7 percent. Moreover, the similar weightings were assigned to “Urban traffic condition” (10 percent) and “Architectural merit of building” (9.9 percent). It reveals that town planners regard two factors as equally important. “Conditions and quality of building” and “Availability of amenities, community and welfare facilities” also received similar weighting of 6.6 percent and 6.1 percent respectively, followed by another two factors ranked at the middle of the chart. They were “Environment friendly” with 4.4 percent and “Age of building” with 2.1 percent.

At the lower half of the chart, “Availability of funding to the development” (1.4 percent), “Cost difference between rehabilitation and redevelopment” (0.5 percent) and “Profitability of the development” (0.4 percent) were under “Economical” category which weighted as the least important category at Part A. This reveals that town planners are not money-minded. If these cost-related factors have to be strongly

taken into account in developing an urban renewal project, it is inevitable that other categories of factors such as social and environmental are needed to be sacrificed. This is completely contrary to the planning philosophy of town planning. From the bottom of the chart, it shows that town planners disregard “Capacity to generate employment” and “Location of building” as both factor were weighted as 0 percent. To conclude, top-5 factors ranked by both professions are summarized as below:

*Table 4.2: Summary of the top-5 factors*

<b>Category</b>	<b>Building Surveyors</b>	<b>Town planners</b>
<b>Environmental</b>	<ul style="list-style-type: none"> <li>• Sustainability</li> <li>• Urban traffic condition</li> <li>• Environmental friendly</li> </ul>	<ul style="list-style-type: none"> <li>• Sustainability</li> <li>• Urban traffic condition</li> </ul>
<b>Physical</b>	<ul style="list-style-type: none"> <li>• Conditions and quality of building</li> <li>• Architectural merit of building</li> </ul>	<ul style="list-style-type: none"> <li>• Architectural merit of building</li> </ul>
<b>Social</b>		<ul style="list-style-type: none"> <li>• Historical image of the area</li> <li>• Maintenance of social network among the community</li> </ul>

## 4.2 Evaluation of Hypotheses

The hypotheses established in Chapter 3 are evaluated based on the results of the questionnaire.

### Hypothesis 1

*“When making a selection between redevelopment and rehabilitation, building surveyors and town planners have different weightings on the influential factors”*

Based on the above analysis on the views of the building surveyors and town planners regarding factors to be considered in selecting between redevelopment and rehabilitation, differences in their considerations can be found. According to Figure 4.2, it is obvious to see that building surveyors gave higher priority to items related to



buildings and environment compared to those related to economics and social issue. At the same time, higher priorities were accorded to items related to social and environmental issues in town planners' perspective as shown in Figure 4.3. Thus, hypothesis 1 is not refuted.

## **Hypothesis 2**

*“Town planners give equal weightings to all categories of factors”*

Uneven distribution of weighting is recorded in Figure 4.1. Majority of the weightings given by town planners covered social, environmental and physical factors. Indeed, more than 70 percent have been weighed on social and environment. Hypothesis 2 is therefore refuted.

## **Hypothesis 3**

*“Building surveyors give heavier weightings to physical factors”*

According to Figure 4.1 and 4.2, not only physical factors are recorded with high weightings but also environmental factors. So, hypothesis 3 is refuted.

### **4.3 Comparison of the Results between Building Surveyors and Town Planners**

Table 4.3 summarizes the weightings and rankings of the factors obtained from both professions. To investigate the relationship among the sets of rankings given by building surveyors and town planners, Spearman's Rank Correlation test was carried out. The correlation coefficient between the rankings of building surveyors and town planners is the square root of 0.278, which statistically significant at the 5 percent level. Since the coefficient is not quite high, there seems to be a significant difference

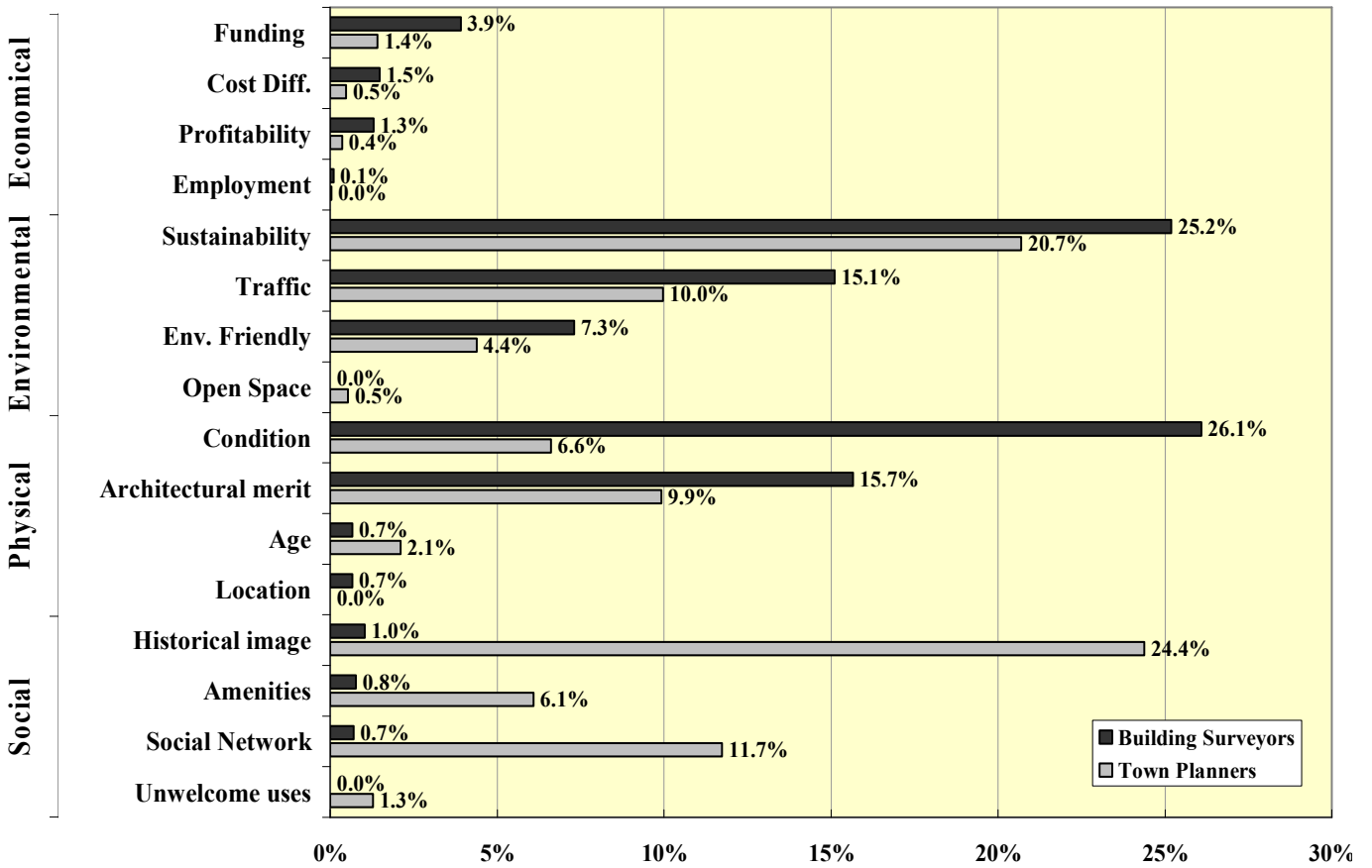
of views towards the relative importance of factors among building surveyors and town planners. In this section, discussion on factors with similar pattern of weighting given by both professions will be discussed. The level of discrepancy of ranking between two professions is more than 5 will also be discussed. Such selections allow us to identify areas of similarities and differences between the perspectives of building surveyors and town planners when they select different urban renewal measures. Through the discussion, we can understand more about the view of both professions and the grounds which they may base on to give such results.

*Table 4.3: Weightings and rankings for the influential factors by both professions*

<b>Influential Factors</b>	<b>Building Surveyors</b>	<b>Town Planners</b>
Availability of funding to the development	3.91% (6)	1.42% (10)
Cost difference between rehabilitation and redevelopment	1.48% (7)	0.47% (13)
Profitability of the development	1.30% (8)	0.36% (14)
Capacity to generate employment	0.10% (14)	0.04% (15)
Sustainability	25.19% (2)	20.70% (2)
Urban traffic condition	15.11% (4)	9.97% (4)
Environmental friendly	7.31% (5)	4.39% (8)
Availability of Open Space and greenery	0% (15.5)	0.53% (12)
Conditions and quality of building	26.09% (1)	6.61% (6)
Architectural merit of building	15.65% (3)	9.92% (5)
Age of building	0.67% (12.5)	2.10% (9)
Location of building	0.67% (12.5)	0% (16)
Historical image of the area	1.04% (9)	24.38% (1)
Availability of amenities, community and welfare facilities	0.77% (10)	6.09% (7)
Maintenance of social network among the community	0.67% (11)	11.74% (3)
Removal of unwelcome uses (e.g. prostitution business)	0% (15.5)	1.28% (11)

Notes: Figures in parentheses are factor rankings, with 1 being the most important.

Figure 4.4: Weightings on the 16 factors from the perspectives of building surveyors and town planners



### 4.3.1 Similarities

Similar pattern of the weightings can be found on “Economical” and “Environmental” categories. Even though the orders given to the importance of the factors under each category were the same for the building surveyors and town planners, the differences in the extent of weightings assigned among factors by different profession indicated some potential differences in their views. In the section, the discussion is divided into 2 parts – Significant and Insignificant Factors.

#### **4.3.1.1 Significant Factors**

Building surveyors and town planners held a unanimous view that attention should be heavily paid to the sustainability of the environment, urban traffic conditions and architectural merit of building in the selection between redevelopment and rehabilitation.

#### **Sustainability**

From Figure 4.4, “Sustainability” obtained the common highest ranking from both professions among the 16 factors. It shows that not only town planners emphasize sustainability of the environment but also building surveyors. This is probably because of the strong promotion of sustainability concepts to the community by the Hong Kong SAR Government. All government departments as well as the civil servants underneath, including building surveyors and town planners, have been influenced and responsible to implement the sustainability to the society. For example, The Buildings Department (BD) (2005, p.6) stated that

“The Buildings Department takes a proactive role in supporting the Government’s objective of achieving a sustainable built environment in Hong Kong. Our vision and mission outline long-term strategy in pursuit of sustainability.”

The BD is committed to promoting and raising the awareness of the important of a sustainable environment in our community. Different kinds of regulations and restrictions are imposed on building design and built environment in Hong Kong to achieve better living and working environment for the citizens. Mr. Dy agreed and

emphasized that it would be important for building surveyors to concern the sustainability of the buildings and to fulfil the needs in the future when considering conversion of their uses and this aim can also be achieved through rehabilitation and regular maintenance of buildings.

In addition, sustainability is the core of urban planning as well as urban renewal. Ms. Pong, the Vice-President of Hong Kong Institute of Planners, expressed that the ultimate goal of sustainability is to maintain the sustainable living environment for citizens as well as the future generation. Therefore, this concept is emphasized in the education and training of town planners. Blowers and Evans (1997) express that the constructions of sustainability are attractive to professional town planners as well as to others involved in land-use change and development. Thus, the sustainability concept is certainly fully embraced in the professionalism of building surveyors and town planners. Therefore, it is no doubt that this factor accounted for relatively high weighting by both professions.

### **Urban traffic conditions**

Traffic condition is important to society since the performance of road networks will admittedly impose external costs on society. According to Figure 4.4, both professions placed a relatively high ranking on this factor. It should be due to their training received and related to their working positions in the development project.

From the education and training of town planners, traffic and transportation is one of the major elements that should be considered during urban planning. According to Chapter 8 of *the Hong Kong Planning Standard Guideline (HKPSG)*, it states that

“All the objectives and initiatives of the Transport Strategy that are related to land use planning have been incorporated into the relevant sections of the HKPSG to ensure that due consideration will be given in the planning process.” (Planning Department, 2005)

To measure the feasibility of urban renewal method, it is necessary for town planners to investigate whether the neighbourhood traffic condition can accommodate the traffic demands of an additional population after completion, if any. Consequently, traffic impact assessment may be required depending on the project scale. Moreover, Ms. Pong further explained that urban renewal project sometimes provide an opportunity to modify road works nearby such as road widening. So, it is necessary to consider the adaptability of the road works for excess traffic flow or any improvement works.

For building surveyors, it is probably because of their working positions in the building project. In order to control the adverse effects triggered by the development, the Government stipulate that all developments must first conduct an environmental impact assessment to measure the influences made by the development under *the Environmental Impact Assessment Ordinance* (Chapter 499 of the *Law of Hong Kong*). Furthermore, the number of parking within a development is regulated by the Planning Department. As stated in Chapter 11 of *the HKPSG*, the standards for off-street private parking are set out in details in Table 11 of *the HKPSG* which include “the parking standards for residential developments, community facilities, commercial

facilities and industrial and business developments” (Planning Department, 2007). As the building surveyors are responsible to prepare and check the development plans, it is no doubt that they put more concern on the traffic conditions. Mr. Dy agreed that the impact of the urban renewal approach to the traffic is one of the critical criteria that affect the probability of getting approval of the development plans. Moreover, he believed that rehabilitation is the correct choice for urban renewal if the traffic condition cannot fulfil certain requirement.

### **Architectural merit of building**

It is reasonable that both professions have put high ranking on this factor as heritage conservation have been becoming more and more popular among the society and professions due to the increased concern on community’s collective memories. Architectural merit of building is one of the major elements that furnish the building with heritage value and bring historical image to the area. It is an evidence displaying history, reflecting people behaviours and culture in the past. In *the 1999 Policy Address*, the Chief Executive of the Hong Kong SAR clearly stated that

“It is important to rehabilitate and preserve unique buildings...The concept of preserving our heritage should be incorporated into all projects for redeveloping old areas.” (Tung, 1999, p.44)

The current heritage conservation policy also shows the Government’s support and concerns on the conservation of architectural building in Hong Kong. Under *the Antiquities and Monuments Ordinance* (Chapter 53 of *the Law of Hong Kong*), it is used to “provide for the preservation of objects of historical, archaeological and

palaeontological interest and for matters ancillary thereto or connected therewith.”<sup>2</sup> Similar to sustainability, the statutory bodies and government departments such as the Town Planning Board and BD help to implement the government policy on heritage conservation. Being professional building surveyors and town planners, it is necessary for them to be equipped with such intentions to deal with matters such as planning<sup>3</sup> and building controls<sup>4</sup> and applications.

Regarding to the choice on redevelopment and rehabilitation, it is important to check whether the building has been declared as a monument or proposed monument because it heavily affects the choice on different urban renewal approach<sup>5</sup>.

#### **4.3.1.2 Insignificant Factors**

Both professions thought that several factors were relatively less important to be considered when making the choice on urban renewal measures, which is implied in their level of ranking shown in Table 4.3. They made clear that all economical factors, the age and location of building, removal of unwelcome uses and availability of open space and greenery in the district were relatively less important.

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<sup>2</sup> Long Title of *the Antiquities and Monuments Ordinance* (Chapter 53 of *the Law of Hong Kong*).

<sup>3</sup> *Town Planning Ordinance* (Chapter 131 of *the Law of Hong Kong*).

<sup>4</sup> According to *the Practice Note for Authorized Persons and Registered Structural Engineers (PNAP)*, unless you have already obtained a permit and can produce a copy of such to the Buildings Department, plans for building works affecting a building or a site which has been declared a Monument or a proposed Monument would be disapproved under Section 16(1)(d) of *the Buildings Ordinance* (Chapter 123 of *the Law of Hong Kong*).

<sup>5</sup> All development on buildings which declared or proposed as monuments are required to obtain a permit issued by Secretary for Recreation and Culture under Section 6 of *the Antiquities and Monuments Ordinance* (Chapter 53 of *the Law of Hong Kong*).



### **Economical factors**

Both professions were unanimous on the view that economical factors are relatively less important than the other. Mr. Dy believed that generation of profit and economic value should not be emphasized in urban renewal project because the achievements of urban renewal are for all citizens and should focus on the long-term effects caused to the society. As a result, comparatively high ranking have been given to physical, social and environmental factors and these cost-related factors have become subordinated. Moreover, Ms. Pong explained that urban renewal is a multi-disciplinary work. Division of works is made very clear that the focus of town planners is put on physical, environmental and social. Therefore, relatively less attention put on economical factors.

### **Generating Employment Opportunities**

The capacity of the urban renewal method in generating employment was the least important among 16 factors. This is probably associated with the fact that most of the urban renewal projects in Hong Kong are relatively small in scale when compare to that in foreign countries and therefore it is difficult to use urban renewal project to create long-term employment opportunities. Both interviewees agreed on this explanation and believed that it may be inappropriate to be regarded as a tool to solve problem of unemployment in Hong Kong.

### **Location of building**

Previously mentioned in Chapter 2, whether people consider the location of building for redevelopment or rehabilitation is highly related to the profitability of the development. As the economical factors received low concern among other factors from both professions, it is not surprised that this factor has received the same low weighting.

### **Age of building**

From the literature review, the age and conditions and quality of building are closely related to each other because the condition of building is affected by the age of building due to natural deterioration (Highfield, 2000). However, both professions disregards “Age of building” while the ranking of “Conditions and quality of building” remains high. As empirically found by Wong, *et al.* (2005), there is a negative relationship between building conditions and age.<sup>6</sup> The age of building can only be regarded as a factor for estimating the conditions and quality of building but cannot proportionally link with the building condition. This is agreed by Mr. Dy and Ms. Pong. Ms. Pong further supplemented that the conditions and quality of building can be maintained with regular inspection and maintenance because of advanced in building and maintenance technology. Hence, it is comparatively less important to consider the age of building.

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<sup>6</sup> In Wong, *et al.* (2005), the conditions of a building were delimited to the existing conditions with regard to fire safety, structural safety, building services safety, and environment hygiene.

### **Removal of unwelcome uses**

“Removal of unwelcome uses” was weighted as a comparatively less important factor to be considered during selecting urban renewal method. Ms. Pong agreed with this result and pointed out that the surrounding area will be naturally upgraded to meet new businesses opportunities caused by the urban renewal projects. In other words, the removal of unwelcome uses is an accompanied effect that follows to the urban renewal project. Mr. Dy also believed that the natural fade out of unwelcome uses and change of business are caused by market forces.

### **Availability of open space and greenery**

From Chapter 2, the availability of open space and greenery are important to create a better living environment because residents need green spaces such as parks and gardens to unwind, enjoy leisure activities *etc.* The result shows that both professions considered “Availability of open space and greenery” as relatively less important. Mr. Dy believed that the low weighting on the provision of open space and greenery only reflects the relatively less importance of the factor when compare with others which short-listed in this study. It does not mean that the provision of open space and greenery can be disregarded but probably due to the passiveness of the factor. Among urban renewal method, only redevelopment can provide spaces for this purpose and the redeveloped land is seldom be used for open space because urban land is valuable and scarce in Hong Kong. Ms. Pong supplemented that whether consider this factor usually depends on the scale of the project. In Hong Kong, very few urban renewal projects attain to large scale like Kwun Tong Town Centre Project.

For the small-scale urban renewal projects, the open space created only has small contribution to the district. In general practise, the provision of open space is usually through land lease and statutory plans to decide the most suitable land use.

#### **4.3.2 Significant Differences**

According to Figure 4.4, significant differences between the perspectives of building surveyors and town planners on the choice of urban renewal measures were shown on “Conditions and quality of building”, “Retaining the historical image of the area” and “Maintenance of social network among the community”. The possible reasons for such a large discrepancy are discussed in the following.

##### **Condition of the buildings and Retaining the historical image of the area**

The top factor ranked by building surveyors was “Conditions and quality of building” whilst town planners ranked “Retaining the historical image of the area” as the top priority. The findings are in agreement with the previous discussion that building surveyors are more concern on the physical matter of the building and town planners consider the long term and basic interests of the general public at the conception stage of each urban renewal project. Apart from the different education, training and scope of works received by both professions, the differences in their attitudes can further be explained through an example of heritage preservation.

The historical image and environment of an area is a result of the activities of people and architectural structure of the building in the past. A very long duration is

needed to cultivate such irreplaceable characteristics in terms of architectural beauty of the buildings and cultural created. Due to the long history, the condition of the building fabrics as well as the environment will be deteriorated and may endanger the society. Some architectural structures may be too weak or difficult to be recovered through rehabilitation. Therefore, both historical value and the condition of building are needed to be considered.

Building surveyors will firstly pay attention to the conditions and quality of building before preserving or redeveloping any building. For all urban renewal projects, it is necessary to check the maintenance record and conduct a condition survey to investigate the stability of structural fabrics, condition of fittings, building services and facilities and they are usually taken by building surveyors. If the building conditions do not reach an acceptable level, the building will possibly be wholly or partially demolished, for example, the case of Sai Ying Pun Community Complex<sup>7</sup>. However, if the condition is acceptable and financially feasible, rehabilitation and modification will be made to the buildings so that modern service facilities can be installed, for instance, the case of Kom Tong Hall<sup>8</sup>. Accordingly, the conditions and quality of building is adhered to other considerations such as financial and technical considerations which may deeply affect the feasibility of the urban renewal method (i.e. redevelopment or rehabilitation). Thus, retaining the historical image of the area is relatively much less important than the condition of building in the building surveyors' point of view. Mr. Dy agreed and believed that the previous

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<sup>7</sup> The site originally was an Old Mental Hospital. Due to disrepair and badly ruined by two fires, only the north Victorian façade of the Old Mental Hospital is restored and preserved during the construction of Sai Ying Pun Community Complex. (Poon, undefined)

<sup>8</sup> Government architect Kenneth Tam explained that all air-conditioning equipment is concealed on the rooftop and the front terrace is dig up to hide the required water tank for the conversion works. (Government Information Centre, 2002)

results may be due to insufficient training on this issue in Hong Kong.

Town planners have completely different attitude towards the historical image of the area. The result shows that they heavily focused on the historical value of the whole area whilst the building condition was treated as minor supportive information for their consideration. It is mainly because of the sufficient training of sustainability concept on urban planning. From *the Consultation Document of Review of Built Heritage Conservation Policy* in 2004, it stated that “Heritage conservation should be part of the sustainable development of any city” (Leisure and Cultural Services Department, 2004). It is important for the decision makers to ensure the conserved heritage can be a living and functional part of the community in place of a mere historical artifact for display. In other words, not only historical and cultural values are included in the heritage, but also social value and economic value (Chiu and Tsoi, 2003). Moreover, Ms. Pong stressed that there is ordinance protecting building with architectural merits but no mechanism truly protects the area with historical image such as old Star Ferry Pier. Therefore, town planners pay much attention to the area with historical image. For comprehensive development, town planners may give higher priority to the regional benefits created. In this regard, the condition of building sometimes may have to be sacrificed. This also shows that town planner is equipped with macroscopic view to take all relevant benefits under consideration.

Considering the conflict between condition of the building and historical image of the area, it is important to make a right balance between these two factors so as to sort out the most suitable urban renewal method.

### **Maintenance of social network among the community**

Large difference between the perception of building surveyors and town planners repeated again. Town planners ranked “Maintenance of social network among the community” in the third place while building surveyors ranked it in the eleventh place. The reason of the result is similar to the above discussion. Mr. Dy agreed that social consideration is seldom included in the education and training provided for building surveyors but the training usually emphasizes in technical and physical matters. It is largely different from town planners. As mentioned in Chapter 2, social network and interaction is one of the basic human needs for living in a society. Since each urban renewal decision truly affects the social tie of the citizens, town planners pay much attention to this issue. Ms. Pong agreed and emphasized that social network is fundamentally important to the society in Hong Kong, especially for the elderly. Compensation cannot replace the actual loss in social network and community life. Therefore, social network is important to be considered in town planners’ point of view.

#### **4.4 Implications of the Results**

Similarities and differences between the views of both professions in deciding different renewal measures have been investigated. The above analysis shows that building surveyors and town planners locate at different positions to make their judgments. Even so, it has been illustrated that environmental factors are relatively more important and economical factors are relatively insignificant to be considered

from the views of both professions. This reveals that the allocation of resources for the urban renewal should be more concerned about the environment.

From the result, building surveyors concentrate on the environmental and physical factors whilst town planners pay much attention to social and environmental factors. Building surveyors are more technical and practical that they concern the suitability of the urban renewal method and the possibility of achieving a project. Besides, town planners are more conceptual that they look at the environmental and social issues during making decisions on urban renewal project. Even though they have different perspective on deciding between redevelopment and rehabilitation, the ultimate goal of both professions is to provide their professional knowledge to give contribution and serve the general public. With the differences found, it further ascertain that the involvement of different professions in the decision making body is extremely important for urban renewal planning.

As shown in the discussion, the differences in the perspectives of building surveyors and town planners were mainly because of the ordinances, government policies, scope of works and professional trainings received. With the glowing public concern on urban renewal and accelerated number of old building in Hong Kong, sufficient training related to urban renewal issue is necessary for professional development, especially for those who involve in urban renewal.



## **CHAPTER 5**

### **Conclusions**

The aim of this chapter is to review the research through reiteration of its objectives, summarization of the findings and discussions, and stating the implications of the research. Limitations and areas for further study will be given at the end of this chapter.

#### **5.1 Summary of the Dissertation**

This dissertation was an attempt to study the urban renewal issue from the perspectives of building surveyors and town planners. The author aimed at examining the determining factors of the choice of different urban renewal approaches (i.e. redevelopment and rehabilitation) from these two professions. 4 objectives of this study were firstly, to explore the factors affecting the choice of different urban renewal measures (i.e. redevelopment and rehabilitation), secondly, to identify the relative importance of these factors from the perspectives of town planners and building surveyors, thirdly, to compare and contrast the views of town planners and building surveyors in the decision-making process of urban renewal and finally, to make suggestions for better urban renewal decision.

The study firstly defined the meaning of special terms used. Previous studies on urban renewal, redevelopment and rehabilitation were then reviewed to identify the factors to be considered during the choice on urban renewal approaches. The education and scope of work of building surveyors and town planners in Hong Kong were examined, which used to provide the fundamentals for the analysis of their perceptions. To collect the background information of building surveyors and town planners for analysis, interview was employed in this study. To facilitate the collection of the attitudes of building surveying and town planning professions, questionnaire was conducted and analysed based on the Non-structural Fuzzy Decision Support System. Then, follow-up interview was used as a supplement to collect professional opinions on the survey results.

Detailed discussion and analysis were carried out after fixing the results. Perceptions of the building surveyors and town planners regarding factors to be considered when selecting between redevelopment and rehabilitation were examined and explained. Similarities and differences between the views of both professions were identified with reasons. With reference to the results obtained, it illustrates that the decision made by both professions on choosing the urban renewal measures are significantly affected by several factors while some of the factors are relatively insignificant. For the building surveyors, their decisions heavily depended on the condition and architectural merit of building, environmental sustainability and urban traffic condition whilst the focus of the town planners were put on historical image of the area, social network among the community, environmental sustainability and urban traffic condition.

## **5.2 Implications**

Selecting the right urban renewal method is a complex and dynamic activity. During investigation, numerous attributes are needed to be considered and discussed among different parties so as to balance the benefits and minimize harmful effects to the society. This study is the first attempt to study the perceptions of building surveyors and town planners in selecting different urban renewal measures. It provides preliminary insight towards the importance of the factors to be considered during making the choice on different urban renewal measures and the importance of participation of building surveyors and town planners in urban renewal project.

By identifying the relative importance of the factors affecting the urban renewal measures from the perspectives of town planners and building surveyors, a clearer picture about the important of factors during investigation is given. This study helps figure out what actually the factors considered by the building surveying and town planning professions who are greatly involved in urban renewal. Also, understanding the relative importance of different elements, key factors affecting the choice on urban renewal method are found. The planning of the urban renewal can be more focused so that the allocation of resources and manpower can be facilitated and the speed of urban renewal can be fastened.

As explained in Chapter 3, the opinions of building surveyors and town planners are of equal important to generate a comprehensive decision because their expertises. From the comparison of the views of these two professions, discrepancies can be found which probably due to different training and scope of work of the

professions. Therefore, with the contribution of building surveyors and town planners in decision making level of urban renewal, bias can be prevented and a more comprehensive discussion can be facilitated and finally, a better urban renewal planning can be achieved. This finding can also apply to other professions participated in urban renewal and other projects with multi-disciplinary professions involved.

### **5.3 Limitations**

The validity of the result analysis is heavily depended on the sample size. The first limitation is the number of respondent is limited compared with the whole building surveying and town planning professions in Hong Kong. There are only 33 set of questionnaire received for comparison and analysis. Also, the year of working experiences of the respondents is not restricted so that some of the respondents may not be experienced enough to provide comprehensive judgment.

The second limitation is the relatively small number of influential factors. This dissertation only includes 16 factors grouped into 4 categories for ranking, where other relevant factors are not considered. As the assessment method of the factors is carried out under comparative basis, the significance of the factors would greatly affect the overall ranking of the factors. Together with the subjectivity and bias of the respondents (Chiu, 2004), this result of this study may not be representative and persuasive enough to show the actual perceptions of both professions.

In addition, it is recognised that there may be variations in perceptions of the respondents because of the variety of components and constraints in each urban renewal project such as budget, social norm and government policy. Very often, adjustments have to be made based on the actual situation of the project. The importance of the factors may vary depending on the projects being considered and also the time when the priorities are set. However, this study can still show the picture of the similarity and difference between the perceptions of both professions in Hong Kong in some extent.

#### **5.4 Areas for Further Study**

In the course of examining the view of different parties involved in the urban renewal in Hong Kong regarding factor affecting the choice of urban renewal measures, this dissertation only uses 16 factors to compare the perceptions of building surveying and town planning professions. For further study, more factors should be incorporated into the comparison to improve the representative power of the results. In addition, other parties such as architect, economist, socialist and lawyers can also be examined together to obtain a more comprehensive comparison.

Another possible way to examine the suitability of urban renewal method used in Hong Kong is to compare the opinion between different parties, for instance, experts and laymen or relevant professions in public and private sectors.

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**Appendix A**  
**Questionnaire to Respondents**

## Decision Questionnaire

### **Redevelopment or Rehabilitation? The Choice of Different Urban Renewal Measures from the Perspectives of Town Planners and Building Surveyors**

The objective of this questionnaire is to assess the importance ranking on various factors when making a choice of urban renewal approach (i.e. redevelopment and rehabilitation).

This questionnaire consists of two parts. **Part A** assesses the relative importance of 4 influential categories. **Part B** assesses the relative importance of factors against the other in the same category. Both parts are conducted through pairwise comparisons.

### **General Information**

You are a:

Town Planner       Building Surveyor

Organization:

Public       Private

## Assessment Method

Both Part A and Part B adopt a pairwise comparison approach to assess the relative importance of one category against the other. Please first **decide** which one of **X** or **Y** is relatively more important and then **write the relative weighting (0, 0.5, 1)** in the box to indicate. The table below explains what the weighting means:

Comparing <b>X</b> to <b>Y</b>	Scale
0	= Element X is less important than Element Y
0.5	= Both are equally important
1	= Element X is more important than Element Y

For Example: The importance of characteristic in being a police.

Step1) If you think EQ is **more important** than Qualification, put **1** in the box.

Categories	Qualification	EQ	Age
Qualification	0.5	1	
EQ		0.5	
Age			0.5

Step 2) If you think Age is **equally important** than Qualification, put **0.5** in the box.

Categories	Qualification	EQ	Age
Qualification	0.5	1	0.5
EQ		0.5	
Age			0.5

Step 3) If you think Age is **less important** than EQ, put **0** in the box.

Categories	Qualification	EQ	Age
Qualification	0.5	1	0.5
EQ		0.5	0
Age			0.5

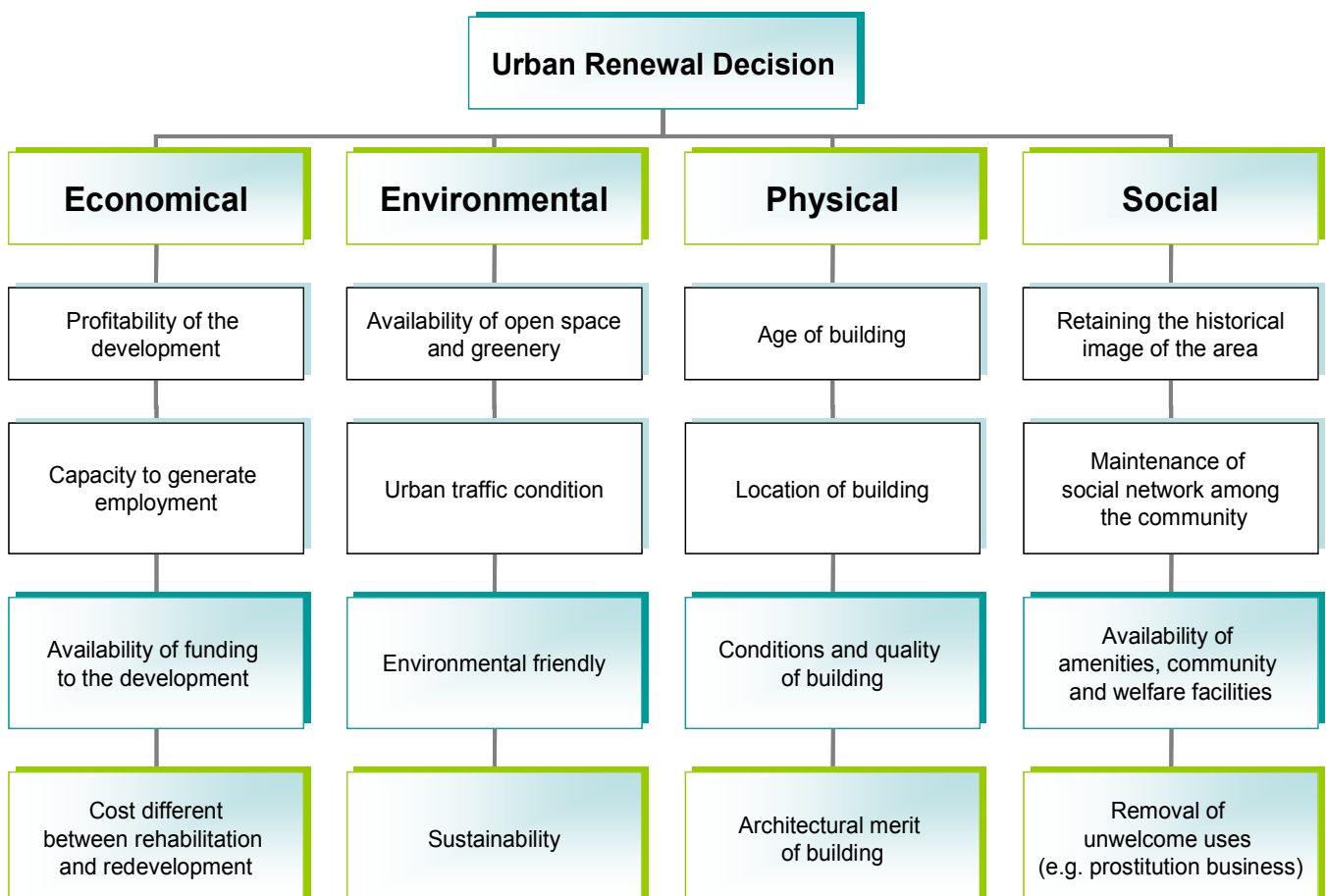
As a result, the ranking of Qualification, EQ and Age in being a police is  
EQ > Qualification = Age

**Part A: Categories**

4 categories of factor will be assessed when making urban renewal decision. They are social, environmental, physical and economical factors.

With reference to the following figure, please **indicate a scale (0, 0.5, 1)** in the box to weight the importance of following 4 categories.

Categories	Economical	Environmental	Physical	Social
Economical	0.5			
Environmental		0.5		
Physical			0.5	
Social				0.5





**Part B: Factors**

There are 4 factors in each category. With reference to the following figure, please indicate a scale (0, 0.5, 1) to weight the importance of factors against the other in the same category.

**Table 1 of 4 – Economical Factors**

Factors	Profitability of the development	Capacity to generate employment	Availability of funding to the development	Cost difference between rehabilitation and redevelopment
Profitability of the development	0.5			
Capacity to generate employment		0.5		
Availability of funding to the development			0.5	
Cost difference between rehabilitation and redevelopment				0.5

**Table 2 of 4 – Environmental Factors**

Factors	Availability of open space and greenery	Environmental friendly	Sustainability	Urban traffic condition
Availability of open space and greenery	0.5			
Environmental friendly		0.5		
Sustainability			0.5	
Urban traffic condition				0.5

**Part B: Factors (Continued)**

**Table 3 of 4 – Physical Factors of Existing Building**

<b>Factors</b>	<b>Age of building</b>	<b>Architectural merit of building</b>	<b>Conditions and quality of building</b>	<b>Location of building</b>
<b>Age of building</b>	0.5			
<b>Architectural merit of building</b>		0.5		
<b>Conditions and quality of building</b>			0.5	
<b>Location of building</b>				0.5

**Table 4 of 4 – Social Factors**

<b>Factors</b>	<b>Availability of amenities, community and welfare facilities</b>	<b>Maintenance of social network among the community</b>	<b>Retaining the historical image of the area</b>	<b>Removal of unwelcome uses (e.g. Prostitution business)</b>
<b>Availability of amenities, community and welfare facilities</b>	0.5			
<b>Maintenance of social network among the community</b>		0.5		
<b>Retaining the historical image of the area</b>			0.5	
<b>Removal of unwelcome uses (e.g. Prostitution business)</b>				0.5

**END OF QUESTIONNAIRE**

**Please return the questionnaire through e-mail to  
HL041085@hkusua.hku.hk / chanholing@gmail.com**

**Thank you!**

**Appendix B**  
**Results of the Questionnaire**  
**- Building Surveyors -**

## Priority ordering and assignment of priority scores to element

Arrange in Descending Order	Percentile (%)	Semantic score(sj)	Priority score (rj)
<b>Categories</b>			
Environmental	47.5	100	1.000
Physical	47	0.500	0.905
Economical	37.5	0.525	0.143
Social	36	0.875	0.053
<b>Factors</b>			
Funding	50	100	1.000
Cost Diff.	42.5	0.725	0.379
Profitability	41.5	0.750	0.333
Employment	34	0.975	0.026
Sustainability	53	100	1.000
Traffic	46.5	0.625	0.600
Env. Friendly	39	0.775	0.290
Open Space	29	0.000	0.000
Condition	57.5	100	1.000
Architectural merit	50	0.625	0.600
Age	29.5	0.975	0.026
Location	29.5	0.975	0.026
Historical image	50.5	100	1.000
Amenities	46.5	0.575	0.739
Social Network	45	0.600	0.667
Unwelcome uses	26	0.975	0.000

## Derivation of weightings by normalizing priority score

Categories	Priority score (rj)	Normalization	Weighting (wi)	
Environmental	1.000	1/2.1	0.4761	
Physical	0.905	0.905/2.1	0.4308	
Economical	0.143	0.143/2.1	0.0680	
Social	0.053	0.053/2.1	0.0251	
Total	2.100		1.0000	
<b>Factors</b>				
Factors	Priority score (rj)	Normalization	Weighting (rj)	Contribution (wi x rj x 100%)
Funding	1.000	1/1.738	0.5753	3.91%
Cost Diff.	0.379	0.379/1.738	0.2182	1.48%
Profitability	0.333	0.333/1.738	0.1918	1.30%
Employment	0.026	0.026/1.738	0.0148	0.10%
Total	1.738		1.0000	
Sustainability	1.000	1/1.89	0.5290	25.19%
Traffic	0.600	0.6/1.89	0.3174	15.11%
Env. Friendly	0.290	0.29/1.89	0.1536	7.31%
Open Space	0.000	0/1.89	0.0000	0.00%
Total	1.890		1.0000	
Condition	1.000	1/1.651	0.6056	26.09%
Architectural merit	0.600	0.6/1.651	0.3634	15.65%
Age	0.026	0.026/1.651	0.0155	0.67%
Location	0.026	0.026/1.651	0.0155	0.67%
Total	1.651		1.0000	
Historical image	1.000	1/2.406	0.4157	1.04%
Amenities	0.739	0.739/2.406	0.3072	0.77%
Social Network	0.667	0.6/2.406	0.2771	0.69%
Unwelcome uses	0.000	0/2.406	0.0000	0.00%
Total	2.406		1.0000	100%

**Appendix C**  
**Results of the Questionnaire**  
**- Town Planners -**

## Priority ordering and assignment of priority scores to element

Arrange in Descending Order	Percentile (%)	Semantic score(sj)	Priority score (rj)
<b>Categories</b>			
Social	26	0.500	1.000
Env.	25.5	0.550	0.818
Physical	23.5	0.700	0.429
Economical	21	0.950	0.053
<b>Factors</b>			
Funding	36	0.500	1.000
Cost Diff.	25	0.750	0.333
Profitability	22.5	0.800	0.250
Employment	14	0.975	0.026
<b>Total</b>			
			1.000
Sustainability	32.5	0.500	1.000
Traffic	25.5	0.675	0.481
Env. Friendly	20.5	0.825	0.212
Open Space	17.5	0.975	0.026
<b>Total</b>			
			1.000
Architectural merit	37	0.500	1.000
Condition	30.5	0.600	0.667
Age	17	0.825	0.212
Location	8.5	0.000	0.000
<b>Total</b>			
			1.000
Historical image	30	0.500	1.000
Social Network	25.5	0.675	0.481
Amenities	22.5	0.800	0.250
Unwelcome uses	18	0.950	0.053
<b>Total</b>			
			1.000

## Derivation of weightings by normalizing priority score

Categories	Priority score (rj)	Normalization	Weighting (wi)	
Social	1.000	1/2.299	0.4349	
Environmental	0.818	0.818/2.299	0.3558	
Physical	0.429	0.429/2.299	0.1864	
Economical	0.053	0.053/2.299	0.0229	
<b>Total</b>				
	2.299		1.0000	
<b>Factors</b>				
Factors	Priority score (rj)	Normalization	Weighting (rij)	Contribution (wi x rij x 100%)
Funding	1.000	1/1.609	0.6215	1.42%
Cost Diff.	0.333	0.333/1.609	0.2072	0.47%
Profitability	0.250	0.25/1.609	0.1554	0.36%
Employment	0.026	0.026/1.609	0.0159	0.04%
<b>Total</b>				1.0000
Sustainability	1.000	1/1.719	0.5817	20.70%
Traffic	0.481	0.481/1.719	0.2801	9.97%
Env. Friendly	0.212	0.212/1.719	0.1234	4.39%
Open Space	0.026	0.026/1.719	0.0149	0.53%
<b>Total</b>				1.0000
Architectural merit	1.000	1/1.879	0.5323	9.92%
Condition	0.667	0.667/1.879	0.3548	6.61%
Age	0.212	0.212/1.879	0.1129	2.10%
Location	0.000	0/1.879	0.0000	0.00%
<b>Total</b>				1.0000
Historical image	1.000	1/1.784	0.5605	24.38%
Social Network	0.481	0.481/1.784	0.2699	11.74%
Amenities	0.250	0.25/1.784	0.1401	6.09%
Unwelcome uses	0.053	0.053/1.784	0.0295	1.28%
<b>Total</b>				1.0000
	1.784		1.0000	100%