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THE HONG KONG POLYTECHNIC UNIVERSITY
DEPARTMENT OF BUILDING AND REAL ESTATE

A FRAMEWORK FOR STAKEHOLDER
MANAGEMENT IN CONSTRUCTION PROJECTS

YANG Jing

A thesis submitted in partial fulfilment of the requirements
for the Degree of Doctor of Philosophy

March, 2010

CERTIFICATE OF ORIGINALITY

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ABSTRACT

Stakeholder management has been considered to be important by many scholars in recent years. Operational knowledge of the practice of stakeholder management can be found in the literature, software packages, and current practice. Although there has been some success in areas such as the manufacturing industry, the construction industry still has a poor record of stakeholder management during the past decades. One reason for this is the lack of the establishment of a systematic framework for project stakeholder management. There are no routine functioning strategies, plans, methods or processes. The result is random stakeholder management.

Although many initiatives, within the stakeholder management community, have made significant progress to improve the process, a formal framework has yet to be fully developed for construction projects. Previous studies have either concentrated on one stage of stakeholder management, or proposed several stages which are not coherent or not detailed enough in practice. One reason for the lack of the establishment of a formal stakeholder management framework could be the multiplicity of tasks and parties involved in a construction project. Such projects are subject to so many changes; hence although informal project stakeholder management is inadequate, the task of formalising a framework is difficult to complete.

Project stakeholder management should provide the project team with adequate support for the selection of realistic options in the management of project stakeholders.

Therefore, a formal approach should be synthesised and developed to improve the performance of stakeholder management process in construction projects.

This research presents a framework that aims at being a systematic and generic reference for stakeholder management in the construction industry. The four main objectives of this research are: (1) to explore Critical Success Factors (CSFs) for stakeholder management, (2) to develop a systematic framework for stakeholder management, (3) to investigate practical approaches for stakeholder management, and (4) to validate and implement the proposed framework and approaches in practice, in construction projects.

These objectives have been achieved through a literature review, interviews, questionnaire surveys, and action research conducted in Hong Kong and Australia, all targeting construction projects. Findings from the research are categorised into five areas: (1) the identification of 15 critical factors, which are important for the success of stakeholder management in construction projects; (2) the development of a systematic framework for stakeholder management, which consists of six activity groups (i.e. precondition, stakeholder identification, stakeholder assessment, decision making, action & evaluation, and continuous support); (3) the development of a typology of approaches for stakeholder management; (4) the evaluation of the systematic framework and the typology of approaches; and (5) the identification of the context specific nature of stakeholder management.

The research has contributed to new knowledge and improved understanding of multi-stakeholders management in construction in at least five areas:

1. The collection of ranked and grouped CSFs can be used as an assessment tool to evaluate the performance of stakeholder management in the construction industry.
2. The results of the quantitative analysis of the 15 CSFs can help project managers become more aware of their responsibilities and the specific issues, which are important to the management of stakeholders in a particular project.
3. The typology of approaches and the systematic framework can be used as a reference for systematic consideration by project management teams in construction.
4. The context-specific nature of stakeholder management can be used as a guideline for practical stakeholder management in construction projects.
5. The demonstration of the usefulness of the ‘Social Network Analysis’ (SNA) technique, which can be used for the analysis of stakeholder interrelationships, contributes to the development of stakeholder management theory from a ‘network’ perspective.

PUBLICATIONS

Refereed Journal Papers:

- Yang, J., Shen, Q.P. and Ho, M.F. (2009) An Overview of Previous Studies in Stakeholder Management & Its implications for Construction Industry, *Journal of Facilities Management*, 7(2), 159-175.
- Yang, J., Shen, Q.P., Ho, M.F., Drew, S.D. and Chan, A.P.C. (2009) Exploring Critical Success Factors for Stakeholder Management in Construction Projects, *Journal of Civil Engineering and Management*, 15(4), 337-348.
- Yang, J., Shen, Q.P., Drew, S.D. and Ho, M.F. (2010) Critical Success Factors for Stakeholder Management: Construction Practitioners' Perspectives, *Journal of Construction Engineering and Management*, ASCE, 136(7), 778-786.
- Yang, J., Shen, Q.P., Ho, M.F. and Drew, S.D. (2010) Stakeholder Management in Construction: Research Limitations and Empirical Studies, *International Journal of Project Management*, accept.
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CHAPTER 1 INTRODUCTION

1.1 Background of the Research

1.1.1 Why manage stakeholders in construction projects

Every organisation needs to focus on activities for the successful delivery of its vision, mission and business strategy (Bourne, 2009). According to Sauer's study (1993), an organisational activity has three components:

- (1) processes and practices influenced by the organisation's culture that provides the framework, guidelines and measures to deliver the activity;
- (2) supporters who provide funding, assistance or are beneficiaries;
- (3) those who will actually plan, manage and execute the targeted work.

As these three components indicate, failure of an organisational activity can be stakeholders' expectations not met, or promises not delivered, or the belief that the support could be applied elsewhere (Bourne, 2009).

In the case of construction projects, these perceptions often relate to the quality of the relationships between project management team and its stakeholders. A construction project comprises a series of complex activities. Different stakeholders have different levels and types of investments and interests in the project in which they are involved. According to Cleland (1999) and Karlsen (2002), managing multiple stakeholders and maintaining an acceptable balance between their interests are crucial to successful project delivery. Olander and Landin (2005) opined that a negative attitude to a construction project by stakeholders can severely obstruct its implementation. Such obstruction will lead to overruns in time and cost, and poor quality, due to conflicts and controversies concerning the design and implementation of the project. Their

study reveals that an evaluation of the demands and influence of the stakeholders should be considered as a necessary and important step in the planning, implementation, and completion of any construction project. Yu et al. (2007) found that stakeholder management is an important variable in the briefing process, and they considered it was necessary to assess the individual stakeholder commitment, interest and power prior to the briefing process and to consider and balance the interests of all stakeholders. Olander and Landin (2005) considered that project managers should clearly identify all types of stakeholders and accommodate their conflicts and needs. The stakeholder commitment, interest and power should be fully assessed so that the project managers can tackle the key problems in the stakeholder management process. Jergeas et al. (2000) also suggested that the purpose of the project needs to be understood, and feedback from stakeholders be solicited in order to achieve alignment between the stakeholders and project team. Many problems can be overcome if the stakeholders are actively engaged in early planning and integrated into the project team, and if a systematic approach is used to identify and manage stakeholders in the project delivery process (Jergeas et al., 2000). They indicated that this was the only way expectations can be managed, hidden agendas brought to the surface, and project priorities established.

1.1.2 Why stakeholder management is a challenge

According to PMI (2004), a project is: “a temporary endeavour undertaken to create a unique product, service, or result”. Based on this definition, projects are temporary and unique. Olander (2006) points out that a project is a unique process, consisting of “a set of coordinated activities with a start and a finish date, undertaken to achieve an objective conforming to specific requirements, including constraints on time, cost and

resources”. Ibrahim and Nissen (2003) also state “there is no such thing as a typical facility development project. No two projects are ever the same”. The uniqueness nature and limited duration of projects require additional efforts to build effective project teams and generate trust, both within the team and between the team and the project stakeholders (Grabher, 2002). The team members must learn quickly how to work together as a coherent unit (Ibrahim and Nissen, 2003). Project managers need to be attuned to the cultural, organisational and social environments surrounding projects (Wideman, 1990).

Youker (1992) defines the notion of “project environment” according to the Random House dictionary, which is “the aggregate of surrounding things, conditions or influences”. He states the environment includes virtually everything outside the project: “its technology (i.e. the knowledge base, from which, it must draw upon), the nature of its products, customers and competitors, its geographical setting, the economic, political and even meteorological climate in which it must operate”. Burton and Obel (2003) also use contingency factors to describe the project environment as one of having high complexity, high uncertainty, and high equivocality, such factors make stakeholder management difficult. Youker (1992) clarifies that uncertainty becomes a problem for the project manager because of the dependency relationship between the project and the uncontrolled elements in its environment. Managing stakeholders needs to balance competing claims on resources between different parts of the project, between the project and other projects and between the project and the organisation (Bourne, 2005), but an environment of uncertainty and complexity makes “achieving this balance more difficult” (Turner and Muller, 2003).

Since the nature of construction projects is uncertain and complex (Cicmil and Marshall, 2005), stakeholder management in these environments is challenging for project teams.

1.1.3 Why a framework is needed

Stakeholder management has been considered to be important in construction by many scholars in recent years (e.g. Newcombe, 2003; Olander and Landin, 2005; Chinyio and Akintoye, 2008). Operational knowledge for the practice of stakeholder management can be found within the literature, software packages, and current practice. However, the construction industry has continued to have a poor record of stakeholder management during the past decades (Loosemore, 2006). According to Rowlinson et al.'s study (2010a) in Hong Kong, "the issue of stakeholders and their management was paid scant regard; the government was used to making decisions on development rather than consulting widely with the major players." Rowlinson et al. (2010a) further stated that, in the construction industry, stakeholder management and relationship management was still in their infancy. One reason for this, as Karlsen (2002) stated, is that a formal and systematic project stakeholder management framework does not exist in many projects; the management of the stakeholders is rather, on an ad hoc basis, since there are no 'well-functioning' strategies, plans, methods or processes.

Although many initiatives have made significant progress to improve the process of stakeholder management, a formal framework has yet to be fully developed in construction (Chinyio and Akintoye, 2008). It appears that previous studies either concentrated on one stage of stakeholder management, such as stakeholder

identification in Smith and Love (2004), and stakeholder influence analysis in Newcombe (2003), or proposed several stages which are not coherent or not detailed enough to be used in practice. For example, Karlsen (2002) considers “identification of stakeholders” and “analysing the stakeholders” are the first two stages for stakeholder management; however, he ignored the stage of “gathering information about stakeholders”, which is considered important by Young (2006). Therefore strong indications exist to suggest a formal approach should be further synthesised and developed in the interest of both the project and its stakeholders.

In this research, stakeholder management is defined as a process, which comprises the activities to solve problems, minimize project risks, and get project moving forward timely and effectively.

1.2 Research Propositions and Objectives

This research reviews the literature regarding stakeholder management in general and in particular of construction sector. Four gaps in the scope of the existing research on stakeholder management in construction are identified. They are as follows:

- Gap 1. a comprehensive list of the factors affecting the success of stakeholder management has yet to be fully developed;
- Gap 2. a range of practical approaches that can be used for stakeholder management has yet to be consolidated;
- Gap 3. a systematic framework for stakeholder management needs to be further developed;

Gap 4. most studies focus only on issues of promotion of the relationships themselves, but few focus on analysing stakeholders' interrelationships to identify stakeholders' impacts on construction projects.

In the context of the present inadequate investigation of the process, practical approaches, and relationship network for stakeholder management, the main research proposition is:

the development of a systematic framework, which comprises a detailed process and a typology of practical approaches, can contribute to the body of stakeholder management knowledge in the construction field. An improvement in the perception of stakeholder management success requires an analysis of the interrelationships of stakeholders.

According to the research proposition, the aim of this research project is:

- to develop a framework that aims at being a systematic and generic reference to the practice of stakeholder management in the construction industry.

The following four objectives are designed to achieve the above aim:

Objective 1. to identify and quantitatively prioritise Critical Success Factors (CSFs) associated with stakeholder management in construction projects (corresponding to Gap 1);

Objective 2. to develop and refine a systematic framework for stakeholder management in construction projects (corresponding to Gap 3 and Gap 4);

Objective 3. to identify and validate a typology of approaches for stakeholder management in construction projects (corresponding to Gap 2);

Objective 4. to validate the systematic framework and the typology of approaches by using real-life projects.

1.3 The Research Process

The research design is shown in Figure 1.1.

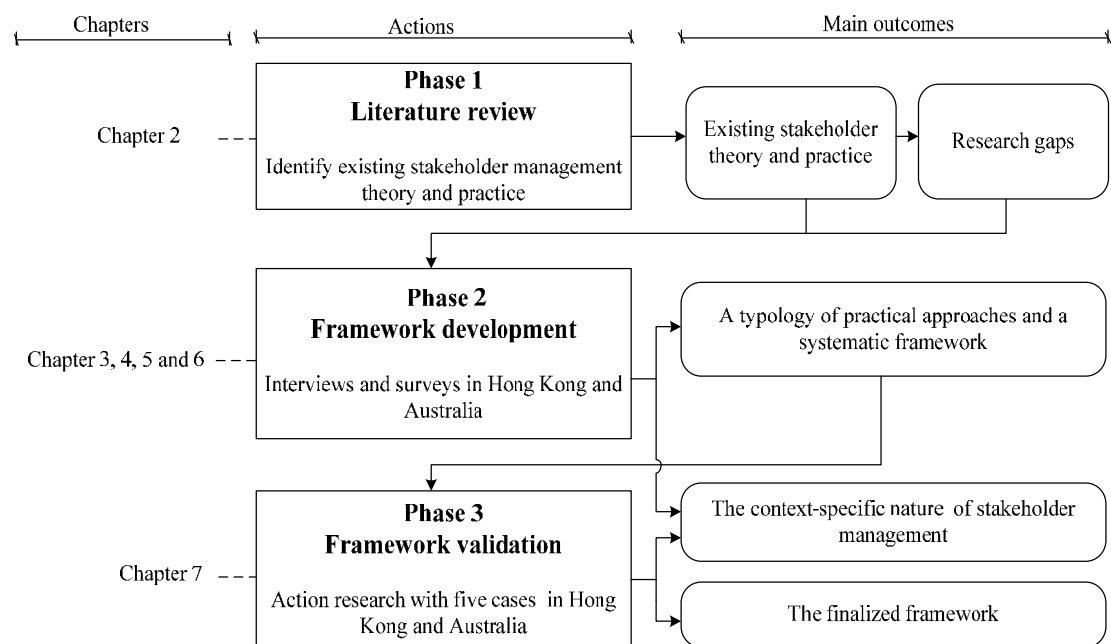


Figure 1.1 Research design

The research project is designed to achieve the four objectives listed in Section 1.2. It is conducted in the following three phases:

Phase 1: Literature review.

The available literature on stakeholder management in general and in construction is reviewed and the following list of the essential stakeholder theories and practices identified (refer to Chapter 2).

Phase 2: Framework development.

Based on the results of the literature review in Phase 1, data are collected from six interviews and a questionnaire survey in Hong Kong, and fifteen interviews in Melbourne, Australia. A typology of practical approaches and a systematic framework for stakeholder management in construction projects are developed and refined (refer to Chapters 3, 4, 5 and 6).

Phase 3: Framework validation.

The findings revealed in Phase 2, are further validated by action research in five real projects (three in Australia, and two in Hong Kong) (refer to Chapter 7).

1.4 Structure of the Dissertation

This dissertation has eight chapters. Chapter 1 provides an overall view of the research. It addresses the background of the research, research proposition, and objectives, research methods, and dissertation structure.

Chapter 2 reviews the literature relevant to stakeholder management in general and in construction field, in particular. Starting with an explanation of the development of stakeholder management theory, the literature on stakeholder concepts and major stakeholder management models is explored. Following this, an overview of existing literature relevant to stakeholder management in construction is conducted. Through the comprehensive literature review, research gaps are identified.

Chapter 3 describes and justifies the research design used in achieving the research objectives described in Chapter 1. The research gaps, the research proposition and objectives of this research are reviewed. The nature of this research is explored by investigating the different aspects relevant to designing the research study; these aspects comprises purpose of the study, types of investigation, extent of researcher interference, study setting, unit of analysis, time horizon, research methods, sampling design, measurement, data analysis, and ethical considerations. A detailed research process is then developed. A description of how the knowledge is gained from the use of the selected research methods is given.

Chapter 4 focuses on the identification and investigation of the relative importance and groupings of the Critical Success Factors (CSFs) for stakeholder management in construction projects. A comparative analysis of practitioners' views on the relative importance of Critical Success Factors is conducted. By using factor analysis, the CSFs are categorised into fewer groups.

Chapter 5 describes the development and refinement process of a framework for stakeholder management in construction projects. The findings from the empirical studies in Hong Kong and Australia are synthesised as a systematic framework for stakeholder management.

Chapter 6 presents the identified practical approaches for stakeholder management. The main outcome is a typology of approaches for stakeholder management.

Chapter 7 is to validate the proposed systematic framework (in Chapter 5) and the typology of approaches (in Chapter 6) by using five real-life projects in Hong Kong and Australia. The main outcome is a finalised framework for stakeholder management in construction projects.

Chapter 8 summarises the research findings in relation to the research objectives, and the contribution of this work to the profession of stakeholder management. The chapter concludes by presenting limitations of this study and gives recommendations for further research and practice.

1.5 Summary of the Chapter

This chapter provides an introduction to the dissertation. The main argument of the research is that a systematic framework, which comprises a detailed process and a typology of practical approaches, can contribute to the body of knowledge about stakeholder management in the construction field. Improving the perception of stakeholder management success requires the project manager and the project team to analyse the interrelationships among stakeholders.

The research gaps mentioned in this chapter are further explored in Chapter 2 through a review of the literature which lays the foundation for theories and concepts drawn upon this dissertation.

CHAPTER 2 CRITICAL REVIEW OF PREVIOUS STUDIES

2.1 Introduction

The literature relevant to stakeholder management in general and also that relevant to the construction field is reviewed in this chapter. Starting with an explanation of stakeholder concepts, the development of stakeholder management theory and major stakeholder management models is examined. Following this, an overview of existing literature relevant to stakeholder management in construction is conducted. Through the literature review, gaps in the scope of the existing research on stakeholder management in construction are identified and proposed for further investigation.

2.2 Stakeholder Concept

Donaldson and Preston (1995) noted that a dozen books and more than 100 articles primarily concerned with the stakeholder concept had appeared in recent years. Friedman and Miles (2006) have presented a summary of fifty-five definitions “covering seventy-five texts arranged in chronological order” (Table 2.1).

Table 2.1 Stakeholder definitions

(Source: Friedman and Miles, 2006)

Date	Author	Stakeholder definition
1963	Stanford Research Institute	Those groups without whose support the organisation would cease to exist
1964	Rhenman adopted by: Steadman and Green (1997)	Are depending on the firm in order to achieve their personal goals and on whom the firm is depending for its existence
1965	Ansoff	The objectives of the firm should be derived balancing the conflicting claims of the various "stakeholders" in the firm... The firm has a responsibility to all of these and must configure its objectives so as to give each a measure of satisfaction
1971	Ahlstedt and Jahnukainen	Driven by their own interests and goals are participants in a firm, and thus depending on it and for whose sake the firm is depending
1983	Freeman and Reed	Wide: can affect the achievements of an organisation's objectives to who is affected by the achievement of an organisation's objectives Narrow: on which the organisation is dependent for its continual survival
1984	Freeman adopted by: Berman et al. (1999) Burton and Dunn (1996) Calton and Kurland (1995) Frooman (1999) Goodpaster (1991) Greenley and Foxall (1997) Heugens, Van den Bosch, and Van Riel (2002) Jawahar and McLaughlin (2001) Jones and Wicks (1999) Kujala (2001) Metcalf (1998) Page (2002) Roberts (1992) Rowley and Moldoveanu (2003) Rowley (1997) Sternberg (1997) Wood and Jones (1995)	can affect or is affected by the achievement of the firm's objectives
1987	Cornell and Shapiro Freeman and Gilbert	"Claimants" who have "contracts" Can affect or is affected by business

Table 2.1 (Continued)

Date	Author	Stakeholder definition
1988	Bowie	Without whose support the organisation would cease to exist
	Evan and Freeman	Have a stake or claim in the firm Benefit from or are harmed by, and whose rights are violated or respected by, corporate actions
1989	Alkhafaji	Groups to whom the corporation is responsible
	Carroll	Asserts to have one or more of these kinds of stakes, which range from an interest to a right (legal or moral) to ownership or legal title to the company's assets or property
1990	Freeman and Evan	Contract holders
1991	Low	All those who have an interest in the firm's survival
	Miller and Lewis	Stakeholders are people who can help or hurt the corporation
	Savage et al.	Have an interest in the actions of an organisation and have the ability to influence it
1992	Thompson, Wartick, and Smith Hill and Jones	In "relationship with an organisation" Constituents who have a legitimate claim on the firm... established through the existence of an exchange relationship. They supply "the firm with critical resources (contributions) and in exchange each expects its interests to be satisfied (by inducements)"
1993	Palgrave et al. Brenner	Those whose welfare is tied with a company Having some legitimate, non-trivial relationship with an organisation (such as exchange transactions, action impacts, and moral responsibilities)
	Carroll	Individuals or groups with which business interacts who have a stake or vested interest in the firm. Asserts to have or may have more of the kinds of stakes in business... may be affected or affected.
	Starik	Any naturally occurring entity that affects or is affected by organisational performance
1994	Clarkson	Bear some form of risk as a result of having invested some sort of capital, human or financial, something of value, in a firm, are placed at risk as a result of a firm's activities.

Table 2.1 (Continued)

Date	Author	Stakeholder definition
1994	Freeman	Participants in “the human process of joint value creation”
	Langtry	The firm is significantly responsible for their well-being or they hold a moral or legal claim on the firm
	Mahoney	Passive stakeholders who have a moral claim on the company not to infringe liberties or inflict harm and active stakeholders those whose claims are more in the nature of welfare rights
	Schlossberger	Investors who provide specific capital or opportunity capital to a business
	Starik	Can and are making their actual stakes known... or might be influenced by, or are potentially influencers of, some organisation whether or not this influence is perceived or known
	Wicks, Gilbert, and Freeman	Interact with and give meaning and definition to the corporation
	1995	Blair
Brenner		Are or which could impact or be impacted by the firm/organisation
Calton and Lad		Legitimate claims
Clarkson		Have, or claim, ownership rights, or interests in a corporation and its activities
Donaldson and Preston		Those individuals with explicit or implicit contracts with the firm Identified through the actual or potential harms and benefits that they experience or anticipate experiencing as a result of the firm's actions or inactions
Jones		Groups and individuals with (a) the power to affect the firm's performance and/or (b) a stake in the firm's performance
Nasi		Interact with the firm and thus make its operation possible
1996	Gray, Owen, and Adams	Any human agency that can be influenced by, or can itself influence, the activities of the organisation in question

Table 2.1 (Continued)

Date	Author	Stakeholder definition
1997	Carroll and Nasi	Any individual or group who affects or is affected by the organisation and its processes, activities, and functioning
	Mitchell, Agle, and Wood adopted by: Agle, Mitchell, and Sonnenfeld (1999) Phillips	Legitimate or urgent claim on the corporation or the power to influence the corporation Voluntary members of a cooperative scheme for mutual benefit... partners for the achievement of mutual advantage. A claim can only be justifiable in the case that it can be approved of by all those affected by the norm
1998	Argandona Frederick	Those who have an interest in the company Everyone in the community who has a stake in what the company does
1999	Clarkson Centre for Business Ethics Adopted by: Whysall (2000) Leader	Parties that have a stake in the corporation: something at risk, and therefore something to gain or lose, as a result of corporate activity
	Reed	Have rights that are internally linked to the constitution of the company, which gives them constitutional powers
2000	Gibson	Those with "an interest for which a valid normative claim can be advanced" Those groups or individuals with whom the organisation interacts or has interdependencies and any individual or group who can affect or is affected by the actions, decisions, policies, practices, or goals of the organisation
	Kochan and Rubinstein	Contribute valued resources... which are put at risk and would experience costs if the firm fails or their relationship with the firm terminates and ... have power over an organisation
	Scott and Lane	A direct influence on organisational performance and survival
2001	Hendry	Moral actors... relationships cannot be reduced to contractual or economic relations, Include social characteristics such as interdependence
	Lampe Ruf et al.	Parties affected by an organisation Constituencies who have explicit or implicit contracts with the firm
2002	Cragg	The corporation impacts... individuals and collectives whose interests are thereby affected both negatively and positively
	Orts and Strudler	Participants in a business (who) have some kind of economic stake directly at risk

Table 2.1 (Continued)

Date	Author	Stakeholder definition
2002	Reed	Basic stake, whereby stakes can be that of air economic opportunity, a stake of authenticity, or one of political equality
2003	Phillips	Normative stakeholders: for whose benefit should the firm be managed. Derivative stakeholders: potential to affect organisation and its normative stakeholders

The earliest definition is often credited to an internal memo produced in 1963 by the Stanford Research Institute. It refers to “those groups without whose support the organisation would cease to exist” (Freeman, 1984). In 1984, Freeman published his profound book, *Strategic Management: A stakeholder Approach*, in which he brought stakeholder theory into the mainstream of strategic management. The term “stakeholder” is defined as “any group or individual who can affect or is affected by the achievement of the firm’s objectives” (Freeman, 1984). This definition is cited by most researchers as the foundation of stakeholder management. Table 2.1 gives an indication of the popularity of this definition. This definition is more balanced and broader than that of the Stanford Research Institute (Friedman and Miles, 2006). Mitchell et al. (1997) confirms efficacy of this by stating that this definition is characterised as being one of the broadest, in that it can include virtually anyone.

While researchers have conceived a variety of stakeholder definitions, the concept is generally defined with two features (Friedman and Miles, 2006):

1. *An influencing connection between an organisation and the stakeholders. The nature of the connection is generally indicated by a verb. For example, Freeman’s (1984) definition is based on the verb, “affect”, indicating a strongly cohesive relationship*

2. *The identification of the stakeholders. In this case the definition may include a defining adjective, other type of qualifier or aspect of either the organisation or the stakeholder. This definition tends to lead to a narrowing of the scope of who may be identified as a stakeholder.*

The definitions, by previous scholars, of project stakeholders also follow these two concept features. PMI (1996) defined project stakeholders as “individuals and organisations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion”. The definition of Newcombe (2003) is wider. He claimed that project stakeholders are groups or individuals who have a stake in, or expectation of, the project’s performance and include clients, project managers, designers, subcontractors, suppliers, funding bodies, users and the community at large. Bourne (2005) defined stakeholders in construction projects as “individuals or groups who have an interest or some aspect of rights or ownership in the project, and who can contribute in the form of knowledge or support, or can impact or be impacted by, the project”. These definitions are basically consistent with Freeman’s (1984) “affect/affected” concept, and the implication is that a stakeholder is any individual or group with the power to be a threat or a benefit (Gibson, 2000).

In my study, based on Freeman’s (1984) definition, I simplify the definition of stakeholders in a construction project as:

Stakeholders are individuals or groups who can affect or be affected by a construction project.

This definition was further validated in interviews, during the course of this research presented in this thesis, conducted in Hong Kong and Australia. The interviewees agreed with this definition, and listed a number of stakeholder groups relating to construction projects. The groups of stakeholders are given in Section 5.5.2.

2.3 Stakeholder Theory and Key Models

2.3.1 The development of stakeholder theory

The origin of ‘stakeholder’ in management literature (as indicated in Section 2.2) can be traced back to 1963, when the word appeared in an international memorandum at the Stanford Research Institute (Freeman, 1984). Thereafter, the concept diversified into four different fields (Elias et al, 2002) (Figure 2.1):

- corporate planning. For example, Taylor (1971) predicted that the importance of stakeholders would diminish and that, in the 1970’s, businesses would be also run for the benefit of other stakeholders.
- systems theory. For example, Ackoff (1974) developed a methodology for stakeholder analysis of organisational systems. He pointed out that stakeholder participation is essential for system design and the support and interaction of stakeholders would help in solving many societal problems.
- corporate social responsibility. Post (1981) categorised the main lines of research in this area, covering many ideas, concepts and techniques (Sethi, 1971; Preston, 1979).
- organisation theory. For example, Pfeffer and Salancik (1978) constructed a model of organisation-environment interaction and claimed that the effectiveness

of an organisation is derived from the management of demands, particularly the demands of interest groups.

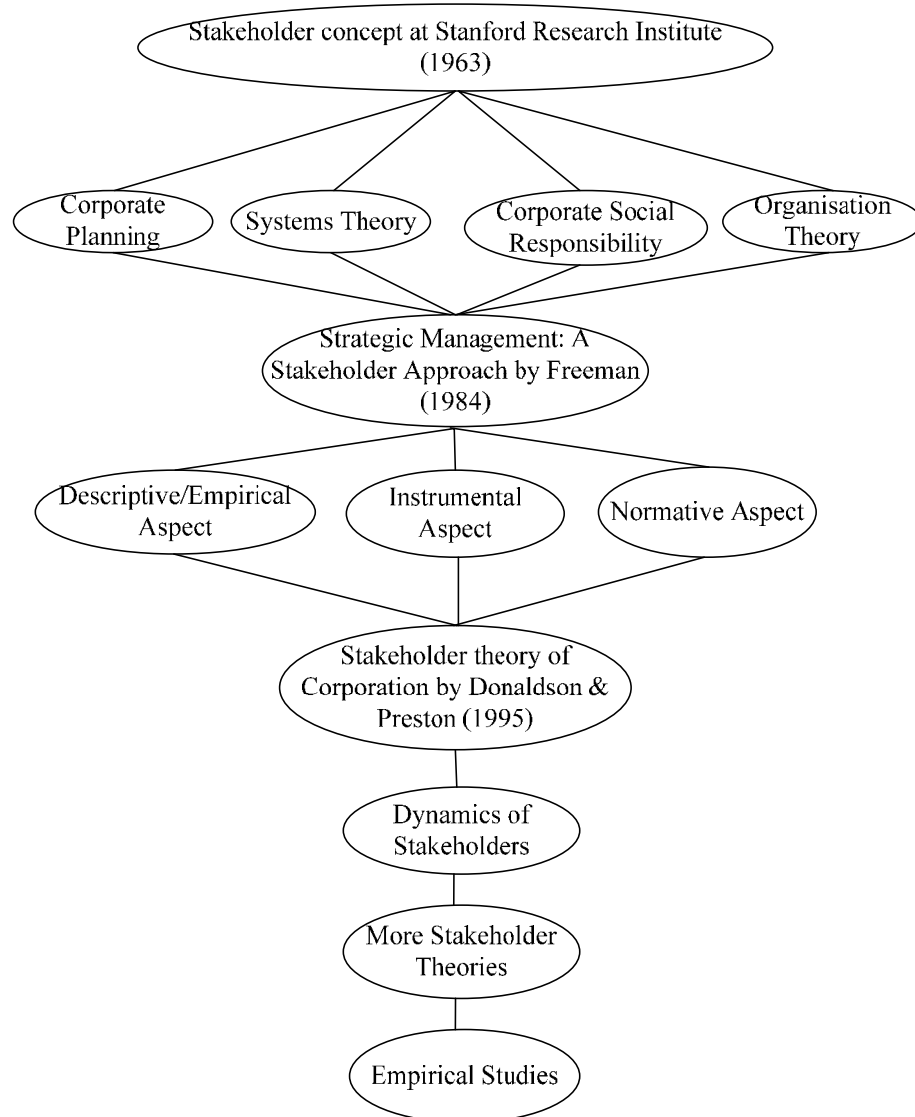


Figure 2.1 Stakeholder literature map
(Source: Elias et al., 2002)

The next landmark in the development of stakeholder literature was the book by Freeman (1984), *Strategic Management: a Stakeholder Approach*. Freeman (1984) acknowledged the importance of stakeholder management and also developed a framework. After his study, scholars, in general, studied stakeholder theory from three aspects, i.e. descriptive/empirical aspect (seeking to describe and explain the methods

and process in stakeholder management), instrumental aspect (exploring the impact of stakeholder management on the achievement of corporate performance goals), and normative aspect (seeking to examine moral and philosophical guidelines for management), which were brought together by Donaldson and Preston in 1995.

Subsequently, two models were proposed, one by Mitchell et al. (1997) and the other by Rowley (1997) based on the concept of the “dynamics of stakeholders”. Mitchell et al. (1997) proposed that classes of stakeholders could be identified by the possession or the attributed possession of one or more of three relationship attributes: power, legitimacy and urgency. By analysing the possession of these three attributes, project managers can realise the change of stakeholders’ salience. Instead of analysing stakeholder attributes, Rowley (1997) focused on the “network of stakeholder relationships”. He highlighted that stakeholder relations are not static, they are dynamic and in a constant state of flux. The attitudes and actions of stakeholders may change at different stages. This reflects the dynamic nature of the relationship between stakeholders.

During the last decade, more stakeholder theories and empirical studies have sprouted. Particularly, in construction, Bourne (2005) proposed the stakeholder circle methodology; Olander (2006) applied the stakeholder impact matrix in practice; and in 2008, a group of scholars, including such as, Chinyio, Rowlinson, Akintoye, Skitmore, and Walker, presented their findings on stakeholder management in a special issue of ‘Construction Management and Economics’. These specific studies have contributed to the development of stakeholder theory and also formulated a theoretical foundation for this research.

2.3.2 Key models for stakeholder management

The development of stakeholder theory has generated the development of several stakeholder management models. Three, namely, the Stakeholder strategy formulation model (Freeman, 1984), Stakeholder salience model (Mitchell et al., 1997) and Social network model (Rowley, 1997), are regarded as general and well-known and as having specific features worthy of mention. These researchers presented more than a restatement or empirical testing of an existing model. The three models are cited by numerous scholars, and are generally viewed as being the research foundation for stakeholder management frameworks. In the following sections, the contributions and limitations of these three models are discussed in detail.

2.3.2.1 Stakeholder strategy formulation model

Freeman (1984) presented what has now become the traditional view of the organisation-stakeholder relationship, in which the corporation occupies a central position and has direct connections to all stakeholders (Figure 2.2).

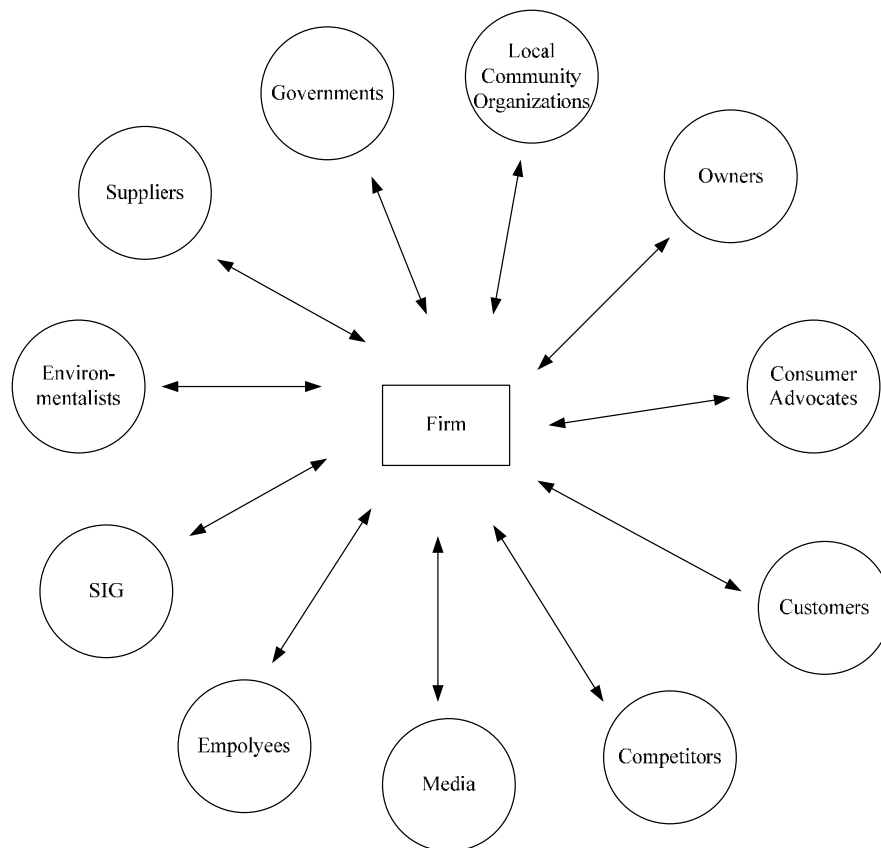


Figure 2.2 Stakeholder view of firm
(Source: Freeman, 1984)

Based on rational stakeholder mapping, Freeman (1984) proposed the Stakeholder strategy formulation model (Figure 2.3). The first step was to analyse stakeholder behaviour. This should involve an investigation of past and future stakeholder actions that could enhance or hinder corporate goals. He recommended that the manager should build a logical explanation for the stakeholder behaviour. This involved three issues, i.e. stating the objectives of a stakeholder group; seeking to understand that group external environment; and examining that group's beliefs about the firm. The final analytical step in constructing strategic programs for stakeholders was to search for possible coalitions among several stakeholders. A manager should scan the environment for instances of similar actions, interests, beliefs, or objectives between

stakeholder groups and then examine group stakes, according to economic, technological, social, political, and managerial effects.

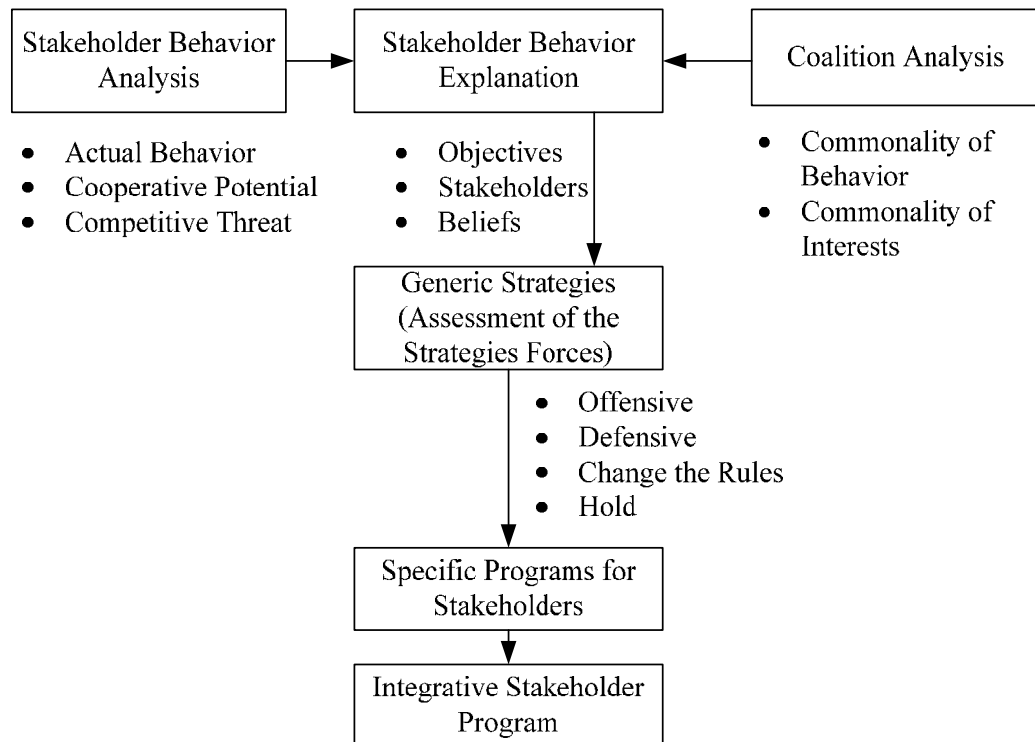


Figure 2.3 Stakeholder strategy formulation process
(Source: Freeman, 1984)

2.3.2.2 Stakeholder salience model

Mitchell et al. (1997) presented a model, which is considered as a notable work and is referred to by many researchers (Figure 2.4). They considered stakeholder salience is the degree of priority policy maker gives to competing stakeholder claim, which can be estimated by three relationship attributes: power, legitimacy and urgency.

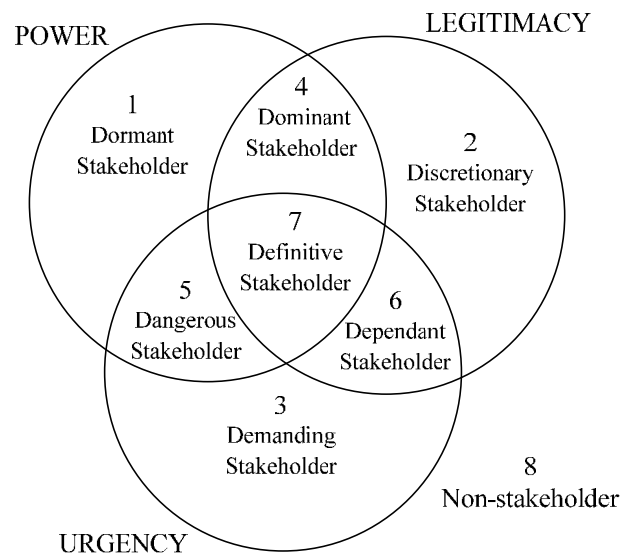


Figure 2.4 Stakeholder salience model
(Source: Mitchell et al., 1997)

Each stakeholder has a degree of power over the other. Mitchell et al. (1997) suggested that stakeholder power could be explained by the use of resource dependence theory. The power of stakeholders may arise from their ability to mobilize social and political forces as well as their ability to withdraw resources from the organisation (Post et al., 2002).

Legitimacy is defined as “a generalised perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions” (Suchman, 1995).

Urgency is defined as “the degree to which stakeholder claims call for immediate attention”. Mitchell et al. (1997) studied urgency based on the following two attributes: (1) time sensitivity — the degree to which managerial delay in attending to

a claim or relationship is unacceptable to the stakeholder, and (2) criticality — the importance of the claim or the relationship to the stakeholder.

From the definition of stakeholder attributes, Mitchell et al. (1997) defined different stakeholder classes, dependent on the distribution of stakeholder attributes. They are dormant stakeholders, discretionary stakeholders, demanding stakeholders, dominant stakeholders, dangerous stakeholders, dependent stakeholders and definitive stakeholders.

2.3.2.3 Social network model

Rowley (1997) considers multiple and interdependent interactions that simultaneously exist in stakeholder environments, leading to a more complex field than that mapped by Freeman (Figure 2.2). One approach for understanding stakeholder environments is by using concepts from Social Network Analysis to examine characteristics of entire stakeholder structures and their impact on organisations' behaviour, rather than individual stakeholder influences. He examined how aspects of an organisation's stakeholder network, namely network density and the focal organisation's centrality, impacted the focal organisation's degree of resistance to stakeholder pressures. Two propositions have been proposed: (1) as network density increases, the ability of a focal organisation's stakeholders to constrain the organisation's actions increases; (2) as the focal organisation's centrality increases, its ability to resist stakeholder pressures increases. Based on these propositions, a classification of stakeholder influence has been conducted (Table 2.2).

Table 2.2 A structural classification of stakeholder influences

(Source: Rowley, 1997)

		Centrality of the Focal Organisation	
		High	Low
Density of the Stakeholder Network	High	Compromiser	Subordinate
	Low	Commander	Solitarian

2.3.2.4 Summary of these three models

The major contribution of the Stakeholder strategy formulation model is Freeman's proposal of a clear process for the formulation of stakeholder strategy. Many experimental studies (e.g. Jergeas et al., 2000; Clend and Ireland, 2002) have been conducted following the process of Freeman. His model for mapping stakeholders, however, has caused controversy. This model implies that the manager has exhaustive information about stakeholder expectations and the organisation is then able to take optimal decisions. This assumption is unrealistic (Crane and Livesey, 2003). The stakeholders surrounding the focal organisation do not exist in a vacuum, but are influenced by their own independent set of stakeholders. Coalitions of stakeholders and intermediaries acting on behalf of stakeholders are ignored in this hub-and-spokes representation. Roger and Kincaid (1981) argue that realistic explanations can only be achieved by adopting a perspective which reflects the mutually influential nature of the communication process.

The Stakeholder salience model provides insight into the identification of the influence of various stakeholders on the organisation's activities. Mitchell et al.'s argument is that "stakeholder salience will be positively related to a cumulative number of these attributes (power, legitimacy and urgency)". Many researchers (e.g.

Tan, 2005; Rodgers and Gago, 2004) cited this model in their papers. Although this model has made an significant contribution, and the corresponding classification of stakeholders can be easily achieved, the model ignores the different levels of those attributes (Pajunen, 2006). An important lesson in stakeholder influence identification is that neither the resources nor the network positions of stakeholders are static (Pajunen, 2006), so the levels of these attributes can vary from time to time. Mitchell et al.'s model could not reflect these alterations.

The Social network model, which incorporates social network constructs (density and centrality), moves beyond the traditional analysis of dyadic ties and considers structural influences and the impact of stakeholders who do not have direct relationships with the focal firm, but who affect how that firm behaves. The focus is on relational context (i.e. the structure of relationships) and whether the shape, form, and characteristics of networks are worthy of study. This network perspective has been confirmed as important (e.g. Newcombe, 2003; Bourne and Walker, 2006; Olander and Landin, 2008) in the construction field. Bourne and Walker (2006), and Pryke (2006) used the term of “the network of relationships” in their studies, because they believed a construction project to be a non-linear, complex, iterative and interactive project system environment, so the impact of stakeholders cannot be seen easily. All these studies show that analysing the impact of stakeholders through ‘the network of relationships’ is significant for stakeholder management in construction, especially for finding the importance of different stakeholders. This perspective, however, has not been fully studied based on a literature review indeed, there are few studies available about methods for analysing the impact of stakeholders through ‘the network of relationships’. Rowley also admitted that the model represented only a

subset of variables. It cannot reflect the relational content, which includes organisation's attributes and behaviour. Hence, the Social network model should be integrated with other theories, such as Stakeholder strategy model and Stakeholder attributes model.

As stated above in Section 2.3.2, these three models are regarded as foundation research on the design and establishment of a stakeholder management framework. Stakeholder management was analysed from different perspectives. The first model (Stakeholder strategy formulation model) focused on the process of stakeholder management and 'how the strategies can be developed'; the second (Stakeholder salience model) contributed to the classification and priority of stakeholders; while the third (Social network model) is different from the first two studies, and provides a new method to break the cognitive limitations of the traditional dyadic analysis. These three models and their contributions have been fully considered during the process of the research study, presented in this thesis.

2.4 Overview of Literature on Stakeholder Management in Construction

2.4.1 Statistics of relevant publications

In order to identify gaps in the stakeholder management research field in construction, a literature review was undertaken. Well regarded construction research journals were searched. Journals selected were those with high scores for quality on the combined ABDC (Australian Business Deans Council) Journal List. Table 2.3 shows the full list. The search scope was expanded to include common search engines such as Google

Scholar, ABI database, EI CompendexWeb, ISI web of knowledge and several bookstores on the web. Some references from many articles initially found, were also followed up. The aim was to access as much research produced information as possible on the subject of stakeholder management in construction.

Publications were searched using the keywords “stakeholder”, “project participants”, and “project environment”. The terms “project participants” and “project environment” were used because some scholars (Wideman, 1990; Youker, 1992; Leung et al., 2004; Kaatz et al., 2005; Patela et al., 2007) never use the word “stakeholder” in their papers, and yet they did in fact analyse both the participation of stakeholders in project environments and various stakeholder perspectives. The search process was guided by a study by Olander (2006). The first selection was based on available abstracts, and the second selection after reading paper contents. At the conclusion of the search process, 73 publications had been identified for further analysis, as the ones deemed most appropriate for the analysis of past stakeholder management research in construction.

Table 2.3 lists the 73 publications, consisting of journal papers, international conference papers, theses, booklets, reports, and some chapters in eight books. The journals, Construction Management and Economics and International Journal of Project Management, have published the greatest number of papers on stakeholder management. In particular, Volume 26, Issue 6 of Construction Management and Economics is a collection of eleven papers on stakeholder management, bringing together contributions reflecting contemporary and emerging themes in stakeholder management (Atkin and Skitmore, 2008).

Table 2.3 An overview of the publications

Publication	Authors	Number	Percentage (%)
Construction Management and Economics	Newcombe (2003), Leung et al. (2004a), Leung et al. (2004b), Olander (2007), Atkin and Skitmore (2008), Chapman and Ward (2008), Chinyio and Akintoye (2008), Fraser and Zhu (2008), Mathur et al. (2008), Moodley et al. (2008), Olander and Landin (2008), Rowlinson and Cheung (2008), Smyth (2008), Walter et al. (2008), Ward and Chapman (2008), Nguyen et al. (2009)	15	22
International Journal of Project Management	Youker (1992), Olander and Landin (2005), Boonstra (2006), Wang and Huang (2006), El-Gohary et al. (2006), Ipsilandis et al. (2007), Achterkamp and Vos (2007), Aaltonen et al. (2008) Achterkamp and Vos (2008), Aaltonen and Sivonen (2009), Jepsen and Eskerod (2009)	12	18
Building Research & Information	Bakens et al. (2005), Kaatz et al. (2005)	2	3
Engineering Construction and Architectural Management	Leung et al. (2005), Manowong and Ogunlana (2006)	2	3
Facilities	Pennanen et al. (2005), Heywood and Smith (2006)	2	3
Journal of Architectural Engineering	Jim and Love (2004), Orndoff and Wilson (2005)	2	3
Project Management Journal	Cleland (1986); Bourne and Walker (2006)	2	3
Structural Survey	Smith et al. (2001), Rhodes and Wilkinson (2006)	2	3
AACE International Transactions	Jergeas et al. (2000)	1	1
AEW Services	Wideman (1990)	1	1
Architectural Science Review	AlWaer et al. (2008)	1	1
Automation in Construction	Yang et al. (2007)	1	1
Baltic Journal of Management	Karlsen et al. (2008)	1	1
Civil Engineering and Environmental Systems	Dias (1999)	1	1

Table 2.3 (Continued)

Publication	Authors	Number	Percentage (%)
Engineering Management Journal	Karlsen (2002)	1	1
European J. Industrial Engineering	Karlsen (2008)	1	1
Journal of Civil Engineering and Management	Yang et al. (2009b)	1	1
Journal of Construction Engineering and Management	Yang et al. (2010)	1	1
Journal of Engineering and Applied Science	El-Sawah (2006)	1	1
Journal of Facility Management	Yang et al. (2009a)	1	1
Journal of Financial Management	Palmer and McGeorge (1998)	1	1
Land Use Policy	Patela et al. (2007)	1	1
Management Decision	Bourne and Walker (2005)	1	1
R&D Management	Elias et al. (2002)	1	1
The TQM Magazine	Walker (2000)	1	1
International Journal of Project Organisation and Management	Karlsen (2008)	1	1
International Symposium or Conference	Fraser (2000), Ibrahim and Nissen (2003)	2	3
Thesis	Bourne (2005), Olander (2006)	2	3
Book or Chapter	Winch and Bonke (2002), Cleland and Ireland (2002), Winch (2002), Baker (2004), Wideman (2004), Pryke and Smyth (2006), Young (2006), Walker and Rowlinson. (2008), Chinyio and Olomolaiye (2010), Rowlinson et al. (2010b)	10	3

Table 2.3 (Continued)

Publication	Authors	Number	Percentage (%)
Booklet or Report	Construction Pathfinder (Devitt, 2001), Contractor's Business Management Report (Anonymous, 2007)	2	15
Total		73	100

Table 2.4 summarises the number of publications appearing each year. More publications were produced in the area of stakeholder management, especially in the last five years. This could be attributed to two reasons:

(1) The number of stakeholders increases significantly with the development of society and technology, and also the relationships among these stakeholders have become more complex than before (Cleland, 1995). Project managers have to identify and communicate with various organisations and individuals in the project environment. An important part of the management of the project system is a process for recognising and managing the probable interested or affected institutions in the system environment (Frooman, 1999). Therefore, the process and techniques for managing the stakeholders in the project environment began to focus on the various project managers to achieve a multi-win situation.

(2) Previous studies (Coombs and Gilley, 2005; Pajunen, 2006) in the generic industries have proved that effective stakeholder management is helpful in the realisation of various corporate objectives. These findings offer researchers and managers an insight into the importance of stakeholder management, the byproduct being a further boom in studies on stakeholder management.

Table 2.4 Number of relevant publications yearly

Year	Number
2010	2
2009	6
2008	19
2007	6
2006	11
2005	8
2004	5
2003	2
2002	4
2001	2
2000	4
1999	1
1998	1
1992	1
1990	1
1986	1
Total	73

A consequence of the growth of interest in stakeholder management has been a simultaneous expansion of different perspectives of stakeholder research (Friedman and Miles, 2006). In recent years, some researchers have attempted to classify these research perspectives. Jones (1995) identified three major approaches to classify stakeholder theory: descriptive, instrumental, and normative. Kolk and Pinkse (2006) considered the recent research to focus on three core themes: (1) identifying the nature of stakeholders, (2) examining under which circumstances and how stakeholders influence organisational decisions and operations, and (3) identifying different strategies to deal with stakeholders. Bourne and Walker (2006) classified stakeholder theory to “social science stakeholder theory, instrumental stakeholder theory, and convergent stakeholder theory”. Mathur et al. (2008) viewed stakeholder engagement as: a management technique, an ethical requirement, or a forum for dialogue to facilitate mutual social learning. During the review of the identified 73 publications,

the researcher acknowledges the different stakeholder research perspectives about construction projects.

An obvious classification is shown in Table 2.5. The first category is “accommodating issues about stakeholder studies”, which means scholars research on the issue related to project stakeholders, including stakeholder analysis, stakeholder engagement, project uncertainty, ethics, sustainability and so on. The second category is the use of “stakeholder perspective to do evaluation”. In the identified 7 publications in this category, stakeholders were asked to evaluate ERP-implementation (Boonstra, 2006), residential property development (Rhodes and Wilkinson, 2006), operational programmes (Ipsilandis et al., 2007), infrastructure projects (Manowong and Ogunlana, 2006), site managers’ effectiveness (Fraser and Zhu, 2008), automation and integration technology (Yang et al., 2007), and sustainability assessment (AlWar et al., 2008). However, the researcher found it difficult to use the previous taxonomies to distinguish the subgroups in the first category (the identified 66 publications in Table 2.5), because most of these publications refer to more than one approach. For example, Walker and Bourne (2008) not only identified the stakeholder nature and impact, but also proposed the strategies to deal with stakeholders; Moodley et al. (2008) analysed the stakeholder impact index and also ethics issues in terms of “a management technique and an ethical requirement”. The statement of classification confusion is also supported by other researchers. Atkin and Skitmore (2008) pointed out that “these different approaches overshadowed more fruitful explorations of issues arising from recognition of the stakeholder concept”, and Mitchell et al. (1997) also considered the literature on stakeholder management to be enormous and bewildering with numerous models that are often difficult to put into operation. Freeman and

McVea (2001) and Atkin and Skitmore (2008) felt that stakeholder research should include application of the insights of stakeholder theory to real world problems, in contrast to pure research that focuses solely on the development of stakeholder theory. Based on the confusion of classification and the arguments of Mitchell et al. (1997), Freeman and McVea (2001), and Atkin and Skitmore (2008), the researcher conducted a review for practical use, that is, the review was conducted to analyse the contributions and problems of previous studies in terms of guiding construction project practice.

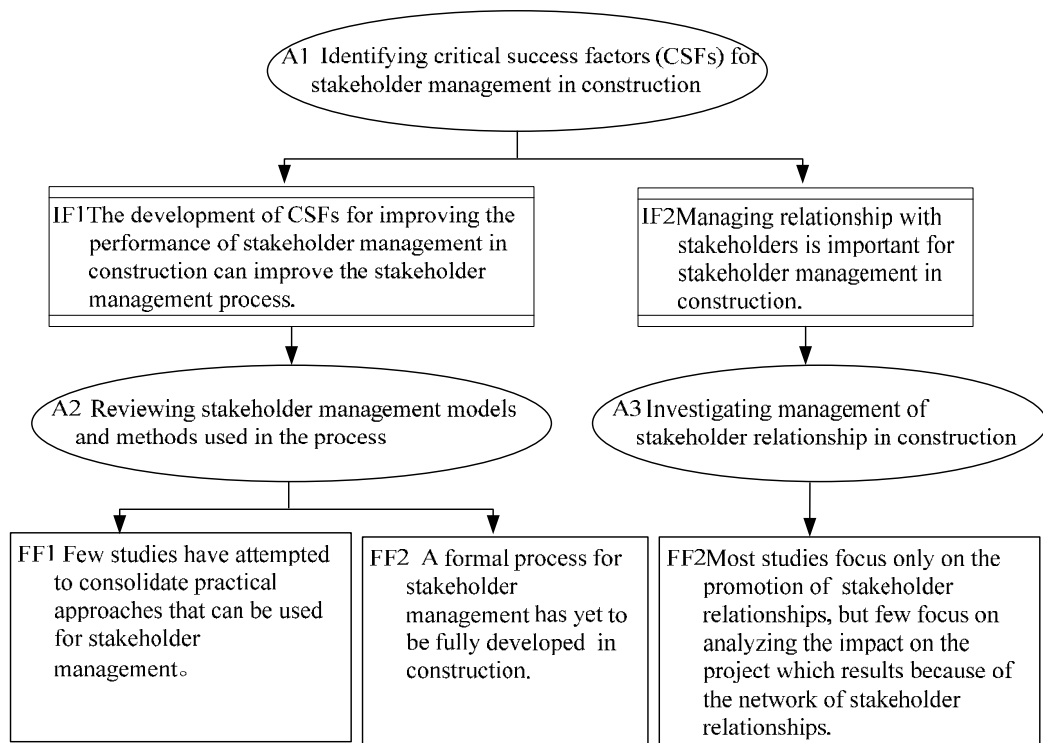
Table 2.5 A basic classification of the publications

Category	Number
Accommodating issues about “stakeholder studies”	66
Using “stakeholder perspective” to do evaluation	7

2.4.2 The review process

The review process of these 73 publications is shown in Figure 2.5. The study of Critical Success Factors (CSFs) is regarded as an effective approach to identify the essentials for “management success” (Boynton and Zmud, 1984). This approach was first developed by Rockart (1979). CSFs can be defined as “areas, in which results, if they are satisfactory, will ensure successful competitive performance for the organisation” (Rockart, 1979). Saraph et al. (1989) viewed them as “those critical areas of managerial planning and action that must be practised in order to achieve effectiveness”. Many researchers (e.g. Jefferies et al. 2002; Chan et al. 2004; Yu et al. 2007) have used this method as a means to improve the performance of the management process.

Since construction projects are complex in nature and there is much uncertainty (Cicmil and Marshall, 2005), stakeholder management is challenging for project teams. Cleland and Ireland (2002) consider it important that the project team knows whether it is successfully “managing” the project stakeholders or not, and the review, therefore, initially focused on identifying stakeholder management critical success factors. The two initial findings (IF1 and IF2 in Figure 2.5) were made. Finding IF1 is that the identification of CSFs which improve the performance of stakeholder management first requires an understanding of the stakeholder management process. Finding IF2 is that management of stakeholder relationships is important. As a result of IF1, those papers discussing the stakeholder management process were further reviewed. Two further findings (FF1 and FF2) were made (see Figure 2.5). Finding FF1 is that few studies have attempted to consolidate practical approaches that can be used for stakeholder analysis and engagement, and FF2 is that a stakeholder management model in construction has yet to be fully developed. As a result of IF2, papers discussing the management of stakeholder relationships were reviewed, and a further finding (FF3) is that most of these studies focus only on the promotion of the relationships, however, few focuses on the impact on the project which results because of the network of stakeholder relationships. The justifications for findings FF1, FF2 and FF3, the gaps identified in the scope of the research to date, are given below in Section 2.4.3.



A: Action; IF: Initial Finding; FF: Further Finding.

Figure 2.5 Review process

2.4.3 Research gaps

2.4.3.1 The need to develop a comprehensive list of critical success factors

During the review of the 73 publications, it became apparent that only two papers (Jergeas et al., 2000; Olander and Landin, 2008) related mainly to factors affecting stakeholder management in construction. Jergeas et al. (2000) used interviews to identify “communication with stakeholders and setting of common goals, objectives and project priorities” as two aspects bringing improvements to the management of stakeholders. Using a comparative study, Olander and Landin (2008) identified five factors with the stakeholder management process that could bring about different project outcomes. These factors are: “analysis of stakeholder concerns and needs; communication of benefits and negative impacts; evaluations of alternative solutions; project organisation; and media relations”. Their studies make a significant

contribution to the promotion of successful stakeholder management on construction projects, but because the projects were limited to only two industry sections and the sizes of the samples were small, it is not possible to generalise their findings. The first study was limited to only five project managers working on oil and gas industry construction sites, and the second was based on only two railway development projects in Sweden.

Some other factors affecting stakeholder management were also identified by the review. Landin (2000) considers “the long-term performance of any construction project and its ability to satisfy stakeholders” depends on the decisions made and the care taken by the decision makers in fostering stakeholder communication. Bakens et al. (2005) and Young (2006) also point out that the key to good stakeholder management is effective communication. Aaltonen et al. (2008) state that the key issue in project stakeholder management is management of the relationships between the project team and its stakeholders. These factors were cited as critical successful factors for stakeholder management, but verification is needed through further quantitative and qualitative studies. A comprehensive list of the factors which contribute to the success of stakeholder management has not yet been undeveloped.

Other studies, Jergeas et al. (2000), Bakens et al. (2005), Young (2006), Olander and Landin (2008), and Karlsen (2008), confirm that “communication” is an important CSF and they also show that the relationship between the project team and stakeholders is important. As further support, Rowlinson and Cheung (2008) consider that the success of stakeholder relationship management is contingent upon a well-defined communication strategy, supported by structured facilitation of

relationship activities. Karlsen (2008) confirms 5 factors are important to the formation of relationships between the project team and the stakeholders; and Karlsen et al. (2008) identify 14 factors as the most important for building trust between a project team and its stakeholders. Since the management of stakeholder relationships is important for stakeholder management, investigation seems necessary.

2.4.3.2 The need to consolidate practical approaches and develop a systematic framework

Several scholars have proposed stakeholder management models, which are summarised in Table 2.6. However, it seems that there is no consensus as to the best model. Stakeholder management requires a formal structured approach (Cleland and Ireland, 2002), but such a formal approach has yet to be fully developed in construction (Chinyio and Akintoye, 2008). Karlsen (2002) points out that no formal and systematic project stakeholder management process exist in real projects and that the management of stakeholders is a random affair, since there are no routine functioning strategies, plans, methods or processes. Cleland and Ireland (2002) go on to propose some basic guidelines for the development of a model for project stakeholder management. They believe a formal approach is required, because projects are subject to so many changes that informal methods are inadequate. They also point out that successful project stakeholder management should provide project teams with decision-making judgement. Although the scholars cited in Table 2.6 have proposed several stakeholder management models, it appears that these models are not coherent and detailed enough to be of practical use. For example, Karlsen (2002) considers “identification of stakeholders” and “analysing the stakeholders” to be the first two stages required for stakeholder management, but he ignores the preceding

stage of “gathering information about stakeholders”, which is considered important by Young (2006). Considering all of the above, it seems clear that a formal stakeholder management model needs to be synthesised and developed.

Table 2.6 Stakeholder management models or processes in construction projects

Scholars	Stakeholder management processes
Karlsen (2002)	Identification of stakeholders; Analysing the stakeholders; Communicating and sharing information about stakeholders; Developing strategies, Following up.
Elias et al. (2002)	Developing a stakeholder map of the project; Preparing a chart of specific stakeholders; Identifying the stakes of stakeholders; Preparing a power versus stake grid; Conducting a process level stakeholder analysis; Conducting a transactional level stakeholder analysis; Determining the stakeholder management capability of the R&D projects; Analysing the dynamics of stakeholders.
Young (2006)	Identifying stakeholders; Gathering information about stakeholders; Analysing the stakeholder influence.
Bourne and Walker (2006)	Identifying stakeholders; Prioritizing stakeholders; Developing a stakeholder engagement strategy.
Olander (2006) adopted Cleland (1999)	Identification of stakeholders; Gathering information on stakeholders; Identifying stakeholder mission; Determining stakeholder strengths and weakness; Identifying stakeholder strategy; Predicting stakeholder behaviour; Implementing stakeholder management strategy.
Walker et al. (2008)	Identifying stakeholder; Prioritizing stakeholders; Visualizing stakeholders; Engaging stakeholders; Monitoring effectiveness of communication.
Jepsen and Eskerod (2009)	Identification of the (important) stakeholders; Characterization of the stakeholders pointing out their (a) needed contributions, (b) expectations concerning rewards for contributions, (c) power in relation to the project; Decision about which strategy to use to influence each stakeholder.

Besides the process for stakeholder management, as Chinyio and Akintoye (2008) stated, to achieve project objectives, it is also essential to identify effective approaches for stakeholder management. Although several scholars (Newcombe, 2003; Bourne, 2005; Young, 2006) have proposed the different approaches for stakeholder analysis, few have attempted to consolidate practical approaches that can be used for stakeholder management (Reed et al., 2009), except Chinyio and Akintoye

(2008), and Reed et al. (2009). Chinyio and Akintoye (2008) focused on stakeholder engagement approaches in construction in the United Kingdom, and Reed et al. (2009) discussed the approaches for stakeholder analysis used within natural resource management research activities. These studies identified and proposed a range of approaches that have helped the practitioners to manage stakeholders. However, their limited scope means that they do not represent the complete picture. It is thus necessary to expand Chinyio, Akintoye and Reed et al.'s work.

2.4.3.3 The need to analyse stakeholder relationship from social network perspective

Many scholars consider stakeholder relationship management to be important. Cleland (1986) and Jergeas et al. (2000) consider that efficient management of the relationships between project management team and its stakeholders is an important key to project success. Hartman (2002) believes that successful project relationships are vital for successful delivery of projects and meeting stakeholder expectations. Olander (2006) treats stakeholder management in construction projects as a system, and believes that the different parts of the system must be studied, together with the relationships between these parts (Arbnor and Bjerke, 1997). Unlike the focus of traditional project management, on the stakeholders themselves (Cova and Salle, 2006), large numbers of researchers in recent years have taken into account stakeholder relationships. Table 2.7 summarises the publications on relationship management in construction into two categories.

Table 2.7 The literature on relationship management

Categories	Scholars
Category 1: Promoting the relationships among different project participants, or analysing the importance of relationship management.	Cleland (1986); Smyth (2000); Jergeas et al. (2000); Devitt, R. (2001); Hartman (2002); Smyth (2004); Cova and Salle (2006); Smyth and Edkins (2007); Skitmore and Smyth (2007); Smyth and Fitch (2007); Anvuur and Kumaraswamy (2008); Aaltonen et al. (2008); Karlsen (2008); Smyth (2008); Rowlinson and Cheung (2008).
Category 2: Analysing the impact of stakeholders through ‘the network of relationships’.	Newcombe (2003); Bourne (2005); Bourne and Walker (2005); Bourne and Walker (2006); Olander (2006); Cova and Salle (2006), Olander and Landin (2008).

The first category relates to the promotion of the relationships between different project participants and the analysis of the importance of relationship management. The booklet “Stakeholder Measures (72 questions)” was produced by Construction Pathfinder (Devitt, 2001) to stimulate debate on stakeholder relations and how to improve them. It places the spotlight on stakeholder relationships in a manner which encourages companies to learn from each other. Smyth (2008) pointed out that a number of tenets for effective relationship management include:

“developing close relationships between stakeholders and understanding of client and stakeholder expectations (needs and desires); developing services to match expectations; developing services to engender client and stakeholder satisfaction; increasing satisfaction and long-term maintenance of relationships to engender loyalty, repeat business and/or increased referral business; and increasing satisfaction to maintain and preferably increase market reputation”.

By studying stakeholder empowerment, Rowlinson and Cheung (2008) point out that relationship management is useful for enhancing project performance and client satisfaction. PMI (2004) defines project stakeholder management as “the systematic identification, analysis and planning of actions to communicate with and influence

stakeholders”. Based on this definition, Aaltonen et al. (2008) consider the key to effective project stakeholder management is management of the relationships between project management team and its stakeholders. These studies have contributed to successful relationship management in construction projects, and relationship management research is well developed from this particular perspective.

The second category focuses on analysis of the impact of stakeholders through ‘the network of relationships’. Newcombe (2003), Bourne and Walker (2006), and Pryke (2006) used the term “the network of relationships” in their studies, because they believe a construction project takes place in a non-linear, complex, iterative and interactive environment, in which the impact of stakeholders cannot be easily identified. Pryke (2006) considers traditional analysis is a dyadic-discussion about contract and intra-coalition relationships, which has traditionally made the assumption that relationships essentially involve only two parties. The project environment is much more complicated (Bourne, 2005), as evidenced by the “milieu” map of an example project drawn up by Cova and Salle (2006). To make use of ‘the network of relationships’ in analysing stakeholder impact, the notion of hidden/invisible stakeholders is important. They may have little apparent influence, but the hidden influences make the innocuous power more substantial (Bourne and Walker, 2006). Newcombe (2003) emphasises that project managers should not look down on those stakeholders who have little obvious power and consider them as weak, because these stakeholders may have a strong influence on the attitudes of the more powerful stakeholders. Bourne and Walker (2006) consider that hidden/invisible stakeholders could cause major disruption to a project’s development through unseen power and influential links. Similarly, Olander and Landin (2008) find that the public often has

no formal power to affect the decision-making process for a project, but it has an informal power that can press powerful stakeholders to change their positions.

All of these studies show that analysis of the impact of stakeholders acting through ‘the network of relationships’ is important, especially as it can highlight the importance of different stakeholders.

Although relationship management research from this second category has been confirmed as important (e.g. Newcombe, 2003; Bourne and Walker, 2006; Olander and Landin, 2008), few studies exist on how to analyse the impact of stakeholder relationship networks. The only available tool is the Stakeholder Circle Tool developed by Bourne (2005), which can be used to identify and prioritise the influences of the project stakeholders. The software calculates the importance of each stakeholder based on the assessment of each stakeholder made by the project team. Although the project team (usually including the sponsor) may have investigated the impact of every stakeholder, use of such software cannot overcome the cognitive limitations of the project team. There is no departure from the traditional dyadic analysis (Pryke, 2006), and the accuracy of the results is likely to decrease as the complexity of the project increases. Though Stakeholder Circle Methodology may have a useful place in stakeholder relationship management, it needs back up validation by identifying the underlying structure of the relationships between stakeholders.

Social Network Analysis (SNA) is considered potentially to be such a tool (Rowley, 1997; Bourne and Walker, 2005). This technique was first proposed by Rowley (1997)

and some scholars of stakeholder management in construction consider SNA to be useful (e.g. Cova and Salle, 2006; Bourne and Walker, 2005). Those researchers, however, do not appear to have yet made any empirical studies using this method. The SNA method is further explained in Chapter 6, and its utility examined using case studies and in Chapter 7.

2.4.4 Summary of the findings in the literature review

In the literature review, four gaps in the scope of the existing research on stakeholder management in construction are identified (as indicated in Section 1.2):

- a comprehensive list of the factors affecting the success of stakeholder management has yet to be fully developed;
- practical approaches that can be used for stakeholder management have yet to be consolidated;
- a systematic framework for stakeholder management needs to be further developed;
- most studies focus only on issues of promotion of the relationships themselves, but few focus on analysing stakeholders' interrelationships to identify stakeholders' impacts on construction projects.

According to these gaps in current studies, it can be asserted that:

- a systematic framework, which comprises a detailed process and a typology of practical approaches, can contribute to the body of stakeholder management knowledge in the construction field.
- an improvement in the perception of stakeholder management success requires an analysis of the interrelationships of stakeholders.

In short, it is necessary to develop a framework that aims at being a systematic and generic reference to the practice of stakeholder management in the construction industry.

2.5 Summary of the Chapter

This chapter reviewed previous research on stakeholder management in general and in construction particularly. This is the first phase of this research. This chapter commenced with a description of the development of stakeholder concepts, stakeholder theory, and key stakeholder management models. Following this, an overview of existing literature relevant to stakeholder management in construction is conducted.

Stakeholders are individuals or groups who can affect or be affected by construction projects. The origin of 'stakeholder' in management literature can be traced back to 1963, when the word appeared in an international memorandum at the Stanford Research Institute (Freeman, 1984). During the development of stakeholder theory, scholars have developed several models and perspective on stakeholder management. Three of them, namely, Stakeholder strategy formulation model (Freeman, 1984), Stakeholder salience model (Mitchell et al., 1997) and Social network model (Rowley, 1997), are regarded as general and well-known and as having specific features worth mentioning and illustrating. The examination of stakeholder theory and models formulates a theoretical foundation of this research.

In the construction sector, there are more scholars being interested in the area of stakeholder management. An overview of the current studies on stakeholder management in the construction field led to the conclusions that a systematic framework, which comprises a detailed process and a typology of practical approaches, can contribute to the body of knowledge about stakeholder management in the construction field; improving the perception of stakeholder management success requires the project manager and the project team to analyse the interrelationships among stakeholders. Therefore, it is necessary to develop a framework that aims at being a systematic and generic reference to the practice of stakeholder management in the construction industry.

The next chapter will describe the research methods used in the development process of the framework for stakeholder management in construction projects.

CHAPTER 3 RESEARCH DESIGN

3.1 Introduction

The research objectives have been described in Section 1.2. To achieve those objectives, the research is carefully designed. Appropriate research methods are chosen. Considerations for research design and research process are described and justified in this chapter. The nature of this research is examined in Section 3.2 by an investigation into different aspects relevant to designing a research study. The considered aspects comprise purpose of the study, types of investigation, extent of researcher interference, study setting, unit of analysis, time horizon, research methods, sampling design, measurement, data analysis, and ethical considerations. The detailed research process and the methods used to gain stakeholder knowledge in this research are described in Section 3.3.

3.2 Considerations for the Research Design

In order to develop a research study, various issues related to the nature of the research need to be carefully considered. Sekaran (2003) illustrated different issues shown in Figure 3.1. As can be seen, the issues pertinent to the design relate to (1) purpose of the study, (2) what type of study (type of investigation), (3) the extent to which the researcher manipulates and controls the study (extent of researcher interference), (4) the duration of the study (time horizon), (5) at what level the data will be analysed (unit of analysis), (6) where the study will be conducted (i.e. the study setting), (7) the choice of sample (sampling design), (8) how the data would be collected (data collection methods), (9) how the variables will be measured

(measurement), and (10) analysed to test the hypotheses (data analysis). In this section, the nature of this research is explored by investigating the aspects related to research design, which are shown in Figure 3.1.

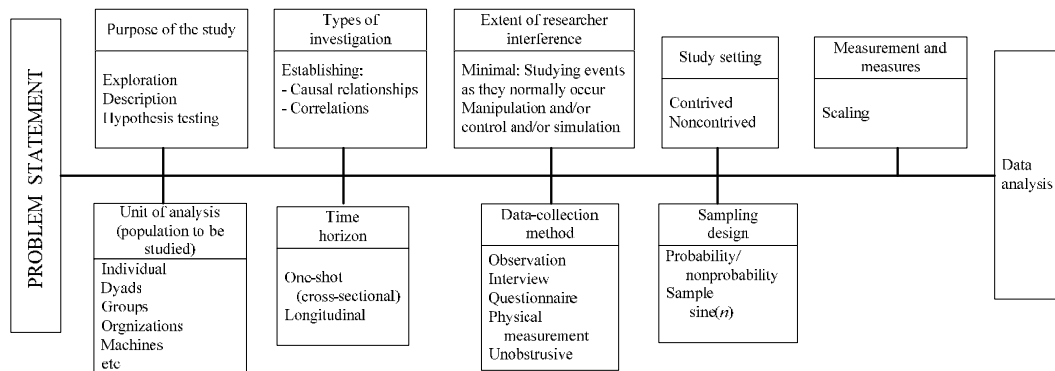


Figure 3.1 The aspects related to research design
(Source: Sekaran, 2003)

3.2.1 Purpose of the study

Research can be exploratory, descriptive, and/or conducted to test hypotheses. Exploratory research attempts to clarify and explore an idea, event, or poorly understood phenomenon, or to develop propositions for further enquiry (Bourne, 2005). It is focused on ‘what’ questions, using observation, open-ended questions in interviews, and/or focus groups (Sekaran, 2003). A descriptive study is undertaken in order to ascertain and to be able to describe the characteristics of variables in a situation (Sekaran, 2003). Descriptive research is often used as the next step to exploratory research, construction paradigms that offer a more complete theoretical picture through either qualitative or quantitative data (Sekaran, 2003). Studies that engage in hypotheses testing usually try to explain the nature of certain relationships, or establish the differences among groups or the independence of two or more factors in a situation (Sekaran, 2003).

The design for this research study is a mixture of exploration, description, and hypothesis testing. The aim of this research, as is indicated in Section 2.4.4, is to explore a systematic framework for stakeholder management in construction projects by a literature review and empirical studies (e.g. interviews, and questionnaire survey). Following the exploration, the components in the proposed framework and the approaches for stakeholder management are described so that they can be acceptable to the practitioners in construction. One of the objectives in this research is to identify and quantitatively prioritise Critical Success Factors (CSFs) associated with stakeholder management in construction projects. To complete this objective, a comparative analysis of practitioners' views on the relative importance of Critical Success Factors (CSFs) is analysed. This approach is termed hypothesis testing.

3.2.2 Types of investigation

A researcher should determine whether a causal or a non-causal study is needed to answer the research question (Sekaran, 2003). In this research, the research question is 'what does a systematic framework for stakeholder management in construction projects consist of?' The causal study is done when it is necessary to establish a definitive 'cause and effect' relationship. However, this research focuses on identifying the important components (factors) 'associated with' the framework (research problem). In this case, Sekaran (2003) called this type of research "a correlational study". In other words, in this research, the research is more interested in delineating the crucial factors that are associated with the research problem, rather than establishing a 'cause and effect' relationship.

3.2.3 Extent of researcher interference with the study

The extent of research interference has “a direct bearing on whether a causal or correlational study is undertaken” (Sekaran, 2003). A correlational study is conducted in the natural environment of the organisation with the researcher interfering minimally with the normal flow of events. Although the systematic framework can serve as a reference for project managers to guide their works in practice, this research does not intend to change the normal flow of stakeholder management in an organisation during the development of the framework. The practitioner opinions are collected and considered representative of their individual situation, and synthesised to indicate the various components of the framework as completely as possible.

3.2.4 Study setting

A research study can be conducted in the natural environment, where the investigated events normally occur, that is, in non-contrived settings, or in artificial and contrived settings (Sekaran, 2003). As indicated in Section 3.2.3, the study presented in this thesis follows the natural flow of stakeholder management, and therefore has a non-contrived setting.

3.2.5 Unit of analysis

The unit of analysis refers to the aggregation level of the data during subsequent analysis (Sekaran, 2003). The units of analysis comprise individuals, dyads, groups,

organisations and cultures. In this research, data is collected from different projects/organisations, and analysed by comparison and synthesis. Therefore, the unit of analysis is organisation.

3.2.6 Time horizon

The research time dimension is either cross-sectional or longitudinal (Sekaran, 2003). A cross-sectional approach involves the study of phenomena at one point in time, and produces a ‘snapshot’ of data. A longitudinal approach examines phenomena over an extended period of time, producing a “diary perspective” (Saunders et al., 2006). Cross-sectional studies often employ a survey strategy, or interviews conducted over a short period of time. Exploratory and descriptive studies are often cross-sectional, while hypothesis testing studies can be either cross-sectional or longitudinal (Saunders et al., 2006). The cross-sectional approach is taken in this research in the form of a ‘snapshot’ of the practitioner opinions.

3.2.7 Methodological strategy and research methods

3.2.7.1 Methodological strategy

Ontology refers to assumptions connected with a particular approach of social enquiry, and answers the question “what is the nature of the reality to be investigated?” (Blaikie, 1993). Epistemology is the way knowledge can be gained in this reality and answers the question “how can knowledge of this reality be obtained?” (Blaikie, 1993). Methodology is defined as the way the knowledge is gained, how theories are generated and tested, and the relationship between theoretical perspectives and

research problems (Blaikie, 1993). There are two basic methodological strategies: induction and deduction (Kelly, 2005). Inductive research is the formulation of a generalisation from a number of observations or instances; while deduction is defined as a series of logical statements where the last is the conclusion of the sequence. The formulation of a framework for stakeholder management in construction projects is a process of induction as the practitioners' opinions are synthesised; meanwhile, the sequence of the actions in the framework is based on a series of logical statements, which indicates a deduction approach.

3.2.7.2 The selection of research methods

Easterby-Smith et al. (2002) consider that the selection of research methods depends on the researcher's attitude to positivism and social constructivism, and the desire to be involved or detached from the investigation (Figure 3.2). Positivism is the situation in which the researcher stands apart from the research problem, facilitating its solution through the use of established objective measures, uninfluenced by the researcher (Kelly, 2005). Easterby-Smith et al. (2002) state that the researcher must be truly independent of what is being observed, hence making the choice of what to study and how to study determined by criteria rather than by human beliefs and interests. Social constructivism, assumes that the world and our knowledge of it are interpreted through social practices and institutions (Audi, 1999). To develop a systematic framework both (1) the constructs that practitioners place on their experience of stakeholder management and (2) the analysis of the data collected, should be combined to produce the facts applicable to the objectives of the research.

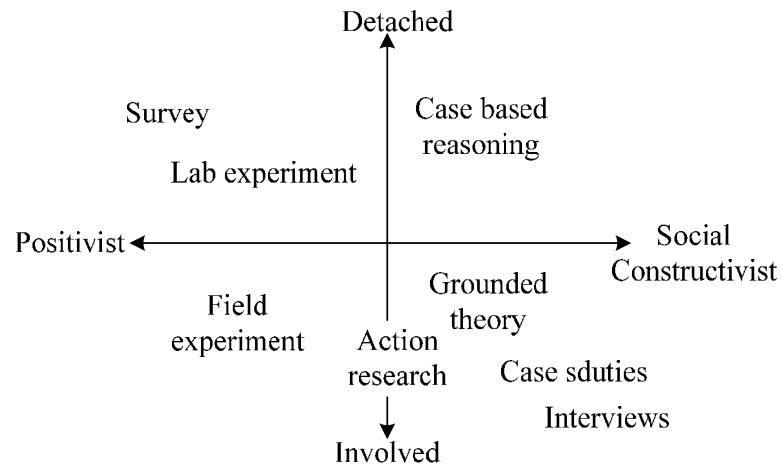


Figure 3.2 Selection of research methods
(Source: Easterby-Smith et al., 2002)

Research methods can include experiments, surveys, action research, case studies, and interviews. Table 3.1 presents a summary of the applicability of these methods to this study.

Table 3.1 Prospective research methods for this study

Research method	Brief description	Applicability to research proposition
Experimental research	Experimental research is more closely allied to the principles of a positivist approach than other research techniques (Neuman, 2003); beginning with a hypothesis, making controlled change and then comparing the results of the changed situation with the original, unchanged situation.	It is theoretically possible to undertake a laboratory or field experiment, but in reality logistically impossible due to the geographic spread of people and projects. Applicability – not applicable
Survey research	Survey research is developed within the positivist approach to social science and produces numerical results about the beliefs, opinions, characteristics, and past or present behaviour, expectations, and knowledge of respondents (Neuman, 2003)	Survey is an efficient data-collection mechanism when the researcher knows exactly what is required and how to measure the variables of interest. Therefore, a survey, i.e. questionnaire, can be conducted to collect broad opinions about the details in stakeholder management, and the feedbacks of project management teams about the research findings. Applicability – applicable
Action research	Action research is research concurrent with action (Coghlan and Brannick, 2005); it generates practical theory (McNiff and Whitehead, 2000), but most import of all, those who have participated will have increased their knowledge through their participation (Coghlan and Brannick, 2005) and the organisation will benefit from both the outcome and the process of the research itself (Bourne, 2005).	It is a feasible approach to test and validate the systematic framework in a real-life project situation. Applicability – applicable
Case study	A representative sample of instances studies to obtain data for analysis to prove a theory (Kelly, 2005). Data may be derived from document analysis, measurement, observation and/or interview (Fellows and Liu, 1997).	Case studies of completed stakeholder management processes are an attractive source of data. However, such processes are usually not documented in construction organisations. Applicability – not applicable
Interview	A method of eliciting a large quantity of fact, knowledge and/or opinion from a selected sample of respondents (Kelly, 2005).	It is a suitable method to collect the practitioners' experience in stakeholder management. Applicability – applicable

In summary, three research methods are applied in this research. They are:

- survey research,
- action research,
- interview.

3.2.8 Sampling design

The word “population” refers to the entire group of people, events, or things of interest that the researcher wishes to investigate (Sekaran, 2003). The population in this research includes the project managers or those who have abundant experiences in stakeholder management of construction projects. Knowledge of the selected population indicates the involvement of two major types of sampling designs: probability and non-probability sampling (Sekaran, 2003). In probability sampling, elements of the population have some known chance or probability of being selected as sample subjects. In non-probability sampling, the elements do not have a known or predetermined chance of being selected as subjects. Non-probability sampling has been chosen for empirical studies in this research. The practitioners have been selected randomly.

3.2.9 Measurement

The data needing to be measured in this research is selected from the background information of practitioners or organisations, and their opinions on the issues relevant to stakeholder management. Four scales, termed nominal, ordinal, interval, and ratio

scales, can be used for measuring data. Their characteristics and use in this research are given in Table 3.2.

Table 3.2 Characteristics of scales

Type of scale	Characteristics of scale	Basic empirical operation	Used in the research or not
Nominal	No order, distance, or origin	Determination of equality	Yes
Ordinal	Order but no distance or unique origin	Determination of greater or less values	No
Interval	Both order and distance but no unique origin	Determination of equality of intervals or differences	Yes
Ratio	Order, distance, and unique origin	Determination of equality of ratios	No

3.2.10 Data analysis

Both qualitative and quantitative data in this study, are obtained through the research methods (survey, action research and interview) being used in this research. Qualitative analysis (content analysis in this research) is based on interpretation and requires reflection and iteration (Miles and Huberman, 1994; Babbie, 2004). Quantitative analysis is “concerned with numerical measurement, statistics, and mathematical models to test hypotheses, and supports the view of the positivist paradigm that there is an objective reality that can be accessed and measured” (Saunders et al., 2006).

All data should be evaluated by three major criteria to ensure its efficacy. The criteria are validity, reliability, and practicality (Cooper and Emory, 1995). Validity is the extent to which differences found with a measuring tool reflect true differences among respondents tested. It has three major forms: (1) the achievement of the

insurance of content validity by a) a broad literature review and b) feedbacks from the research participants; (2) the achievement of criterion related validity by an appropriate survey design; and (3) the achievement of construct validity by statistics methods, e.g. factor analysis. Reliability has to do with the accuracy and precision of a measurement procedure (Cooper and Emory, 1995). Cronbach's alpha is a reliability coefficient that reflects how well the items in a set are positively correlated to one another (Sekaran, 2003). The scientific requirements of a research call for measurement process to be reliable and valid, while the operational requirements call for it to be practical (Cooper and Emory, 1995). The practicality of this research study is tested by validating the proposed framework in five real projects and the applicability of the proposed framework is evaluated by project managers of these five projects.

3.2.11 Ethical considerations

Though not included in Figure 3.1, ethics is another consideration for a research design. Research ethics refers to "a code of conduct or expected societal norm of behaviour while conducting research" (Sekaran, 2003). A research study must recognise the importance of three aspects of ethics (Bourne, 2005): (1) informed consent in recruitment of participants, (2) avoidance of harm in the fieldwork, and (3) confidentiality in reporting the findings, and the subsequent provision of assurances of privacy, confidentiality and anonymity (Miles and Huberman, 1984).

It is essential that ethical behaviour is treated as part of all aspects of the research: data collection, data analysis, reporting, and publication of information. Through all

phases, the confidentiality of organisation's information and the privacy of individual must be secured. In this research, all the interviewees and project managers in the questionnaire and case studies were sent a letter with an official HKPolyU (The Hong Kong Polytechnic University) letterhead and a statement about the research itself and the participants' rights with regard to the actual data collection process. This makes sure the participants were clear on the nature of the research and participated in this research freely. They should have the option of withdrawing at any time throughout the study. Permission was asked regarding the use of a recording device for interviews. The organisations, projects and respondents in this research were all considered to be anonymous and with assurance of confidentiality.

3.3 The Research Process

The design and structure selected for this research is a mixture of exploration, description and hypothesis testing, with minimal researcher interference, a cross-sectional time dimension and inductive and deductive reasoning. The primary research methods are a literature review, survey, action research and interview.

As stated in Sections 1.2 and 1.3, the research is conducted in three phases with four objectives: Phase 1 is the review of the literature on stakeholder management; Phase 2 is an iterative development and refinement process; and Phase 3 uses action research to validate the systematic framework in five real-life projects. The detailed research process is shown in Figure 3.3.

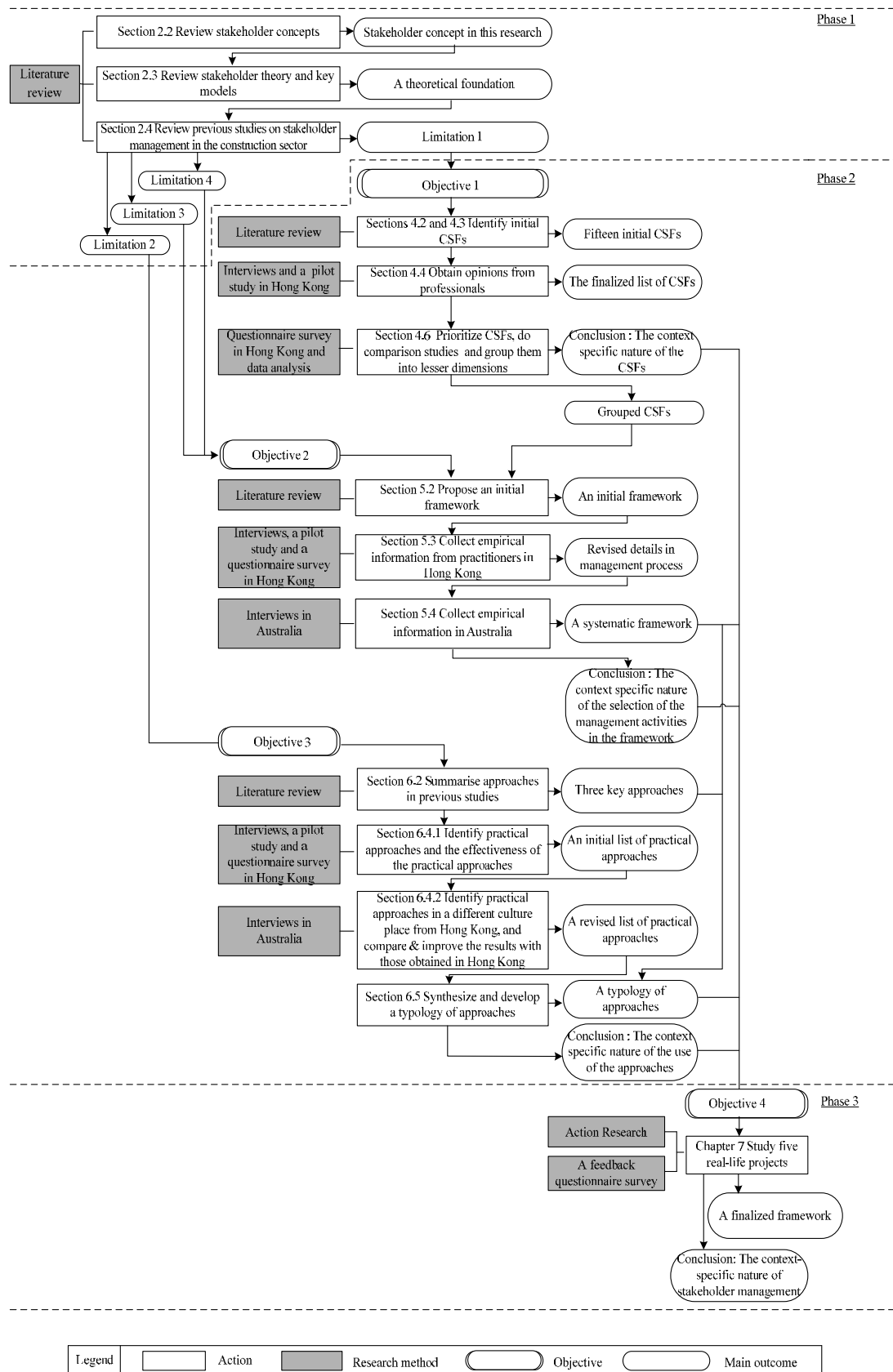


Figure 3.3 The detailed research process

3.3.1 Phase 1 – literature review

The literature, related to stakeholder management, is reviewed in Phase 1. The following information was collected to enable understanding of the criteria and formulation of a theoretical foundation upon which the development of this research is based.

This phase commenced with an exploration of stakeholder concepts, and proposed the stakeholder concept used in this research that stakeholders are individuals or groups who can affect or be affected by construction projects.

Following this, the development of stakeholder theory, and key stakeholder management models were analysed. The origin of ‘stakeholder’ in management literature can be traced back to 1963, when the word appeared in an international memorandum at the Stanford Research Institute (Freeman, 1984). During the development of stakeholder theory, scholars have developed several models and perspective on stakeholder management. Three of them, namely, Stakeholder strategy formulation model (Freeman, 1984), Stakeholder salience model (Mitchell et al., 1997) and Social network model (Rowley, 1997), are regarded as general and well-known and as having specific features worth mentioning and illustrating. The stakeholder theory and models in general stakeholder management formulates the theoretical foundation of this study.

An overview of existing literature related to stakeholder management in construction was conducted at the final stage of this phase. Four gaps in the scope of exist research

on stakeholder management in construction were identified (as shown in Section 2.4.3).

These gaps led to the conclusions that a systematic framework, which comprises a detailed process and a typology of practical approaches, can contribute to the body of stakeholder management knowledge in the construction field. An improvement in the perception of stakeholder management success requires an analysis of the interrelationships of stakeholders. Therefore, it is necessary to develop a framework that aims at being a systematic and generic reference for the practice of stakeholder management in the construction industry.

In order to achieve the aim and address the research gaps, four objectives (as described in Section 1.2) need to be completed in Phases 2 and 3:

- to identify and quantitatively prioritise Critical Success Factors (CSFs) associated with stakeholder management in construction projects (corresponding to Gap1);
- to develop and refine a systematic framework for stakeholder management in construction projects (corresponding to Gap 3 and Gap 4);
- to identify and validate a typology of approaches for stakeholder management in construction projects (corresponding to Gap 2);
- to validate the systematic framework and typology of approaches in practice.

3.3.2 Phase 2 – framework development

Presented in Phase 2 is an iterative process for framework development and refinement by the application of several research methods: (1) a literature review, (2) interviews, and (3) a questionnaire survey.

3.3.2.1 Critical success factors

Regarding the first objective, focus in Section 4.2 is on the identification of CSFs from the current studies. Fifteen initial CSFs are identified. The initial CSFs are described in Section 4.3. Interviews and a pilot study are then used to develop the final list of the CSFs and a questionnaire which is to collect opinions broadly (Sections 4.4 and 4.5).

The following questions are answered, based on the questionnaire survey and data analysis in Section 4.6,

- what is the ranking of the CSFs in each project type and respondent group?
- is there a general consensus on the rankings of the CSFs across respondent groups?
- is there any correlation between the score values of CSFs and respondent group types?
- what are the true differences in perceptions on the relative importance of CSFs across respondent groups?
- what are the few and essential CSFs which can represent a wide variety of issues?/or what are the groupings of the CSFs?

The results, as indicated in Chapter 4, reflect that although the respondents share a certain degree of commonality with respect to the relative importance of the CSFs, their working priorities for managing stakeholders are context specific, depending on the nature, client sector, and cost of projects, and also on the nature of their organisations and the project manager's level in the organisation hierarchy.

Based on the results of data analysis, the CSFs are categorised into fewer groups, which are referred to in an initial framework for stakeholder management (Chapter 5).

3.3.2.2 A framework for stakeholder management

A framework that aims at being a systematic and generic reference to the practice of stakeholder management in the construction industry is presented in Chapter 5.

The approaches taken are as follows:

- based on the results of factor analysis in Section 4.6.5, an initial framework for successful stakeholder management in construction projects is proposed. The framework consists of five components: (1) precondition factors, (2) stakeholder assessment, (3) stakeholder identification, (4) decision making, and (5) continuous support (Section 5.2);
- interviews and a questionnaire survey were then conducted in Hong Kong based on the literature review to collect empirical information from practitioners in construction, and the outcome is an initial framework for stakeholder management (Section 5.3);
- the findings from the empirical studies in Hong Kong were validated and revised by fifteen interviewees in Australia, and a systematic framework for stakeholder management was formulated and explained (Section 5.4). The

reason to choose Australia for validation of the findings obtained in Hong Kong is that Australia has mature management in construction field, which is similar to Hong Kong, but different cultural environment with Hong Kong. The culture of Hong Kong is oriental, whereas the dominate culture in Australia is western. This makes the proposed framework more meaningful to be used as a general reference for project managers from different cultural backgrounds.

Experiences from the empirical studies show that the activities in the framework should be selected depending on the nature of the project and the project management team's decisions. It also needs to be noted that for best results the activities in the framework should be carried out iteratively during the overall project process. The significance of the framework is that it serves as a reference for the systematic consideration of project management team about stakeholder management in construction.

3.3.2.3 Approaches for stakeholder management

In terms of the third objective, given above in Section 3.3.1, Chapter 6 focuses on identifying practical approaches. A typology of approaches is proposed, based on the findings in the literature review (in Section 6.2), the empirical studies (in Section 6.4) and the systematic framework (in Chapter 5).

Findings given in this chapter show that the success of a particular approach depends on internal and external factors, such as the nature of the project, the resources in the organisation, and the communication environment. No approach for stakeholder identification and analysis is perfect. The selection of the approaches is an art and a

contingency approach as well, requiring practitioners' judgements of 'when, what, and how' to choose approaches to achieve project objectives.

To validate the systematic framework (Chapter 5) and the typology of approaches (Chapter 6), action research is applied with five real projects in Australia and Hong Kong, which will be explained in the next phase.

3.3.3 Phase 3 – framework validation

The validation of the systematic framework and the typology of approaches is delivered in Phase 3. The main research method used in this phase is action research.

3.3.3.1 The applicability of action research

This research is a correlational study as indicated in Sections 3.2.2 and 3.2.3, with the researcher interfering minimally with the normal flow of events. The practitioner opinions are collected as they appear in the situation studied, and synthesised to indicate the various components of the framework as complete as possible. From the science perspective, this development process is positivistic, and produces scientific theories and knowledge based on facts and events (Müller, 2005). As previously indicated in Section 3.2.7.2, positivism is a situation in which the researcher stands apart from the research problem facilitating its solution through the use of established objective measures. This positivistic position has been criticised by several scholars (e.g. Popper, 1971; and Müller, 2005) mainly from the following perspectives:

- the absence of reflection on the effect of science in social processes,

- reduction of the understanding of action to identify and prove principles and formulate directions,
- the absence of the researcher from the field,
- the reduction of cognition by empirical instruments.

Since the aim of Phase 3 is to validate the proposed framework and the typology of approaches, the researcher should apply the outcomes in this research in practice and be involved in projects to help project teams manage their stakeholders. The action research, which focuses on research in action, rather than research about action (Coughlan and Coughlan, 2002), is chosen as suitable in this phase of the study.

Gummesson (2000) lays out ten major action research characteristics. Described in Table 3.3 is the application of action research in this research corresponding to the ten characteristics.

Table 3.3 Characteristics of action research and its application in this research

No	Characteristics of action research	Application
1	Action researchers take action.	The researcher will be involved in projects, and help project management teams to identify, analyse and engage stakeholders.
2	Action research always involves two goals: solve a problem and contribute to science.	In terms of problem solving, all of the management teams in the projects selected in this phase are interested in improving their stakeholder management process. Regarding the contribution to science, the researcher will not only engage in the management processes, but also stand back from it, summarise the outcomes, and reflect the outcomes to the systematic framework and approaches.
3	Action research is interactive.	The researcher will cooperate with the project management teams so that the management of stakeholders in the projects can be improved.

Table 3.3 (Continued)

No	Characteristics of action research	Application
4	Action research aims at developing holistic understanding during a project and recognising complexity.	Construction projects are complex. The systematic framework is to identify and analyse the project stakeholders systematically.
5	Action research is fundamentally about change.	The analysis of stakeholders will help the project teams to recognise the priority of stakeholders and make necessary changes on strategies.
6	Action research requires an understanding of the ethical framework, values and norms within which it is used in a particular context.	Authentic relationships between the researcher and the project teams should be established.
7	Action research can include all types of data gathering methods.	Both qualitative and quantitative tools such as interviews and surveys will be used.
8	Action research requires a breadth of pre-understanding of the corporate environment, the conditions of business, the structure and dynamics of operation systems and the theoretical underpinnings of such systems.	The researcher should communicate with the project management teams in depth and understand clearly about the projects.
9	Action research should be conducted in real time, though retrospective action research is also acceptable.	The cases used in this research are all real-life projects.
10	The action research paradigm requires its own quality criteria.	The outcomes from the action research should be evaluated by the project management teams.

3.3.3.2 Outcomes of the action research

The action research (Phase 3) in this study, produced findings which confirmed the applicability of the proposed framework and the typology of approaches. By using a feedback questionnaire survey, project management teams indicated that the newly designed framework systematically illustrated the activities and outcomes, and the typology of approaches was useful for them as a tool collection whenever they conduct stakeholder management. It was concluded that the framework provided a practical reference for management teams, in terms of the provision of a

useful management checking mechanism, which enables the surety of covering all steps and important factors, when management teams are involved with day to day stakeholder management.

In addition, the action research confirmed the reiterated opinion that the purpose of the framework was the provision of a tool to use as a reference for the project management team. Thus depending on the characteristics of the project, the stage of the project, and the resources in the organisation some of the identified activities could be omitted ensuring that only those relevant to the specific project and situation were adopted.

The findings in Phase 3 clearly confirmed the context-specific attribute of stakeholder management and the applicability of the proposed framework. The framework was finalised at the end of this phase.

3.4 Summary of the Chapter

This chapter describes and justifies the research design used in achieving the research objectives described in Chapter 1. The design and structure selected for this study is a mixture of exploration, description and hypothesis testing, with minimal researcher interference, a cross-sectional time dimension and inductive and deductive reasoning. The primary research methods in this study are literature review, survey, action research and interview.

The study is conducted in three phases: Phase 1 is the review of the literature on stakeholder management; Phase 2 is an iterative development and refinement process; and Phase 3 uses action research to validate the systematic framework. As the first phase has been completed in Chapter 2, the following chapters focus on Phases 2 and 3. The detailed objectives are: (1) the development of critical success factors for stakeholder management in construction projects (Chapter 4), (2) the development of a framework for stakeholder management in construction projects (Chapter 5), (3) the development of a typology of stakeholder management approaches (Chapter 6), and (4) the validation of the framework and the typology of approaches (Chapter 7).

CHAPTER 4 CRITICAL SUCCESS FACTORS (CSFS) FOR STAKEHOLDER MANAGEMENT

4.1 Introduction

Conclusions from the literature review (Chapter 2) reveal the necessity, to develop a comprehensive list of factors for successful stakeholder management, and importantly to explore the relative importance and groupings of these factors. Hence, as the focus of this research is project stakeholder management in construction, the first objective in this research was to identify and quantitatively prioritise Critical Success Factors (CSFs) associated with this area. The focus in Section 4.2 is on the identification of CSFs from the current studies on stakeholder management in construction. Fifteen CSFs are identified. The CSFs are described in Section 4.3. Interviews and a pilot study with construction project managers in Hong Kong are then introduced in Section 4.4 to validate the CSFs and propose a questionnaire survey. The questionnaire survey is used to collect opinions from a broad range of construction project managers. The survey design, administration and the sample characteristics are explained in Section 4.5. The collected data are analysed with the aid of SPSS software, and the results of the analysis are explained in Section 4.6. The reliability and validity of the results got in Section 4.6 are tested in Section 4.7.

4.2 Identification of CSFs

Factors contributing to the success of stakeholder management in construction projects have been identified from previous studies on this subject (refer to the 73 publications listed in Section 2.4.1). In my research, CSFs are viewed as those

activities and practices that should be addressed in order to ensure effective management of stakeholders and achieve project objectives. CSFs for stakeholder management in construction projects were derived from these publications. CSFs can also be identified from studies on stakeholder management in general or “the works of those who have addressed a particular factor in detail” (Wong and Aspinwall, 2005). An in depth literature review indicated that numerous factors had been identified as important for stakeholder management, and although different terms were used by different researchers to represent the different factors, they all represented generic themes (Wong and Aspinwall, 2005). Based on a comprehensive review of relevant literature on stakeholder management in general and construction projects in particular, an initial list of 15 CSFs were compiled and synthesised for this research. These 15 CSFs are as follows:

1. undertaking social responsibilities,
2. defining project missions,
3. identifying stakeholders,
4. understanding the areas of stakeholder interest,
5. exploring stakeholder needs and project constraints,
6. assessing stakeholder behaviour,
7. predicting stakeholder influence,
8. assessing stakeholder attributes,
9. analysing stakeholder conflicts and coalitions,
10. compromising conflicts,
11. promoting a good relationship among stakeholders,
12. formulating appropriate strategies,
13. predicting stakeholder reaction,

14. analysing changes of stakeholder interests and relationships,
15. ensuring effective communication.

These factors have been quoted by many researchers in the field. Table 4.1 lists the key publications.

Table 4.1 Literature related to critical success factors for stakeholder management

CSFs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Savage et al. (1991)			√			√						√			
Mitchell et al. (1997)			√	√	√			√							
Rowley (1997)							√		√						
Svendsen (1998)	√										√	√			
Cleland (1999)		√	√	√	√	√	√	√	√	√	√	√			
Frooman (1999)			√			√		√	√			√			
Landin (2000)															√
Jergeas et al. (2000)		√										√			
Elias et al. (2002)			√	√				√						√	
Karlsen (2002)		√	√									√	√	√	√
Winch (2002)	√		√												
Olander (2006)			√	√			√	√	√	√	√				√
Phillips (2003)	√														
Leung et al. (2004a)		√								√					√
Bakens et al. (2005)															√
Bourne (2005)	√		√					√	√	√		√		√	√
Bourne and Walker (2006)			√					√	√		√	√		√	√
Cova and Salle (2006)			√								√				√
El-Gohary et al. (2006)	√														√
Friedman and Miles (2006)			√	√				√	√	√					√
Lossemore (2006)				√	√									√	
Young (2006)			√	√	√	√	√	√						√	√
Freeman et al. (2007)		√	√			√			√	√		√	√		

Table 4.1 (Continued)

CSFs	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Aaltonen et al. (2008)											√				
Olander and Landin (2008)					√						√	√			√
Walker et al. (2008)	√		√				√	√			√				√
Jepsen and Eskerod (2009)			√	√				√				√			

4.3 An Overview of CSFs for Stakeholder Management

4.3.1 Undertaking social responsibilities

Wood (1991) believes stakeholder theory is the theory most often associated with corporate social responsibility, as stakeholders are central to the concept of corporate social performance. Carroll (1991) suggests there is a natural fit between the ideas of corporate social responsibility and an organisation's stakeholders, as the stakeholder concept personalises social responsibilities by delineating the specific groups or persons that business should consider in its orientations and activities relevant to corporate social responsibility. Donaldson and Preston (1995) presented a taxonomy of stakeholder theory types (normative, instrumental, and descriptive) and used the taxonomy to guide their discussion of the stakeholder literature. They suggest the central core to stakeholder theory is the normative approach, which implies that "organisations should acknowledge the validity of diverse stakeholder interests and should attempt to respond to them within a mutually supportive framework because it is a moral requirement". According to Carroll's definition (1979), social responsibility encompasses "the economic (the obligation to produce goods and services, sell them at fair prices and make a profit), legal (obligation to obey the law), and ethical (issues not embodied in law but expected by society) expectations that society has of

organisations at a given point in time”. Recently environmental expectation has also been the focus of many scholars (e.g. AlWaer et al., 2008; Prager and Freese, 2009) for sustainability reasons. The environmental consideration includes air, flora/fauna, dust, water, and noise. The purpose of these considerations is to protect the environment. As discussed above, scholars have studied social responsibilities of stakeholder management from these four perspectives: economic (El-Sawah, 2006), legal (Radin, 2002; Crow, 2008), environmental (AlWaer et al., 2008; Reed, 2008; Prager and Freese, 2009); and ethical (Phillips, 2003; Moodley et al., 2008; Smyth, 2008). Therefore, project managers should try to manage stakeholders with corporate social (economic, legal, environmental and ethical) responsibilities (Yang et al., 2008).

4.3.2 Defining project missions

The identification of a clear mission for projects at different stages is widely considered to be essential for the effective management of stakeholders (Winch, 2000). Before every activity of stakeholder management, the project manager should have a good understanding of the tasks and objectives at each particular stage of the project lifecycle, including such as the issues about cost, schedule, and budget. Using interviews, Jergeas et al. (2000) further proved that “setting common goals, objectives and project priorities” is significant for improving stakeholder management.

4.3.3 Identifying stakeholders

Most researchers studying stakeholder management (e.g. Karlsen, 2002; Olander, 2006; Walker et al., 2008; Jepsen and Eskerod, 2009) have pointed out the significant importance of stakeholder identity in this field. The project stakeholders can be divided into different types, according to various criteria and can be classified and therefore managed, once such stakeholder identities are clear (Freeman, 1990).

4.3.4 Understanding the areas of stakeholder interests

As a consequence of ‘identifying stakeholder’, construction projects stakeholders have various interests which, as indicated in Section 4.3.3 above, have to be identified and considered in order to assess stakeholder concerns (Cleland, 1999). Interests include such as product safety, new product services, and financial returns (Freeman et al., 2007).

4.3.5 Exploring stakeholder needs and project constraints

Exploring stakeholder needs and project constraints regarding the projects are to anatomize areas of stakeholder interests and list the detailed issues of stakeholder concerns (Freeman et al., 2007). During the project process, all of the stakeholder needs should be assessed “so that a satisfactory and realistic solution to problems (e.g. conflicts of need) being addressed can be obtained” (Love et al., 2004). Homoplastically, Kocak (2003) makes clear that stakeholder needs can provide an indication of the stakeholder group concerns, the problems that the project team faces,

and stakeholder requirements in connection with the projects. Olander and Landin (2008) also proved the importance of “analysis of stakeholder concerns and needs” by case studies in Sweden

4.3.6 Assessing stakeholder behaviour

The behaviour of stakeholders has been found to be not necessarily co-operative. They have the capacity and maybe even willingness to jeopardize the success of project teams. This capacity, according to Savage et al. (1991) should be measured during the stakeholder management process. Stakeholder behaviour can be classified into three categories: (1) observed behaviour, (2) cooperative potential, and (3) competitive threat (Freeman, 1984). Freeman et al. (2007) state that project managers need to clearly understand the range of stakeholder reactions and behaviour. By studying a pulp mill construction project in Uruguay, Aaltonen et al. (2008) identify salient difference of stakeholder behaviour. The findings of the study demonstrates further, the necessity to assess stakeholder behaviour

4.3.7 Predicting stakeholder influence

Project management procedure is affected by project stakeholders (Olander, 2007). Therefore recognizing the stakeholder influence is important as regards the ability to “plan and execute a sufficiently rigorous stakeholder management process” (Olander and Landin, 2005).

4.3.8 Assessing stakeholder attributes

Stakeholder attributes need to be properly assessed by project teams (Mitchell et al., 1997; Bourne, 2005). Mitchell et al. (1997) revealed three attributes in their study: (1) power, (2) urgency, and (3) legitimacy. Power means the ability to “control resources, create dependencies, and support the interests of some organisation members or groups over others” (Mitchell et al., 1997). Bourne and Walker (2005) believe that successful project managers should have the ability to understand the “invisible power” among stakeholders. Urgency is “the degree to which stakeholder claims call for immediate attention” (Mitchell et al., 1997). Legitimacy is “a generalised perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions” (Suchman, 1985). Bourne (2005) considers proximity as an important attribute of stakeholders. Proximity can be rated from “directly working in the project” to “remote from the project”. Analysing and estimating these three attributes enhance the understanding of project managers of the related stakeholders.

4.3.9 Analysing stakeholder conflicts and coalitions

Conflict occurs whenever disagreements exist in a social situation (Schermerhorn et al., 2003). Analysing conflicts and coalitions among stakeholders is an important step in stakeholder management (Freeman, 1984). Types of conflict include “substantive conflict and emotional conflict” (Schermerhorn et al., 2003). Project managers should know the potential conflicts stemming from divergent interests (Frooman, 1999). Project managers should also search for possible coalitions among stakeholders. This

concept comes from Freeman's strategy model (1984). Freeman believes the groups, who share objectives, stakeholders or interests in a project, are more likely to form coalitions.

4.3.10 Compromising conflicts

Since there are various conflicts among stakeholders, finding decision compromises regarding these conflicts is important for project managers (Freeman, 1984). Leung et al. (2005) confirmed a positive relationship between conflict resolution and satisfaction of stakeholders by a questionnaire survey. The making of a "multi-win" compromise solution is a problem faced by project teams (Banae Costa et al., 2001).

4.3.11 Promoting a good relationship

Successful relationships between project management team and its stakeholders are vital for the successful delivery of projects and for meeting stakeholder expectations (Cleland, 1986; Savage et al., 1991; Jergeas et al., 2000; Hartman, 2002). Trust and commitment among stakeholders (good relationships) can be built and maintained by efficient relationship management (Pinto, 1998; Bourne, 2005; Karlsen et al., 2008).

4.3.12 Formulating appropriate strategies

Schwager (2004) points out that the central question of stakeholder management was "what are the strategies that organisations use to deal with the issues raised by stakeholders". A similar result is obtained by Karlsen (2002) from a survey; he stated

that there are different types of the strategies, but basically stakeholder management strategy is the attitude with which the project management team treats different stakeholders. In order to identify different kinds of strategies, enacted by organisations in response to the demands presented by external stakeholders, an empirical analysis of four different projects was conducted by Aaltonen and Sivonen (2009) to explain the use and emergence of the “response strategies”. All the above scholars have proved the importance of formulating appropriate strategies to deal with stakeholders.

4.3.13 Predicting stakeholder reactions

‘Stakeholder reactions to the strategies’ is an important factor to be considered by project managers (Dias 1999). The results of his application of the fuzzy set method, emphasised the feasibility and acceptability of strategies for stakeholders, and therefore, encouraged the promotion of the policy for project teams to predict stakeholder behaviour during strategy implementation (Cleland and Ireland, 2002).

4.3.14 Analysing changes of stakeholder interests and relationships

The concepts of stakeholder change in dynamics were acknowledged by Freeman (1984). He found that, in reality stakeholders and their influence change over time, depending on the strategic issues under consideration. Stakeholder dynamics are an interesting and important aspect of the stakeholder concept (Elias et al., 2002). The uncertainty caused by stakeholders includes the influence of stakeholder identity, their

needs, and the implications of relationships among stakeholders (Ward and Chapman, 2008).

4.3.15 Ensuring effective communication

Communication is essential in maintaining the support and commitment of all stakeholders (Briner et al., 1996). Effective, regular, and planned communication with all members of the project community is necessary for project success (Briner et al., 1996; Cleland, 1995). In addition, Weaver (2007) believes project managers should be highly skilled negotiators and communicators, capable of managing individual stakeholder expectations and creating a positive culture change within the overall organisation.

4.4 The Development of the Final CSFs List

The 15 stakeholder CSFs were identified through a literature review, and hence need to be further confirmed by professionals from the construction industry before the development of a questionnaire. To find the inaccuracy of the preliminary list of CSFs, it was presented to six industrial experts during face-to-face interviews (refer to Appendix A). These experts all had more than 10 years' overall experience of stakeholder management in construction projects, and have different project roles (Table 4.2). The interviews were conducted in the interviewees' office, and lasted for 0.5 to 1 hour, depending on the interviewees' time availability and contributions.

All interviewees agreed that the proposed 15 factors were critical and comprehensive, and in addition some interviewees provided valuable comments on the scope and language of factor statements. For example, the first factor was changed from ‘undertaking social responsibilities’ to a more detailed description ‘managing stakeholders with social responsibilities (economic, legal, environmental and ethical)’; the last factor was changed from ‘ensuring effective communication’ to ‘communicating with and engaging stakeholders properly and frequently’. Another important comment regards the attributes of stakeholders, the interviewees thought that the attribute of legitimacy was imprecise and difficult to operationalise; they all preferred using the attribute ‘proximity’, which was easier to explain and therefore put into practice. As a result of these comments and the fact that legitimacy is more related to the “normative core” of stakeholder theory or social responsibilities (Mitchell et al., 1997), legitimacy was not included as stakeholder attributes. All comments were considered and acted upon in the construction of the final list of CSFs. The statements of the 15 CSFs are shown in Table 4.3.

Table 4.2 Profiles of interviewees in Hong Kong

Method	Interviewee	Organisation characteristics	Role in projects	Industry	Experience (years)
Interview	1	Government	Client	Construction	21
	2	College	Client	Construction	15
	3	Government	Consultant	Construction	12
	4	Company	Client	Construction	15
	5	Government	Contractor	Construction	13
	6	Company	Contractor	Construction	11
Pilot study	1	Government	Client	Construction	16
	2	Government	Contractor	Construction	12

Table 4.3 CSFs selected in this study

Number	CSFs
C1	Managing stakeholders with social responsibilities (economic, legal, environmental, and ethical)
C2	Formulating a clear statement of project missions
C3	Identifying stakeholders properly
C4	Understanding areas of stakeholder interests
C5	Exploring stakeholder needs and constraints to projects
C6	Assessing stakeholder behaviour
C7	Predicting the influence of stakeholders accurately
C8	Assessing attributes (power, urgency, and proximity) of stakeholders
C9	Analysing conflicts and coalitions among stakeholders
C10	Compromising conflicts among stakeholders effectively
C11	Keeping and promoting a good relationship with stakeholders
C12	Formulating appropriate strategies to manage stakeholders
C13	Predicting stakeholder reaction for implementing the strategies
C14	Analysing the change of stakeholder influence and relationships during the project process
C15	Communicating with and engaging stakeholders properly and frequently

4.5 The Questionnaire Survey

4.5.1 Survey design and administration

First version of the questionnaire was developed after the interviews. Prior to sending out the questionnaires, a pilot study was conducted. Two project managers, a client representative and a contractor, were prompted to answer the preliminary questionnaire. The aim of the pilot study was to test the suitability and comprehensibility of the questionnaire. There were no adverse comments proposed, hence the finalised questionnaire was the same as the first version.

The questionnaire comprises four sections: (1) background information of the respondents; (2) stakeholder management practice; (3) key issues about stakeholder management; and (4) comments about the questionnaire (refer to Appendices B and C). The questionnaire survey deals with various issues relating to stakeholder

management in construction projects, this chapter, however, is confined to the presentation of the analysis results of the relative importance and groupings of the identified 15 CSFs. Respondents were requested to answer the questionnaire with reference to a particular project in which they had been involved. The main part of the questionnaire rated their degree of agreement against each of the identified CSFs according to a five-point Likert scale. The range was from 1 = Strongly Disagree to 5 = Strongly Agree.

A full-scale survey was conducted in Hong Kong in August 2008. The respondents were project managers from different aspects of the construction industry. The project managers were selected from internet information, newspapers, magazines, membership lists of two institutes (i.e. the Association for Project Management Hong Kong, and the Hong Kong Construction Association), and registered lists (including the Authorized Architects' register, the Authorized Engineers' register, the Authorized Surveyors' register, and the General Building Contractors' register) published by the Buildings Department of Hong Kong.

A total of 654 copies of the questionnaire were delivered to the potential respondents. Most copies were sent by mail, and for those potential respondents whose mailing address was unknown, copies were sent by email. About three weeks were given for the respondents to complete and return the questionnaire. The ways for returning the questionnaire comprised mail, email and fax. A total of 183 completed copies of the questionnaire were received. The response rate was 28%, which was consistent with "the norm of 20-30% with most questionnaire surveys in the construction industry" (Akintoye, 2000).

4.5.2 Sample characteristics

The analysis in this study is based on the 183 respondents. The respondents were project managers working as consultants with contractors or with client organisations. Projects referred to by respondents were grouped in Table 4.4 in terms of project nature, client sector and project cost. Most of the particular projects were building works (62.8%) and public works (67.8%), and 64.5% of the particular projects cost more than HK\$200 million.

Table 4.4 Descriptive statistics for projects referred to by respondents

	Project	Frequency	Percentage (%)
By "Project nature"	PN1: Building work	115	62.8
	PN2: Civil work	68	37.2
By "Client sector"	PS1: Public	124	67.8
	PS2: Quasi-Public or Regulated Private	23	12.5
	PS3: Private	36	19.7
By "Project cost"	PC1: \geq HK\$200 million	118	64.5
	PC2: $<$ HK\$200 million & $>$ HK \$100 million	26	14.2
	PC3: \leq HK\$ 100 million	39	21.3

Table 4.5 gives the descriptive statistics for respondent background. In terms of organisations, 44.3% of respondents were from client organisations, with the remainder from either consultant (31%) or contractor (25%) organisations. In terms of respondents' position, site project managers accounted for 47.5%, which means that about half of the respondents were at the lower management level.

Table 4.5 Descriptive statistics on respondent background

Respondent background		Frequency	Percentage (%)
By “Roles played by organisations of respondents”	RO1: Client	81	44.3
	RO2: Contractor	45	24.6
	RO3: Consultant	57	31.1
By “Respondents’ position in the organisation”	RP1: Project Director	41	22.4
	RP2: Chief Project manager/Architect/Engineer	12	6.6
	RP3: Senior Project manager/Architect/ Engineer	43	23.5
	RP4: Site project manager/Architect/ Engineer	87	47.5

4.6 Data Analysis and Key Findings

The obtained raw data were inputted and analysed with the aid of the Statistical Package for Social Sciences (SPSS) computer software. To get answers to the following questions, different statistical analysis methods were used. The questions are:

1. what is the ranking of the CSFs in each project type and respondent group?
2. is there a general consensus on the rankings of the CSFs across respondent groups?
3. is there any correlation between the score values of CSFs and respondent group types?
4. what are the true differences in perceptions on the relative importance of CSFs across respondent groups?
5. what are the few and essential CSFs which can represent a wide variety of issues?/or what are the groupings of the CSFs?

The answers and findings to the above questions are discussed in detail in Sections 4.6.1 to 4.6.5 respectively. Purposes and outcomes of different statistical analysis methods are summarised in Table 4.6.

Table 4.6 Methods of statistical analysis

Method	Purpose of the method	Outcomes
Descriptive Statistics – Frequencies (Means)	Ranking the relative importance of the CSFs	The rankings of the CSFs according to different types of projects and respondents
Kendall's Coefficient of Concordance	Measuring the agreement of respondents on their rankings of CSFs	
Correlation (Spearman Rank Correlation Coefficient)	Describing the strength and direction of the correlation between two variables	a) The similarity on the rankings of CSFs across the different groups; b) The correlation between CSFs and group types
Nonparametric Test – 2-independent samples (Mann-Whitney Test)	Investigating the difference between two independent groups on the scores of the CSFs	The true differences in perceptions on the relative importance of CSFs across groups
Factor analysis (The principal component analysis)	Determining the underlying relationships among the 15 CSFs	The groupings of the CSFs

These methods had been used by similar survey studies carried out by Akintoye (2000), Chan et al. (2004), Wong and Aspinwall (2005), and Aksorn and Hadikusumo (2008). According to Pallant (2001), only when the parametric assumptions (normal distribution and homogeneity of variance) are fulfilled, the matched parametric testing methods can be employed. Since those assumptions were not fulfilled in this survey, the parametric methods were not used.

4.6.1 Ranking of CSFs

This section focuses on the ranking of the CSFs. The ranking of CSFs was carried out on the basis of their mean values. The higher the mean value, the higher the rank and vice versa. The analysis of the survey response data produced the mean for the 15 CSFs ranging from 3.80 to 4.43. This indicated that all respondents considered these 15 factors critical for stakeholder management in construction projects. Ranking and

Kendall's Coefficient of Concordance for the CSFs are shown in Table 4.7. The highest ranking by all respondents was 'managing stakeholders with social responsibilities (economic, legal, environmental and ethical)' (mean value = 4.43) which therefore was considered as an influential factor to the success of stakeholder management. 'Exploring stakeholders needs and project constraints' and 'communicating with and engaging stakeholders properly and frequently' (mean value = 4.26) were both ranked as the second most influential factors. The fourth ranked factor was 'understanding areas of stakeholder interests' (mean value = 4.22), whereas the fifth ranked factor was 'identifying stakeholders properly' (mean value = 4.21), and the sixth factor was 'keeping and promoting a good relationship with stakeholders' (mean value = 4.17). These six factors were the top six CSFs for stakeholder management in construction projects of Hong Kong. In addition, it is worth noting that all respondents perceived 'predicting stakeholder reactions for implementing the strategies', 'analysing the change of stakeholder influence and relationships during the project process' and 'assessing stakeholder behaviour' as the three least influential factors.

Tables 4.8 and 4.9 show the rankings of the CSFs of different types of projects and respondents, respectively. As shown, all of the mean values are more than 3, which indicate that all of these CSFs are regarded as critical for the success of stakeholder management in construction projects by all of the groups involved in responding to the questionnaire.

Table 4.7 Ranking of the 15 CSFs

CSF		Mean	Rank
C1.	Managing stakeholders with social responsibilities (economic, legal, environmental and ethical)	4.43	1
C5.	Exploring stakeholder needs and project constraints	4.26	2 =
C15.	Communicating with and engaging stakeholders properly and frequently	4.26	2 =
C4.	Understanding area of stakeholder interest area	4.22	4
C3.	Properly identifying stakeholders	4.21	5
C11.	Keeping and promoting a good relationship	4.17	6
C9.	Analysing conflicts and coalitions among stakeholders	4.04	7
C7.	Accurately predicting the influence of stakeholders	4.02	8
C12.	Formulating appropriate strategies for the management of stakeholders	3.97	9
C8.	Assessing stakeholder attributes (power, urgency, and proximity)	3.91	10
C10.	Effectively resolving conflicts between stakeholders	3.88	11
C2.	Formulating a clear statement of project mission	3.87	12
C13.	Predicting stakeholder reactions to implementation of the strategies	3.83	13 =
C14.	Analysing the changes in stakeholder influences and relationships	3.83	13 =
C6.	Assessing stakeholder behaviour	3.80	15

Notes: Number = 183.

Kendall's Coefficient of Concordance = 0.122. Level of significance: 0.00.

For 'Mean scores': 1 = least important and 5 = most important.

Table 4.8 Ranking of the CSFs according to project type

CSF ^b	Project nature				Client sector						Project cost					
	PN1 ^a		PN2 ^a		PS1 ^a		PS2 ^a		PS3 ^a		PC1 ^a		PC2 ^a		PC3 ^a	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
C1	4.40	1	4.49	1	4.44	1	4.65	1	4.25	1	4.40	1	4.25	1	4.57	1
C2	3.79	11	4.00	12	3.83	15	4.09	10	3.86	9	3.83	13	3.88	7	3.98	12
C3	4.11	5	4.38	4=	4.27	4	4.17	7	4.03	4	4.22	4	4.13	5	4.22	7
C4	4.12	4	4.40	3	4.29	3	4.22	4=	4.00	5=	4.21	5	4.19	2=	4.26	6
C5	4.18	3	4.38	4=	4.32	2	4.39	3	3.97	8	4.25	3	4.19	2=	4.30	4
C6	3.74	12	3.91	15	3.86	13=	3.57	15	3.78	10	3.80	14	3.19	15	4.02	10=
C7	3.90	8=	4.21	8	4.07	7	4.13	8=	3.75	11	4.02	7	3.69	9=	4.11	8
C8	3.90	8=	3.93	14	3.92	12	3.70	14	4.00	5=	3.92	10	3.69	9=	3.96	13=
C9	3.96	7	4.19	9	4.04	8	4.13	8=	4.00	5=	3.98	8	3.69	9=	4.33	3
C10	3.79	13	4.03	10=	3.94	10	3.78	13	3.72	12	3.90	11	3.31	14	4.02	10=
C11	4.07	6	4.34	2	4.19	6	4.22	4=	4.08	3	4.15	6	4.00	6	4.28	5
C12	3.81	10	4.25	7	4.01	9	4.22	4=	3.69	13	3.95	9	3.81	8	4.09	9
C13	3.70	15	4.03	10=	3.93	11	3.91	12	3.42	15	3.86	12	3.56	13	3.83	15
C14	3.73	14	3.99	13	3.86	13=	4.04	11	3.56	14	3.79	15	3.69	9=	3.96	13=
C15	4.24	2	4.31	6	4.24	5	4.43	2	4.22	2	4.26	2	4.19	2=	4.30	2

^a All project types are numbered in the sequence as cited in Table 4.4.

^b All CSFs are numbered in the sequence as cited in Table 4.3.

Table 4.9 Ranking of the CSFs according to respondent type

CSF ^b	Roles played by organisations of respondents						Respondents' position in the organisation							
	RO1 ^a		RO2 ^a		RO3 ^a		RP1 ^a		RP2 ^a		RP3 ^a		RP4 ^a	
	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank	Mean	Rank
C1	4.60	1	4.18	2	4.39	1	4.34	2	4.75	1	4.42	1	4.44	1
C2	4.00	9=	3.64	14	3.86	11	3.88	13	3.75	14	3.88	12=	3.87	10
C3	4.37	3	3.96	6	4.19	4=	4.15	7	4.25	3=	4.35	3	4.17	3
C4	4.35	4	4.04	3	4.19	4=	4.24	3=	4.58	2	4.28	5	4.14	5
C5	4.40	2	3.89	8	4.35	2	4.22	5=	4.25	3=	4.33	4	4.24	2
C6	3.84	15	3.80	9=	3.75	14=	3.93	11	3.92	13	3.86	14	3.70	15
C7	4.00	9=	3.98	4=	4.07	7	4.22	5=	4.00	10=	3.95	9	3.95	8
C8	3.89	14	3.80	9=	4.02	9	3.95	10	4.00	10=	3.77	15	3.94	9
C9	4.09	8	3.98	4=	4.04	8	4.10	8	4.08	9	4.05	8	4.01	7
C10	3.99	11	3.80	9=	3.79	12	3.90	12	3.92	12	3.88	12=	3.86	12=
C11	4.30	5	3.93	7	4.18	6	4.24	3=	4.25	3=	4.23	6	4.09	6
C12	4.11	7	3.71	12	3.98	10	4.02	9	4.17	7=	4.07	7	3.87	11
C13	3.98	12	3.62	15	3.77	13	3.63	15	4.17	7=	3.91	10=	3.83	14
C14	3.95	13	3.69	13	3.75	14=	3.73	14	3.58	15	3.91	10=	3.86	12=
C15	4.26	6	4.29	1	4.25	3	4.37	1	4.25	3=	4.37	2	4.16	4

^a All types of respondents are numbered in the sequence as cited in Table 4.5.

^b All CSFs are numbered in the sequence as cited in Table 4.3.

From these two tables, an apparent finding is that no matter what type of projects and respondents, factor C1 'managing stakeholders with social responsibilities (economic, legal, environmental, and ethical)' generally ranked the highest among all of the CSFs. This means that most project managers consider this factor as the most important factor for successful stakeholder management. This finding is in line with several researchers' statements. Wood and Gray (1991) believe that stakeholder theory is the theory most often associated with corporate social responsibility, as stakeholders are central to the very concept of corporate social performance. Similarly, Carroll (1991) suggests that there is a natural fit between the ideas of corporate social responsibility and an organisation's stakeholders, as the stakeholder concept personalises social responsibilities by delineating the specific groups or persons that business should consider in its corporate social responsibility orientations and activities. Hence, social responsibilities are important when managing stakeholders and sufficient attention should be paid to them.

It is also notable that respondents from most groups ranked C3 highly, as regards 'identifying stakeholders properly', C4 'understanding areas of stakeholder interests', and C5 'exploring stakeholder needs and project constraints'. These findings, based on this sample of respondents, indicate that project managers in Hong Kong are aware of the importance of information input for stakeholder management. The information includes not only the list of stakeholders but also their project interests and needs. Another highly ranked factor is C15 'communicating with and engaging stakeholders properly and frequently'. This finding coincides with the findings of a number of former researchers such as Jergeas et al. (2000) and Olander and Landin (2008). They

consider that communication is essential for maintaining the support and commitment of all stakeholders.

Among the relatively low ranked factors, C6 'assessing stakeholder behaviour' and C13 'predicting stakeholder reactions for implementing the strategies' are noteworthy. About five or six groups ranked these two factors lowest; most groups ranked them among the bottom few. This reflects the view of most of respondents that based on the information about stakeholder interests and needs, stakeholder behaviour and their reactions to the strategies can be easily assessed or predicted.

The results from the descriptive statistics tests show the ranking of the CSFs in each project type and respondent group. It was noted that most CSFs were ranked differently by different respondents of types and involved in different projects. There were few exceptions. This suggests that the descriptive statistics tests cannot indicate whether there can be any general consensus on the rankings of the CSFs if different types of respondent are involved. To address this issue, another set of tests (Correlation tests) were used. The findings are reported in the following section.

4.6.2 Similarity on the rankings of CSFs

In order to examine whether all of the respondents ranked the 15 CSFs in a similar order, Kendall's Coefficient of Concordance was calculated. According to Yeung et al. (2007), if the Concordance Coefficient is equal to 1, the meaning is that all the respondents rank the CSFs identically; in contrast, if the Concordance Coefficient is equal to 0, the meaning is that all of the respondents rank the CSFs totally differently.

The Kendall's Coefficient of Concordance for ranking the 15 CSFs in Table 4.7 was 0.122, which was statistically significant at 1% level. This suggested that there was a general agreement among the 183 respondents on ranking of the 15 CSFs; that is, the respondents shared similar values about the relative importance of these 15 CSFs.

In order to examine the possible similarity and hence significance of the CSF rankings between respondents from different groups, the Spearman's rank correlation test was used (Singh and Tiong, 2006). The results of this test were interpreted by Correlation coefficient (r). The value of Correlation coefficient (r) indicates the strength of the correlation between two variables. If r is significant at the 5% level, the two variables are said to have a strong correlation. Table 4.10 shows the Correlation coefficient (r) of different pairs of respondents, i.e. r is 0.624 between respondents from client and contractor companies. These statistical results indicate a general consensus on the CSF rankings among different groups of respondents; therefore, no matter the respondents, whether they are from client, contractor or consultant companies, in general, they rank the 15 CSFs similarly.

Table 4.10 Spearman rank correlation coefficients

Respondents	Client / Contractor	Client / Consultant	Contractor / Consultant
r	.624*	.893*	.803*

* Correlation is significant at 0.05 level (2-tailed).

Although these results suggest the similarity of the CSF rankings, the results cannot indicate the correlation between the CSF score and group types. This issue is covered in the following section.

4.6.3 Correlations between CSFs and group types

In order to analyse the correlations between CSFs and group types, values were assigned to the different group types. Table 4.11 shows the values used during the analysis process. In the five classifications, namely, ‘project nature’, ‘client sector’, ‘project cost’, ‘roles played by organisations of respondents’, and ‘respondents’ position in the organisation’, in general, the sequence of values follows the characteristics of the different groups. For example, regarding ‘project cost’, the table shows that the higher the cost, the lower the corresponding value.

Table 4.11 Values assigned to the groups of projects and respondents

Type ^a	Project nature		Client sector			Project cost			Roles played by organisations of respondents			Respondents’ position in the organisation			
	PN1	PN2	PS1	PS2	PS3	PC1	PC2	PC3	RO1	RO2	RO3	RP1	RP2	RP3	RP4
Value	1	2	1	2	3	1	2	3	1	2	3	1	2	3	4

^a All types are numbered in the sequence as cited in Tables 4.4 and 4.5.

Spearman’s rank correlation is calculated based on the values of the groups and the scores of the CSFs aiming to explore the correlations between CSFs and group types. The value of Spearman’s rank correlation (r) ranges from -1.00 to 1.00 (Pallant, 2001): if the r value is negative, this means there is a negative correlation between the two variables, i.e. high scores on one are associated with low scores on the other; the absolute value of r indicates the strength of the correlation between the two variables, that is, a correlation of 0 indicates no relationship at all, a correlation of 1.0 indicates a perfect positive correlation, and a value of -1.0 indicates a perfect negative correlation. Table 4.12 shows the results of Spearman’s rank correlations between the CSFs and group types.

Table 4.12 Spearman's rank correlations between the CSFs and group types

CSF ^a	Project nature		Client sector		Project cost		Roles played by organisations of respondents		Position in the organisation	
	r	r ²	r	r ²	r	r ²	r	r ²	r	r ²
C1	.058	.003	-.074	.005	-.006	.000	-.189*	.036	.021	.000
C2	.115	.013	.045	.002	-.125	.016	-.093	.009	.007	.000
C3	.210	.044	-.135	.018	-.086	.007	-.156*	.024	-.057	.003
C4	.218	.048	-.173	.030	-.041	.002	-.130	.017	-.125	.016
C5	.120	.014	-.162	.026	.109	.012	-.051	.003	-.005	.000
C6	.130	.017	-.094	.009	-.073	.005	-.064	.004	-.135	.018
C7	.205	.042	-.132	.018	-.026	.001	.033	.001	-.136	.018
C8	.015	.000	.003	.000	-.048	.002	.073	.005	.002	.000
C9	.178*	.032	-.002	.000	-.055	.003	-.043	.002	-.058	.003
C10	.168*	.028	-.116	.013	.008	.000	-.141	.020	-.022	.000
C11	.219	.048	-.055	.003	-.215	.046	-.122	.015	-.114	.013
C12	.313	.098	-.114	.013	-.031	.001	-.109	.012	-.120	.014
C13	.263	.069	-.280*	.078	-.078	.006	-.166*	.028	.062	.004
C14	.198	.039	-.129	.017	.052	.003	-.143	.020	.075	.006
C15	.088	.008	.027	.001	.017	.000	-.025	.001	-.171*	.029

^a All CSFs are numbered in the sequence as cited in Table 4.3.

* Correlation is significant at 0.05 level (2-tailed).

As shown in Table 4.12, correlations exist between the CSFs and project classification. In terms of 'project nature', all of the correlation values are positive. In particular, C9 'analysing conflicts and coalitions among stakeholders' and C10 'resolving conflicts among stakeholders effectively' have a relatively strong correlation with the value of 'project nature'. Such results indicate that respondents consider more effort should be paid to civil projects than building projects. In contrast, regarding 'client sector', most of the correlation values were negative, so in general project managers in public sector projects are more concerned about stakeholder management, particularly about C13 'predicting stakeholder reactions for implementing the strategies'. In the case of 'project cost', most of the correlation values were positive, viz. the lower the project cost, the lower score of the CSFs was assigned by project managers in Hong Kong.

This indicates that the higher the project cost, the greater the attention needed by project managers.

Regarding the correlations between the CSFs and respondent type, most of the correlation values in Table 4.12 are negative. This seems to suggest that client organisations and project directors focus more on stakeholder management than do the other groups of respondents. Considering the significant level, compared with contractors and consultants, clients have a preference for C1 ‘managing stakeholders with social responsibilities (economic, legal, environmental, and ethical)’, C3 ‘identifying stakeholders properly’, and C13 ‘predicting stakeholder reactions for implementing the strategies’. Project directors have more responsibility regarding communication than the others in more junior positions.

Pallant (2001) states that the r^2 value more than 0.34 is considered as a reasonable variance to explain research, conducted in the social sciences. However, in Table 4.12, all values of Coefficients of determination (r^2) are much less than 0.34. Therefore, though there are certain correlations between the CSFs and the groups, and six r values are significant at 5% level, the correlations between CSFs and group types are not particularly strong.

4.6.4 True differences in perceptions of the relative importance of CSFs across groups

Although there is a general consensus on the rankings of the CSFs among different respondents (explained in Section 4.6.2), and the correlation between CSFs and group

types is not so strong (explained in Section 4.6.3), differences on the rankings and scores of the CSFs factually exist, as can be identified from Tables 4.8 and 4.9 in Section 4.6.1. The results from the above three sections cannot clearly indicate which CSF measures are significantly different from each other across group types. To enable clarification, this section focuses on investigating the true differences in perceptions of the relative importance of CSFs by pairwise comparisons.

The comparisons were conducted by means of Nonparametric (Mann-Whitney) survey data tests. This test is considered useful for comparing differences on the relative importance of CSFs between two independent samples (Pallant, 2001), and the results were interpreted by the probability value (p-value). If the p-value is less than 0.05, there is a significant difference between the groups. Table 4.13 shows the probability values of Mann-Whitney Test on the CSFs. The last row and column in Table 4.13 are the number of significant p-values for each factor and each pair of groups.

Among the 15 CSFs, it is notable that all group types have consensus on the importance of C6 ‘assessing stakeholder behaviour’ and C8 ‘assessing stakeholder attributes (power, urgency, and proximity)’. This indicates that the respondents in this sample consider the relative importance of these two factors do not vary with the different types of projects, nor with the types of respondents. It is also interesting to find that although C1 ‘managing stakeholders with social responsibilities (economic, legal, environmental, and ethical)’ was ranked highly by most respondents, the scores of this factor are significantly different for a number of pairs. For example, the respondents gave higher importance to this factor for quasi-public or regulated private

projects, compared to that given for private projects. One possible reason could be quasi-public or regulated private projects normally draw more attention from government and the public than that of private projects, so project managers of this kind of project are more cautious to ensure decisions are fairly and ethically made. Similarly, project managers from client organisations, who attached greater value to this factor, perceive it significantly different than do those managers from contractor and consultant organisations. Hence this could be attributed to the more responsibilities undertaken by clients in comparison to those taken by others.

Table 4.13 Probability values in Mann-Whitney Test on the CSFs

Type ^b \ CSF ^a	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	Number
	PN1/PN2	.431	.120	.005*	.003*	.105	.080	.006*	.836	.016*	.023*	.003*	.000*	.000*	.008*	
PS1/PS2	.126	.219	.556	.500	.737	.066	.635	.247	.529	.280	.944	.176	.860	.304	.185	0
PS1/PS3	.062	.881	.059	.016*	.007*	.512	.017*	.557	.745	.182	.373	.015*	.000*	.012*	.862	6
PS2/PS3	.007*	.336	.447	.184	.025*	.268	.092	.216	.462	.993	.447	.005*	.007*	.009*	.248	5
PC1/PC2	.041*	.100	.777	.333	.098	.743	.084	.564	.688	.542	.249	.260	.217	.800	.158	1
PC1/PC3	.428	.206	.223	.820	.315	.320	.249	.319	.495	.894	.004*	.1	.487	.357	.386	1
PC2/PC3	.021*	.610	.485	.476	.524	.611	.012*	.184	.856	.533	.284	.329	.570	.319	.090	2
RO1/RO2	.000*	.050*	.001*	.014*	.002*	.634	.805	.657	.367	.211	.002*	.003*	.001*	.028*	.947	9
RO1/RO3	.038*	.303	.087	.130	.824	.383	.618	.257	.633	.061	.207	.228	.053	.089	.705	1
RO2/RO3	.055	.331	.089	.261	.009*	.793	.484	.153	.653	.740	.051	.029*	.170	.616	.697	2
RP1/RP2	.027*	.663	.852	.119	.697	.991	.380	.946	.918	.972	.896	.551	.016*	.871	.794	2
RP1/RP3	.475	.912	.312	.872	.588	.704	.071	.230	.669	.898	.960	.774	.070	.235	.909	0
RP1/RP4	.375	.998	.734	.324	.870	.121	.027*	.785	.462	.779	.187	.256	.088	.286	.054	1
RP2/RP3	.095	.613	.586	.115	.893	.786	.861	.310	.837	.972	.875	.692	.209	.391	.865	0
RP2/RP4	.067	.645	.630	.015*	.694	.299	.850	.787	.697	.894	.369	.141	.069	.452	.144	1
RP3/RP4	.982	.903	.079	.202	.633	.215	.983	.150	.753	.876	.213	.126	.565	.766	.042*	1
Number	6	1	2	4	4	0	4	0	1	1	3	5	5	4	1	

^a All CSFs are numbered in the sequence as cited in Table 4.3.

^b All types of respondents are numbered in the sequence as cited in Tables 4.4 and 4.5.

* The probability value is significant at 0.05 level (2-tailed).

The results in Table 4.13 also highlight that the pairs of PS1/PS2 (public projects and quasi-public or regulated private projects), RP1/RP3 (project directors and senior project managers), and RP2/RP3 (chief project managers and senior project managers) have no significant difference on the importance value attached to all of the 15 CSFs. This indicates that regarding stakeholder management, project managers in this survey consider public projects and quasi-public or regulated private projects have a similar nature, and the project managers at higher management levels have agreement on scores of the CSFs.

The major different views of respondents on the relative importance of CSFs are among pairs of PN1/PN2 (building works and civil works), PS1/PS3 (public projects and private projects), PS2/PS3 (private projects and quasi-public or regulated private projects), and RO1/RO2 (client organisations and contractor organisations). For the pair “PN1/PN2”, the respondents attached more importance values to civil works, especially when considering the nine factors, viz., C3, C7, C9, C10, C11, C12, C13, and C14 (details shown in Table 4.3). A possible reason for this could be that normally civil works are more complex than building works in terms of stakeholders engaged. Pertaining to “client sector”, namely, PS1, PS2, and PS3, it is notable that while project managers of public projects and quasi-public or regulated private projects have consensus, several significant differences are apparent regarding those project managers of private projects on the importance values of CSFs. This finding is in line with the statements of Ridley and Jones (2002) and Ward and Chapman (2008). They clarified the dissimilar focuses of these types of projects. This finding also indicates that public projects and quasi-public or regulated private projects have similar characteristics compared to those of private projects. Regarding RO1/RO3

(client organisations and contractor organisations), project managers from client organisations assigned more value to most of the factors than those from contractor organisations. This result shows that client organisations are more concerned about stakeholder management compared to the concern of contractor organisations.

In this section, the true difference in perceptions on the relative importance of CSFs across groups can be seen in Table 4.13. Based on these results, project managers are able to know the working preference of stakeholder management in different types of projects, and also project managers from different organisations and at different management levels are able to be more aware of their responsibilities regarding managing stakeholders.

4.6.5 Factor analysis of the CSFs

Factor analysis is recommended by Norusis (1992) and Li et al. (2005) to identify factor groupings that are not too large in number, in order to represent relationships among sets of many inter-related variables. In this survey, this method was used to determine the groupings of the 15 CSFs.

The following literature review shows the basis of the factor analysis choice. According to Pallant (2001), two main issues have to be considered in determining whether a data set is suitable for factor analysis: sample size and the strength of the relationship among the factors. In terms of sample size, Nunnally (1978) recommends a 10 to 1 ratio; that is, “10 cases for each item to be factor analysed”. The minimum number for factor analysis suggested by Pallant (2001) is 150. There were 15 factors

in this survey, so according to Nunnally's recommendation (1978), 150 respondents should be obtained. The respondents in this study number 183. It is, therefore, above the recommendation limit, and adequate for factor analysis. In terms of the strength of relationship among the factors, the correlation matrix (Tabachnik and Fidell, 1996), the Bartlett's test of Sphericity (Bartlett, 1954), and the Kaiser-Meyer-Olkin (KMO) (Kaiser, 1970) were recommended. Most values in the correlation matrix are larger than 0.3, the Bartlett's test of Sphericity is significant ($p < 0.05$), and the value of the KMO index is above 0.6, suggesting the data set is suitable for factor analysis. In this survey, more than half of the correlation coefficients (Table 4.14) were above 0.3, Bartlett's test of Sphericity was significant ($p < 0.05$) (Table 4.15), and the value of the KMO index was 0.870 (above 0.6) (Table 4.15). The results of these tests confirmed that the data were appropriate for factor analysis.

A four-component solution was produced based on Varimax rotation of principal component analysis (Table 4.16). These four factor groupings with Eigenvalues greater than 1.000 explain 61.532% of the variance. Each of the CSFs belonged to only one grouping, with the value of factor loading exceeding 0.50 (Norusis, 1992; Li et al., 2005; Aksorn and Hadikusumo, 2008). It was noticed that C1 'managing stakeholders with social responsibilities (economic, legal, environmental and ethical)' does not belong to any of the factor groupings. The residual 14 CSFs can be grouped into four principal components, and the corresponding importance ranking of the extracted components was: (1) stakeholder assessment, (2) stakeholder identification, (3) decision making, and (4) continuous support.

Table 4.14 The correlation matrix of the CSFs

CSFs *	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15
C1	1.00	.245	.266	.331	.322	.115	.265	.243	.217	.243	.357	.322	.313	.248	.266
C2	.245	1.00	.420	.352	.274	.153	.210	.063	.220	.331	.307	.314	.240	.192	.105
C3	.266	.420	1.00	.489	.406	.307	.316	.255	.270	.300	.302	.373	.427	.327	.192
C4	.331	.352	.489	1.00	.586	.408	.412	.324	.413	.248	.331	.357	.302	.390	.279
C5	.322	.274	.406	.586	1.00	.280	.365	.256	.414	.194	.396	.257	.229	.358	.354
C6	.115	.153	.307	.408	.280	1.00	.534	.430	.410	.286	.323	.262	.292	.429	.232
C7	.265	.210	.316	.412	.365	.534	1.00	.545	.463	.433	.365	.377	.487	.437	.217
C8	.243	.063	.255	.324	.256	.430	.545	1.00	.419	.254	.292	.219	.329	.298	.076
C9	.217	.220	.270	.413	.414	.410	.463	.419	1.00	.358	.270	.306	.320	.520	.237
C10	.243	.331	.300	.248	.194	.286	.433	.254	.358	1.00	.347	.416	.471	.276	.160
C11	.357	.307	.302	.331	.396	.323	.365	.292	.270	.347	1.00	.459	.339	.345	.347
C12	.322	.314	.373	.357	.257	.262	.377	.219	.306	.416	.459	1.00	.512	.471	.411
C13	.313	.240	.427	.302	.229	.292	.487	.329	.320	.471	.339	.512	1.00	.489	.125
C14	.248	.192	.327	.390	.358	.429	.437	.298	.520	.276	.345	.471	.489	1.00	.414
C15	.266	.105	.192	.279	.354	.232	.217	.076	.237	.160	.347	.411	.125	.414	1.00

* All CSFs are numbered in the sequence as cited in Table 4.3.

Table 4.15 Bartlett's Test for the CSFs and KMO

Bartlett's Test of Sphericity	Approx. Chi-Square	960.363
	df	105
	Sig.	.000
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.870

Component 1: Stakeholder assessment

The stakeholder assessment component, which accounted for 37.44% (Table 4.16) of the total variances between critical success factors, is relatively more important than the other three components. This indicates that project managers in Hong Kong consider the estimation of stakeholders to be significant in stakeholder management in construction projects. To enhance the understanding of project managers of stakeholders, their attributes, behaviour, and potential influence need to be assessed and estimated. The conflicts and coalitions among stakeholders also can be analysed based on stakeholder information (their interests and needs). Therefore, this component relating to stakeholder assessment is illustrated by C8, C6, C7, and C9.

Table 4.16 Results of factor analysis

Components	Eigenvalue	% of Variance	Name of components ^a	CSFs ^b	Factor loading
1	5.618	37.455	Stakeholder assessment	C8	.760
				C6	.727
				C7	.713
				C9	.649
2	1.347	8.978	Stakeholder identification	C2	.713
				C3	.676
				C4	.678
				C5	.636
3	1.181	7.872	Decision making	C13	.727
				C10	.713
				C12	.617
4	1.084	7.227	Continuous support	C15	.873
				C14	.535
				C11	.501

^a Components were named based on the characteristics of its CSFs in that group;

^b The meanings of C2 to C15 are given in the list of CSFs in Table 4.3.

Component 2: Stakeholder identification

The stakeholder identification component ranked second among the four components (Table 4.16). Four CSFs comprise the elements of this component. Before any management activities, comprehensive information about the project and its stakeholders has to be obtained. The information includes project missions, full list of stakeholders, areas of stakeholder interests, and their needs and project constraints. The stakeholders are able, then, to be managed depending on these inputs.

Component 3: Decision making

Three CSFs were included in the decision making component. Project managers have the responsibility to compromise conflicts among stakeholders, and formulate appropriate strategies to manage stakeholders. During the decision making process, project managers aim to predict the reaction of stakeholders and choose the optimal solution for their management.

Component 4: Continuous support

Although the continuous support component ranked the least among the four components (Table 4.16), it is indispensable for stakeholder management. Construction projects are transient (Bourne, 2005), but, correspondingly, organisations are permanent. Many stakeholders, such as government, local communities and media, are involved at later stages of the project process or in future projects, and project managers as the representatives of such organisations have the responsibility to recognise any relationship and influence changes. Their task is to promote a steady correlation of interests. This can be achieved through good, timely and appropriate communication

4.7 Validation of the CSFs

4.7.1 Testing for reliability of a scale

Cronbach's Coefficient Alpha was used to examine internal consistency of the scales under the headings of the CSFs. Alpha values greater than 0.7 are regarded as sufficient (Pallant, 2001). The results of Cronbach's Coefficient Alpha in this survey were in the range of 0.8625 to 0.8763. This provides evidence that all of the factors have high internal consistency and are reliable.

4.7.2 Testing for content validity

Ahire et al. (1996) believe that if the measurement items in the survey “adequately cover the content domains or aspects of the concept being measured”, an instrument has content validity. Gotzamani and Tsiotras (2001) and Wong and Aspinwall (2005) also have clarified that “it is not assessed numerically, but can only be subjectively judged by the researchers”. As discussed in Section 4.1, the CSFs listed in this survey were identified by a comprehensive review of relevant literature and validated by several interviews and a pilot study with the professionals in the construction industry. Therefore, the content validity of the whole questionnaire is confirmed.

4.7.3 Testing for construct validity

Construct validity was used to check for unifactoriality (Black and Porter, 1996). Antony et al. (2002) clarified that “unifactoriality means that a single factor is extracted for each test”. Each factor grouping was evaluated by factor analysis for construct validity. Table 4.17 presents results of the unifactorial test. Since all of the KMO value were greater than 0.5, and the percentage of variance explained by each component was more than 56 per cent, all four components were demonstrated to be unifactorial.

Table 4.17 Unifactorial test

Component	KMO value	Factor loading	Eigenvalue	Percentage variance explained
1	0.776	0.728-0.831	2.405	60.132
2	0.721	0.646-0.825	2.275	56.880
3	0.653	0.744-0.814	1.817	60.556
4	0.606	0.697-0.848	1.789	59.622

4.7.4 Summary of the three tests

Since all of the factors have high internal consistency, the whole questionnaire has valid contents, and all of the four components were demonstrated to be unifactorial, the CSFs developed in this study were both reliable and valid.

4.8 Summary of the Chapter

With a focus on different aspects of stakeholder management, various sets of CSFs have been suggested by researchers and presented in the literature. It has been found crucial to develop a comprehensive list of the factors and their relative importance and grouping which contribute to the success of stakeholder management.

This chapter has presented part results of interviews and a questionnaire survey in Hong Kong with the aim of developing a comprehensive list of CSFs associated with stakeholder management in construction projects. CSF ranking, similarities and differences in the relative importance of the CSFs have been explored, by considering different types of projects, the different respondents and the underlying CSF relationships.

A total of 15 CSFs were identified through a literature review, face-to-face interviews and pilot studies. Based on a questionnaire survey, the rankings of these CSFs were obtained. Findings from the study show that all of the CSFs are regarded as critical for the success of stakeholder management in construction projects by most respondents. No matter what type of projects and respondents, social responsibilities, comprising economic, legal, environmental, and ethical responsibilities, are considered most

important for managing stakeholders. Project managers in Hong Kong also have a keen awareness of the importance of the information input for stakeholder management. Respondents in this survey assigned relatively low importance to the CSFs pertaining to “assessing stakeholder behaviour” and “predicting stakeholder reaction” for several types of projects, for example, respondents consider “assessing stakeholder behaviour” as the least important for civil works, private projects, and medium cost projects.

The results of the Spearman’s rank correlation test indicate that there is a general consensus on the overall rankings of the CSFs among different respondents. A notable result is that the CSFs basically have positive or negative correlations with group types, but these correlations are not particularly strong. Even though there is a general consensus on the rankings of the CSFs among different respondents, the detailed pairwise comparison actually shows the existence of a few differences in perceptions on the relative importance of the CSFs.

Using factor analysis, the 15 CSFs (except C1) were grouped into four dimensions: stakeholder assessment, stakeholder identification, decision making, and continuous support.

Overall, the results reflect that though the respondents share a certain degree of commonality with respect to the relative importance of the CSFs, their working priorities for managing stakeholders are context specific, depending on the nature of the project, and also on the nature of organisations and the project manager’s level in the organisation hierarchy. The grouped CSFs for stakeholder management and the

context-specific nature of stakeholder management are further explored and validated by empirical studies in Hong Kong and Australia. Findings are described in Chapters 5, 6 and 7.

CHAPTER 5 A SYSTEMATIC FRAMEWORK FOR STAKEHOLDER MANAGEMENT

5.1 Introduction

As indicated in Section 2.4.3, two research gaps exist in previous studies: (a) a systematic framework for stakeholder management needs to be further developed; (b) few studies focus on analysing stakeholders' interrelationships to identify stakeholders' impacts on construction projects. Corresponding to these gaps, an objective of this research, as indicated in Section 3.3.2.2, is to develop and refine a systematic framework for stakeholder management in construction projects. Based on results of interviews and a questionnaire survey in Hong Kong and Australia, this chapter is to further explore the grouped CSFs proposed in Section 4.6.5, and the main outcome in this chapter will be a systematic framework for stakeholder management in construction projects.

This chapter is structured as follows:

- an initial framework for stakeholder management was proposed based on the factor analysis in Chapter 4 (Section 5.2);
- interviews and a questionnaire survey were then conducted in Hong Kong, based on the literature review in Section 2.4, to collect empirical information from practitioners in construction, and the outcomes are details in the framework for stakeholder management in construction projects (Section 5.3);
- the findings from the empirical studies in Hong Kong were validated and revised by fifteen interviewees in Australia, and a systematic framework for stakeholder management was formulated and explained (Section 5.4).

5.2 An Initial Framework for Stakeholder Management in Construction

An initial framework for stakeholder management in construction is proposed based on the results of factor analysis in Section 4.6.5. According to the results, the 15 CSFs (except C1) can be grouped into four groups: stakeholder assessment, stakeholder identification, decision making, and continuous support. However, the research findings in Section 4.6.1 show that C1 “managing stakeholders with social responsibilities (economic, legal, environmental and ethical)” ranked first among the 15 CSFs for stakeholder management in construction projects. These indicate that it is the priority factor for stakeholder management success. As discussed in the overview (Section 4.3), this finding is in line with those of several researchers’ statements (e.g. Wood, 1991; Carroll, 1991; and Donaldson and Preston, 1995). Owing to the significance of this factor, this factor is hence named as the “precondition factor” for stakeholder management; that is, stakeholder management should be conducted with social (economic, legal, environmental and ethical) responsibilities.

Therefore, an initial framework for stakeholder management in construction (Figure 5.1) is proposed based the factor analysis (refer to Section 4.6.1). It comprises five components, i.e. precondition factor, stakeholder assessment, stakeholder identification, decision making, and continuous support.

The framework in Figure 5.1, which presents the five factor groupings, makes a contribution to the establishment and future success of stakeholder management and the relationships upon whom this practice depends. The five factor groupings are the “precondition factor” and the four components extracted by factor analysis, which are

“stakeholder assessment, stakeholder identification, decision making, and continuous support”. Since the factor about social responsibilities (C1) is the precondition of any activities for managing stakeholders, it is put on the top of the other four groupings in Figure 5.1. According to general management process, information should be inputted first during the process of stakeholder management, and then stakeholders can be assessed, based on the information obtained. After an accurate stakeholder assessment, further decisions can be made. Continuous support and appropriate communication needs to be conducted during the whole process of stakeholder management, to promote the management process by such as monitoring the change of stakeholder influence, and keeping a steady relationship with stakeholders.

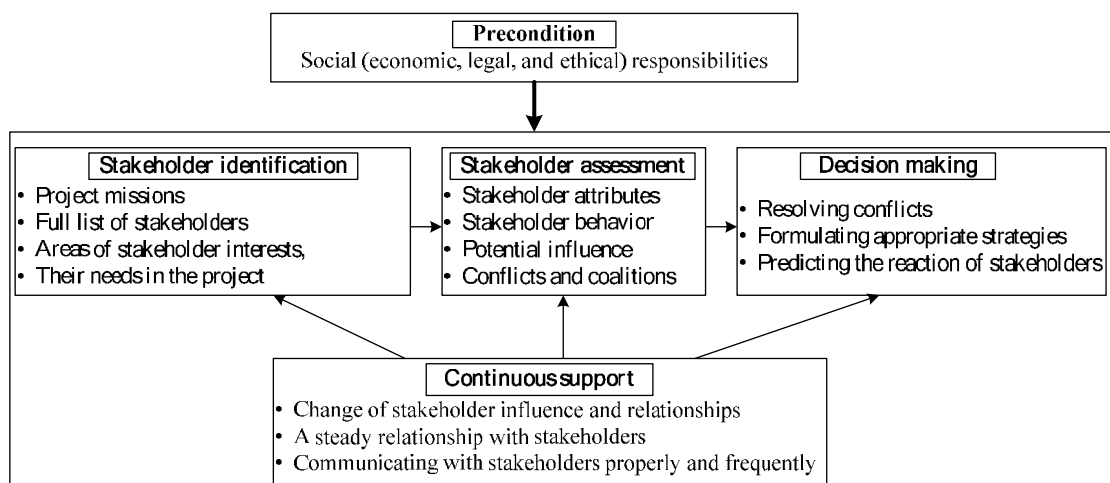


Figure 5.1 An initial framework for successful stakeholder management in construction projects

In order to explore the detail activities in the stakeholder management process and thereby revise the initial framework, the findings of the empirical studies in Hong Kong and Australia are described in Sections 5.3 and 5.4.

5.3 The Findings from Empirical Studies in Hong Kong

5.3.1 The findings from interviews

As more fully described in Section 4.4, in order to collect empirical information about stakeholder management from practitioners in construction, six face-to-face interviews were conducted in Hong Kong based on the extensive literature review. Questions related to the development of a stakeholder management framework are as follows (refer to Appendix A):

- Q1. would you please describe the work processes for stakeholder management?
- Q2. what is your understanding about project stakeholders?
- Q3. which kind of information do you usually gather about project stakeholders?
- Q4. how do you identify which stakeholders are more important than others?
- Q5. how do you classify stakeholder behaviour? and
- Q6. which kind of strategies in practice do you use in dealing with the issues raised by the project stakeholders?

The responses of the interviewees are summarised as follows:

(1) Responses to Q1:

All of the interviewees indicated that they do not have an established procedure for stakeholder management in formal ways. This is in line with Karlsen's (2002) findings, as he stated that the management of the stakeholders is random. Nevertheless, the interviewees do think stakeholder management is important, and identifying all kinds of stakeholders and communicating with them are key activities in their work.

(2) Responses to Q2 and Q3:

In terms of ‘the understanding about project stakeholders’, the interviewees agreed with Freeman’s (1984) stakeholder definition, and considered stakeholders are those who can affect or be affected by a construction project. They listed a number of groups relating to the construction projects. These groups include: clients, contractors, consultants, suppliers, end users, government, financiers/sponsor, communities, district councils, general public, competitors, utilities, special interest groups, and the media. Besides the basic contact information of these stakeholders, the interviewees also emphasised stakeholder interests, needs, and constraints to the project, which are the same as the findings in the previous studies, such as Cleland (1999), and Freeman et al. (2007).

(3) Responses to Q4:

Regarding the ranking of stakeholders, i.e. identifying which stakeholders are more important than others, the interviewees implied that they prioritised stakeholders based both on their intuitive experience and the directives from higher authorities. This finding indicates the low level of estimation of the ranking of stakeholders in construction. In order to identify the important stakeholder attributes for prioritizing them, stakeholders’ power, urgency, legitimacy and proximity, which are identified by Mitchell et al. (1997) and Bourne (2005), were introduced to the interviewees, and then their opinions about each were solicited. The interviewees confirmed the importance of the first two concepts, namely, stakeholder power and the urgency of their requests, and they recognised that they do consider these attributes in practice, but they did not use them in a systematic and clearly defined way. In terms of ‘legitimacy’ and ‘proximity’, the interviewees thought that the attribute of

legitimacy is imprecise and difficult to operationalise, and they all preferred using the attribute ‘proximity’, which is easier to explain.

(4) Responses to Q5 and Q6:

The interviewees thought Q5 and Q6 were tough to answer, and the behaviour and strategies adopted depended on different situations and issues. Nevertheless, the interviewees thought these two steps are indispensable. In order to help the interviewees summarise these two steps, the findings from previous studies were introduced to the interviewees. According to Freeman (1984), stakeholder behaviour can be sorted into two categories: cooperative potential and competitive threat:

“Cooperative potential asks the manager to list concrete behaviours that would help the organisation achieve its objective on the issue in question; competitive threat asks the manager to list those behaviours that would prevent or help to prevent the organisation’s achieving its goal.”

The interviewees basically agreed with the existence of the above two kinds of behaviour, but proposed one more category, that is, the adoption of an opposing position. This behaviour is an extreme case, and was observed when the stakeholders totally disagreed with the project team. Therefore, the comments indicated the existence of three commonly observed stakeholder behaviour types: cooperative potential, competitive threat, and opposite position.

In addition, many strategy types have been proposed by scholars (Table 5.1). Different terminology is used by different researchers to identify these strategies, but all stem from the attitudes of the project management team and concern the different stakeholders with whom they were working. To synthesise the strategy

types, a list similar to Table 5.1 was presented to the interviewees. Based on conceptions in previous studies and the interviewees' comments, four types were finalised. The four strategy types and their implied meanings are as follows:

- holding: either fighting against addressing a stakeholder's issues or completely withdrawing and ignoring the stakeholder;
- defence: doing only the minimum legally required to address a stakeholder's issues;
- compromise: negotiating with stakeholders and trying to get a compromising solution;
- concession: implementing stakeholder requirements or yielding to stakeholder demands.

Table 5.1 The strategies for the management of stakeholders in previous studies

Researcher	Strategy	Explanation of the strategy
Freeman (1984)	Holding	Doing nothing and monitoring existing programs; Reinforcing current beliefs about the firm; Guarding against changes in the transaction process.
	Defense	Reinforcing current beliefs about the firm; Maintaining existing programs; linking issues to others that stakeholder sees more favourably; letting stakeholder drive the transaction process.
	Changing the rules	Changing formal rules through government, the decision forum, the kinds of decisions that are made, and the transaction process.
	Offense	Changing the beliefs about the firm; doing something different; trying to change the stakeholder's objectives; adopting the stakeholder's position; linking the program to others that the stakeholder views more favourably; changing the transaction process.
Clarkson (1995); Elias et al. (2002)	Reaction	Either fighting against addressing a stakeholder's issues or completely withdrawing and ignoring the stakeholder.
	Defense	Doing only the minimum legally required addressing a stakeholder's issues.
	Accommodation	Relative to pro-action, it is a less active approach of dealing with a stakeholder's issues.
	Proaction	Doing a deal to address a stakeholder's issues, including anticipating and actively addressing specific concerns or leading an industry effort to do so.
Chinyio and Akintoye (2008)	Trade-offs	Proposing another options for stakeholder requests.
	Concessions	Listening and yielding to stakeholder demands.

A questionnaire (Appendices B and C) was developed after the six interviews with the aim of further verifying the outcomes from the literature review and interviews by a broad survey. The administration of the questionnaire has already been given in Section 4.5.1. Several questions related to the framework development in the questionnaire are shown in Table 5.2. The outcomes of the questionnaire will be discussed in the next section. Outcome discussions in Sections 5.3.2 and 5.4 will follow the question sequence in the questionnaire.

Table 5.2 The questions and mean values of responses

Questions	Details	Mean
To what extent do you think the following individual or organisations are project stakeholders?	Clients	4.60
	End users	4.31
	Contractors	4.23
	Consultants	4.13
	Governments/ Other departments	3.93
	Local communities	3.83
	District councils	3.74
	General publics	3.68
	Financiers/Sponsors	3.64
	Utilities	3.63
	Special interest groups	3.50
	Suppliers	3.42
	The Media	2.99
Competitors	2.81	
To what extent do you think the following information about stakeholders should be gathered?	Their needs in the project	4.43
	Their interests on the project	4.26
	Their commitments to the project	4.17
	Their constraints about the project	4.17
How do you classify the stakeholder behaviour? (Yes/No)*	Cooperative potential	0.86
	Opposite position	0.50
	Competitive threat	0.43
To what extent do you think the following factors are important for you to prioritise stakeholders?	The stakeholder power	4.17
	The directives from higher authorities	4.08
	The urgency of the stakeholder requests	3.77
	The stakeholder proximity	3.60

Table 5.2 (Continued)

Questions	Details	Mean
To what extent do you think the following types of strategies should be used in dealing with stakeholders?	Compromise	4.12
	Concession	3.84
	Defence	3.10
	Holding	2.49

* This is a yes/no question, while the others are questions with a five-point Likert scale.

5.3.2 The findings of the questionnaire survey

The relative agreements of the respondents was analysed with the aid of the Statistical Package for Social Sciences (SPSS) computer software by calculating the mean values and conducting factor analysis. The outcomes are summarised as follows:

- (1) According to the mean values in Table 5.2, the respondents agreed that most of the fourteen groups were project stakeholders and all their interests, needs, commitments and constraints should be gathered. The main discrepancy in the respondent opinions regarded the inclusion of ‘competitors’ and ‘the media’. There are similar findings in the literature. Donaldson and Preston (1995) and Olander and Landin (2005) present the media as typical positive or negative influencers, but obviously not as stakeholders in the literal sense. However, according to Pinto (1998), a stake can be a moral or legal claim, rather than a literal or practical claim, and they declare it is evident that the media can have a tremendous impact on project activities (Olander, 2007). Similarly, based on a survey in Norway, Karisen (2002) included ‘competitors’ and ‘the media’ in the stakeholder list as well. The aim of categorising the project stakeholders is to help the project teams identify stakeholders as completely as possible; hence ‘competitors’ and ‘the media’ are included in this research.

- (2) In terms of stakeholder behaviour, 86% of respondents agreed with the inclusion of the characteristic, ‘cooperative potential’; while only half or less than half respondents chose to include ‘competitive threat’ and ‘opposite position’. The implication of this selection percentage implies that the

respondents considered that most stakeholders show potential support or acceptance of projects. The positivity of such acceptance encourages the project managers try for a ‘win-win’ situation, based on cooperation, rather than a confrontation. This finding is confirmed in Table 5.2 by the response to the question about strategies as well, as the fact that the respondents usually chose compromise or concession to deal with essential stakeholder requirements. Most of the respondents disagreed with the ‘holding’ strategy, or ‘do nothing and let the situation take care of itself’. This indicates that it is felt that project managers should deal with every issue raised by stakeholders in an appropriate manner.

- (3) Regarding the strategy, ‘prioritise stakeholders’, according to the results in Table 5.2, ‘stakeholder power’, or “the ability to control resources, create dependencies, and support the interests of some organisation members or groups over others” (Mitchell et al., 1997), is considered to be the most important. This finding is in line with many previous studies, such as Winch and Bonke (2002), Newcombe (2003), and Bourne and Walker (2005). ‘The directives from higher authorities’ are ranked second for prioritizing stakeholders, maybe because more than half of the respondents (102 of 183) were contractors and consultants, and hence, clients’ instructions were important directives. Since the mean values of the four factors are more than three, they all are important for ‘prioritizing stakeholders’.

In order to validate the findings in Hong Kong, fifteen more interviews were conducted at Melbourne, Australia in 2009. The further findings are discussed in the following section.

5.4 The Findings from Interviews in Australia

The fifteen interviewees (Table 5.3) in Australia, whose experiences on stakeholder management ranged from 11 to 20, worked for governments, education organisations, companies or Non-Government Organisations. They were not only from the construction industry, but working for general management, community relationships, and business. Stakeholder management in construction projects is highly related to general management and community engagement. However differences in these areas could occur largely because of the complexity of construction projects, as indicated in Section 1.1.2. Nonetheless a wider investigation of stakeholder management which incorporates techniques and findings common to none construction industries could make a sound basic contribution to the eventual establishment of a systematic framework in construction.

Table 5.3 Profiles of interviewees in Australia

Interviewee	Organisation characteristic	Role in projects	Industry	Experience (years)
1	University	Client	Construction	20
2	Government	Client	Community Renewal	12
3	Government	Consultant	Sustainability and Environment	18
4	Government	Client	Construction	18
5	Government	Client	Community Projects	11
6	Company	Consultant	Construction	13
7	Company	Consultant	Construction	12
8	University	Client	Construction	16
9	Company	Consultant	General management	15
10	Company	Consultant	General management	20
11	NGO (Not-for-profit charitable organisation)	Client	Construction	21
12	Company	Contractor	Construction	13
13	Company	Contractor	Construction	11
14	Government	Client	Business	12
15	Company	Contractor	Construction	12

The same questions were used during the fifteen interviews as those in Hong Kong, and in addition, outcomes from the empirical studies in Hong Kong were presented to and discussed with the interviewees in Australia. The main comments from the interviewees are summarised as follows:

- (1) The interviewees considered the categorised stakeholder groups to be systematic, but they queried whether the categories were mutually exclusive, since they observed that one stakeholder may belong to several groups. An obvious example is that ‘government’ could also be a ‘client’. The interviewees thought another way to classify stakeholders was to divide them into ‘internal stakeholders’ and ‘external stakeholders’, which is an arrangement used by Bourne (2005) in the Stakeholder Circle methodology. This classification can solve the ‘overlapping’ problem. However, the main purpose of this list is for use as a reference for the project management team to identify stakeholders but not for the classification itself. A discussion with the interviewees concerning the purpose of the list, received approval and the presentations of a few suggestions.

The interviewees considered ‘government’ includes ‘district councils’, which are called ‘city councils’ in Australia, so the government group can be revised to ‘government (state/federal/local)’. One more group, i.e. ‘environmental groups’, was proposed by the interviewees. Although the ‘environmental groups’ can be considered as ‘special interest groups’, at present, due to the importance of environment issues, the interviewees preferred to emphasise this group by giving it its own identity.

Therefore, the finalised list of the stakeholder groups in construction is: clients, contractors, consultants, suppliers, end users, government (state/federal/local), financiers/sponsor, communities, environmental groups, general publics, competitors, utilities, special interest groups, and the media. It should be noted that even though this list has been agreed by these interviewees, it is not exhaustive of all kinds of stakeholders in construction. The use of this list is as a common reference for project management teams in the construction field.

- (2) Regarding stakeholder behaviour, the interviewees agreed with the three types, namely, cooperative potential, competitive threat, and opposite position. Nevertheless, one interviewee recommended the 'support & receptiveness' evaluation in the Stakeholder Circle methodology to classify the stakeholder behaviour. According to Bourne (2005), the attitudes of stakeholders can be assessed by the current and target levels of stakeholder interest and support. The level of support has a similar meaning to the behaviour types, and therefore can be visualised in the Stakeholder Circle software. The interviewee preferred to use this category in her work.
- (3) The interviewees agreed with the stakeholder attribute (power, urgency and proximity) classification, and the four strategy types (holding, defence, compromise, and concession) to deal with the issues raised by stakeholders.
- (4) In terms of the factors contributing to successful stakeholder management (Chapter 4) and the initial framework in Section 5.2, the interviewees made seven suggestions:

- (a) The interviewees thought communicating with and engaging stakeholders were important for stakeholder management and therefore should be included in the framework. Two interviewees, one from the construction sector and one working on community relationships, suggested that the project managers should also decide the level of stakeholder engagement, and match it with the engagement methods. This suggestion is in line with Reed's finding (2008). Reed (2008) conducted a literature review, and suggested that for best stakeholder participation practice, "methods should be selected and tailored to [...] appropriate level of engagement". The interviewees also recommended an engagement spectrum, developed by the International Association for Public Participation (IAP2) (Figure 5.2). Five engagement levels, viz. information, consultation, involvement, collaboration, and empowerment, comprise the engagement spectrum (Victorian Government Department of Sustainability and Environment, 2005). One interviewee from the construction sector had used this spectrum in his work and confirmed its effectiveness. As the interviewee stated, "this spectrum can be used to ensure a common understanding of stakeholder engagement".
- (b) The interviewees considered 'compromising conflicts' and 'predicting stakeholder reactions' are, in fact, implied in 'formulating appropriate strategies', hence, these two activities should not be listed in the framework as separate concepts.
- (c) The interviewees considered there should be one more step after 'decision making', and that is 'action & evaluation'. The corresponding strategies

should be implemented, and the management process evaluated. One interviewee said that ‘it is essential that the project managers monitor and review the stakeholder management activities to ensure objectives and actions are being implemented’. Thus this step is not merely decision-making, but also problem-solving. The stakeholders should be interviewed or surveyed at a subsequent stage regarding their opinions about the management activities.

- (d) ‘Obtaining support and assistance from the higher authorities’ is considered important by the interviewees, and should be included in the ‘continuous support’ box in the framework for stakeholder management. Similarly, according to Chinyio and Akintoye (2008), the practitioners in UK hold the same point of view, and they stated that “the ‘top-level support’ was essential for effective stakeholder management”. A similar opinion also was expressed by Bourne (2008), as she considered ‘centralised support’ as a criteria for evaluating the organisation maturity of stakeholder management. Therefore, this factor should be included in the framework for stakeholder management.
- (e) The interviewees thought that regarding the complexity of stakeholder management, an approach profile should be established for the project management team’s reference. The profile should include not only the methods for stakeholder engagement, but also those for stakeholder analysis and estimation. An approach profile is developed and described in Chapter 6.

- (f) Regarding the precondition factor, i.e. ‘managing stakeholders with social (economic, legal, environmental and ethical) responsibilities’, in the initial framework (in Section 5.2), the interviewees confirmed the importance of this factor. Meanwhile, they proposed one more responsibility, that is, cultural responsibility. By this, they meant that cultural diversity needs to be considered because Australia is a place with a large number of immigrants. Therefore, this consideration is reasonable and should also be included. One interviewee explained cultural responsibility by using an urban renew project as an example. He said that the residents affected by the project were from at least nine non-English speaking countries including but not limited to China, Italy, Turkey, Vietnam, Spain, and Arab-speaking countries. The differences in culture and tradition should be fully considered in that project, and the project hotline was set up with multilingual information services to make sure the residents could clearly express their opinions and understand the project.
- (g) The interviewees thought that although the interaction and dependencies among the activity sets are connected in the initial framework (Section 5.2), they are too simple to be used as a reference in practice. A framework for a management process should not only define the activities that exist within the process, but also illustrate how and what information needs to flow between activities (Federal, 1993). Additional meetings were arranged with four of the fifteen interviewees to decide the interrelations and also the outcome flows among the activities for stakeholder management.

INFORM	CONSULT	INVOLVE	COLLABORATE	EMPOWER
Public Participation Goal:	Public Participation Goal:	Public Participation Goal:	Public Participation Goal:	Public Participation Goal:
To provide the public with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions.	To obtain public feedback on analysis alternatives and/or decisions.	To work directly with the public throughout the process to ensure that public concerns and aspirations are consistently understood and considered.	To partner with the public in each aspect of the decision, including the development of alternatives and the identification of the preferred solution.	To place final decision-making in the hands of the public.
Promise to the Public:	Promise to the Public:	Promise to the Public:	Promise to the Public:	Promise to the Public:
We will keep you informed.	We will keep you informed, listen to and acknowledge concerns and provide feedback on how public input influenced the decision.	We will work with you to ensure that your concerns and aspirations are directly reflected in the alternatives developed and provide feedback on how public input influenced the decision.	We will look to your for direct advice and innovation in formulating solutions and incorporate your advice and recommendations into the decisions to the maximum extent possible.	We will implement what you decide.

Figure 5.2 IAP2 Public Participation Spectrums

(Source: Victorian Government Department of Sustainability and Environment, 2005)

All comments from the interviewees were considered in the revision of the initial framework, given in Section 5.2. A revised framework was presented to the fifteen interviewees at meetings or emails at a later time with the aim of asking their comments. The interviewees' replies matched in content with minor changes on the vocabulary of the revised framework. Hence there were no major changes on the substance of the framework. The logical sequence, and information flows in the revised framework were praised by the interviewees. This systematic (revised) framework for stakeholder management in construction is proposed in Figure 5.3, and further explained in the next section.

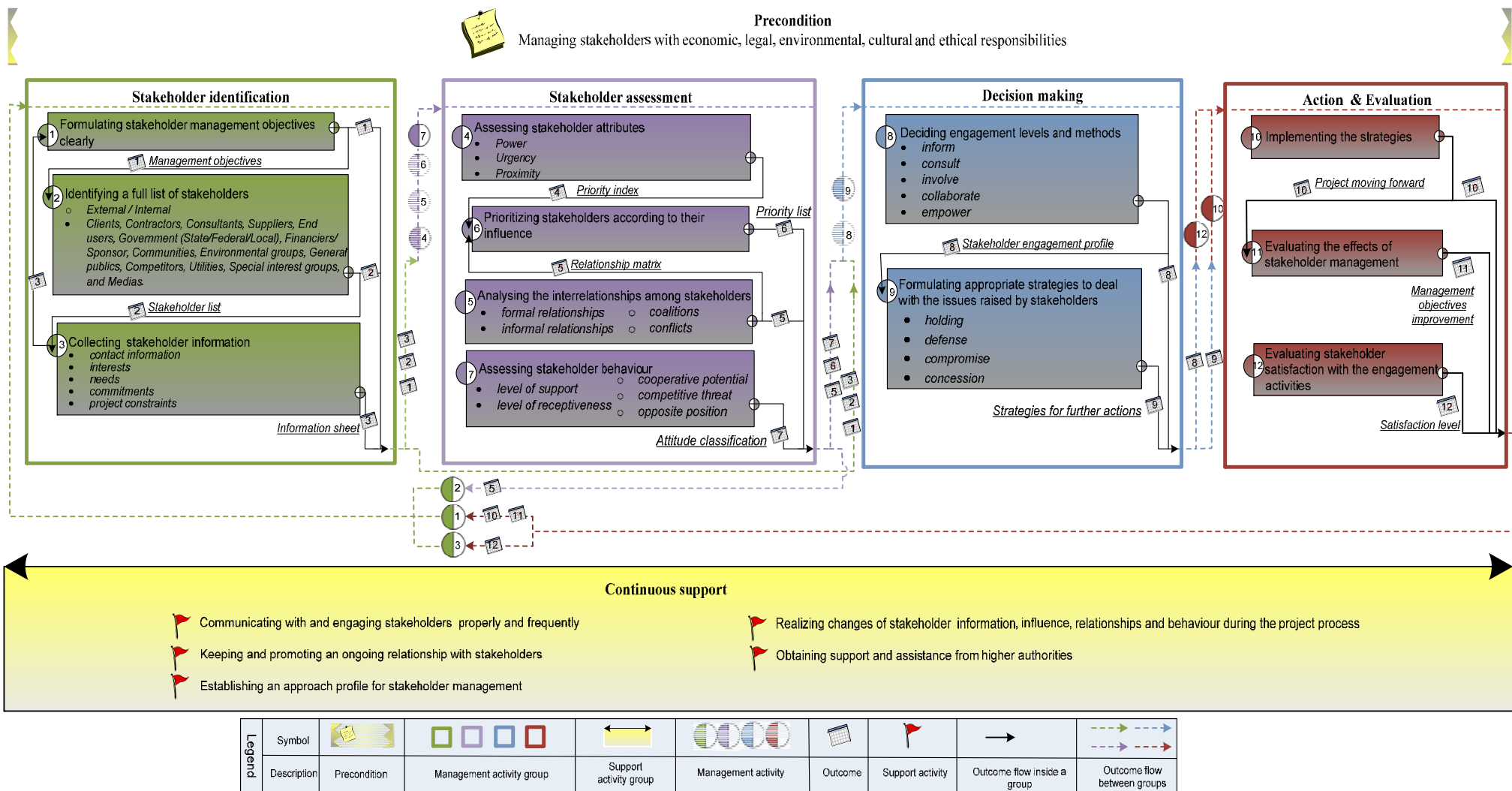


Figure 5.3 A systematic framework for stakeholder management in construction projects

5.5 The Details of the Systematic Framework

A collection of diverse knowledge areas is described giving a formalised view in the systematic framework (Figure 5.3), which consists of a precondition group, four management groups (stakeholder identification, stakeholder assessment, decision making, and action & evaluation), and a continuous support group. For each group, a number of activities have been defined in logical sequence. A detailed description of these groups and activities within the systematic framework is provided below. It should be noted that, while every construction project is likely to be unique, some of the identified activities can be omitted depending on the characteristics of the project, the stage of the project, and the resources in the organisation. In addition, this framework indicates the sequences of stakeholder management, but not that of project management, so it should be implemented continuously at every stage during the overall project process.

5.5.1 Precondition

‘Managing stakeholders with economic, legal, ethical, environmental, and cultural responsibilities’ is defined as the precondition for stakeholder management (Yang et al., 2009b). As indicated in Section 5.2, it is called ‘precondition’ because the central core of stakeholder management is to analyse social responsibilities by delineating the specific groups or persons that the management team should consider in its management activities (Carroll, 1991; Donaldson and Preston, 1995). According to Carroll’s definition (1979) about social responsibility, the economic responsibility is the obligation to produce goods and services, sell them at fair

prices and make a profit; the legal responsibility refers to the obligation to obey the law; and the ethical responsibility covers those issues not embodied in law but expected by society. Recently environmental expectation has also been given much attention by many scholars (e.g. AlWaer et al., 2008; Prager and Freese, 2009) because of sustainable development expectations. Environmental considerations include air, flora/fauna, dust, water, and noise. The purpose is to protect the environment and to provide healthy living conditions. The cultural responsibility is related to the consideration of the cultural diversity, especially the differences of language and tradition. The project managers should manage stakeholders taking into consideration of all kinds of these social responsibilities to make sure the project objectives are achieved. Therefore, this group is laid at the top of the framework (Figure 5.3) to remind the project managers to bear it in mind during the stakeholder management process.

5.5.2 Stakeholder identification

Stakeholder identification group in Figure 5.3 includes management activities for the identification and collection of information (data) which will be used in the subsequent management activities. If the timeline is not at the beginning of a project, the inputs required for this activity group are the strategies implemented formerly, and the evaluation results of stakeholder satisfaction. The outputs of this group are: (1) information profiles, (2) the management objectives, (3) stakeholder list, and (4) stakeholder information sheet. Three management activities are included in this group.

- (a) ‘Clearly formulating management objectives’: The identification of a clear mission for a project at different stages is widely considered to be essential for the effective management of stakeholders (Winch, 2000). Before every stakeholder management activity, project management team should have a better understanding of the tasks and objectives at the particular stage of the project lifecycle, including the issues of such as cost, schedule, budget (Yang et al., 2009b). In order to formulate the management objectives, stakeholder information (interests, needs, commitments and constraints to projects) should be considered. If the project has entered its middle stage, the effects of stakeholder management have to be re-evaluated to find, whether the former objectives have been achieved. The re-evaluation should determine whether a revision and improvement of the current objectives has to be considered.
- (b) ‘Identifying a full list of stakeholders’: This serves to answer the question of “who are stakeholders?” (Frooman, 1999). The project management team could identify stakeholders either by the ‘external/internal’ guideline, or by their functions such as clients, contractors, and consultants. The identification should be based on the management objectives of the project, and the output is a full stakeholder list.
- (c) ‘Collecting stakeholder information’: Freeman et al. (2007) believe identifying stakeholder information is an important task for assessing stakeholders. This information includes stakeholder contact information, their interests, needs, commitments and constraints to projects. The outcome of this activity is a detailed information sheet regarding the issues interested by stakeholders.

5.5.3 Stakeholder assessment

Stakeholder assessment group refers to the analysis and assessment of stakeholders. The baseline of the activities in this group is the information profiles, which are developed during the three management activities given in Section 5.5.2. The outputs of this group are a stakeholder priority list, relationship matrix, and attitude classification. This group is broken down into four management activities.

- (a) ‘Assessing stakeholder attributes’: Based on the project objectives and stakeholder information, stakeholder attributes, namely, power, urgency and proximity, need to be evaluated by the project management team. The concepts of these attributes follow the studies of Mitchell et al. (1997) and Bourne (2005). Power is the ability to “control resources, create dependencies, and support the interests of some organisation members or groups over others”; urgency is “the degree to which stakeholder claims call for immediate attention”; proximity is the distance of stakeholders and the project. The outcome of this activity is a priority index, which is a term used in the Stakeholder Circle methodology (Bourne, 2005).
- (b) ‘Analysing the interrelationships among stakeholders’: This serves to map stakeholder relationships and analyse their coalitions and conflicts. In terms of the relationships, according to Cross and Parker (2004), two types of relationships exist among stakeholders: formal relationships and informal relationships. Formal relationships include contracts, and the hierarchy in organisations/projects; informal relationships can refer to many interactions, such as information exchange, help seeking, communication and influence. In

addition, stakeholder conflicts and coalitions should also be analysed. These concepts are suggested by Freeman's strategy model (Freeman, 1984). He believes conflict occurs whenever disagreements exist in a social setting; and the groups, who share objectives, stakeholders or interests about the project, are more likely to form coalitions. The coalition matrix can enable project management teams to understand the interest similarity between the stakeholders. Thereby, project teams could engage stakeholders with similar interests in a consistent way. Analysing the interrelationships among stakeholders is useful in identifying the 'hidden/invisible stakeholders' (Bourne and Walker, 2005), and can be used as one method for stakeholder identification, i.e. the second management activity in Figure 5.3. The relationship matrix/network can also be analysed by the technology of 'Social Network Analysis', and help to prioritise stakeholders (Rowley, 1997). The detail explanation about 'Social Network Analysis' is in Section 6.2.

- (c) 'Prioritizing stakeholders according to their influence': This activity is to finalise the priority list of the stakeholders by synthesizing the results of 'priority index' and 'relationship matrix'. While the 'priority index' is based on the traditional evaluation of stakeholder attributes, the analysis of 'relationship matrix' focuses on the relationships between pairs of stakeholders. Therefore, these two outcomes can both be used as references for the project management team. It should be noted that no method for identification and prioritization is perfect and that the use of the results of 'priority index' and 'relationship matrix' is deemed to help the project team to see anomalies and make the necessary corrections.

- (d) ‘Assessing stakeholder behaviour’: This serves to analyse the willingness of stakeholders to threaten or cooperate with the project management team (Savage et al., 1991). As stated in the previous sections, particularly Section 5.4, the stakeholder behaviour can either be classified by the levels of support and receptiveness, or be classified into ‘cooperative potential, competitive threat, and opposite position’. The outcome is a classification of attitudes.

5.5.4 Decision making

Based on the outcomes in ‘stakeholder identification’ (the information profiles), and the outcomes in ‘stakeholder assessment’ (the priority list, the relationship matrix, and the attitude classification), the project management team or decision making group, can assist to decide the levels and methods of stakeholder engagement, and formulate appropriate strategies to deal with the issues raised by stakeholders at this stage.

- (a) ‘Deciding engagement levels and methods’: As described in Section 5.4, engagement levels include ‘inform (to provide the stakeholders with balanced and objective information to assist them in understanding the problems, alternatives and/or solutions)’, ‘consult (to obtain stakeholders’ feedback on analysis, alternatives and/or decisions)’, ‘involve (to work directly with the stakeholders throughout the process to ensure that stakeholder concerns and aspirations are consistently understood and considered)’, ‘collaborate (to partner with stakeholders in each aspect of the decision)’, and ‘empower (to place final decision-making in the hands of stakeholders)’ (Victorian Government Department of Sustainability and Environment, 2005). The project

management team should decide the levels and the corresponding methods for engaging stakeholders according to the project objectives, the stakeholder information, their priorities and attitudes. The outcome is a profile for stakeholder engagement.

- (b) ‘Formulating appropriate strategies to deal with the issues raised by stakeholders’: This serves to decide what strategies the project management teams use to address stakeholder conflicts with the consideration of their reactions to the strategies. As described in Section 5.4, the strategy types comprise ‘holding, defence, compromise, and concession’. The choice of the strategy types should be in accordance with the information profile, the stakeholder’ priority, attitudes, and also the engagement methods.

5.5.5 Action & evaluation

The action and evaluation group is the final management activity group in the process of stakeholder management. The inputs required are the formulated strategies, and the profile for stakeholder engagement. This group includes three management activities.

- (a) ‘Implementing the strategies’: This activity is self-explanatory. The formulated strategies should be implemented accordingly. The outcome of this activity is to keep the project moving forward.
- (b) ‘Evaluating the effects of stakeholder management’: This serves to answer the question “have the management objectives been achieved?” This activity is

carried out after the strategies being implemented, and the results of the evaluation should be used to improve the objectives in the succeeding process.

- (c) ‘Evaluating stakeholder satisfaction with the engagement activities’: The engagement activities with stakeholders are based on the stakeholder engagement profile. To obtain the stakeholder opinion about the engagement activities, surveys and meetings should be conducted to evaluate the stakeholder satisfaction level. The results can be used to better understand the stakeholder interests, needs and project constraints.

5.5.6 Continuous support

Comparing the management activity groups (‘stakeholder identification’, ‘stakeholder assessment’, ‘decision making’, and ‘action & evaluation’) focusing on the steps in the stakeholder management process, this group includes the activities which should be carried out to support the management activities implemented. This group is named as ‘continuous support’ because the activities within, not only support a single management process, or contribute to the success of a single project, but can be used for accumulating the experiences and knowledge of the project management team in the long term. Five support activities are included in this group.

- (a) ‘Communicating with and engaging stakeholders properly and frequently’: Communication is essential for maintaining the support and commitment of all stakeholders (Briner et al., 1996). Effective, regular, and planned engagement with all members of the project community is necessary for project success (Briner et al., 1996). Project managers should be highly skilled negotiators and

communicators who are capable of managing individual stakeholder expectations and creating a positive culture change within the overall project (Weaver, 2007).

- (b) 'Realizing changes of stakeholder information, influence, relationships and behaviour during the project process': The concepts of the change and dynamics of stakeholders were acknowledged by Freeman (1984). According to him, in reality, stakeholders, their influence, relationships, and behaviour change over time, and these depend on the strategic issue under consideration. Therefore, the processing process should be compared with the historical records to indicate the changes.
- (c) 'Keeping and promoting an ongoing relationship with stakeholders': Successful relationships between project management team and its stakeholders are vital for successful delivery of projects and meeting stakeholder expectations (Savage et al., 1991; Jergeas et al., 2000). Trust and commitment among stakeholders can be built and maintained by efficient relationship management (Pinto, 1998; Karlsen et al., 2008).
- (d) 'Obtaining support and assistance from higher authorities': As one of the findings from the interviews in Australia, top-level support is important for management activities. In an organisation with a mature stakeholder management environment, the higher authorities always monitor the management process, help to figure out problems, and use the effects of stakeholder management as an indicator for performance measurement of the management team.

- (e) ‘Establishing an approach profile for stakeholder management’: Various approaches for stakeholder management exist both in literature and in practice. A typology of approaches for stakeholder management, and their descriptions, strengths, and considerations should be synthesised as a reference for the project management team. During the empirical studies in this research, an approach profile for stakeholder management has indeed been developed by the researcher, and is described in Chapter 6. There is no stand-alone method, and most of the methods should be combined with other methods.

The systematic framework illustrated in Figure 5.3 shows the generic activities and their interdependency during the process of stakeholder management in construction. It should be noted that when considering the overall project management process, the activities in the framework should be carried out iteratively, on a multitude of issues, at varying levels of detail. Most stakeholder identification to any of the activities are based, in some degree, upon historical information, coming from the culmination of the outputs of previous cycles of the stakeholder management activities. To validate and test the systematic framework in the field, five real projects are used as case studies and are described in Chapter 7.

5.6 Summary of the Chapter

The objective of the research in this chapter is to develop a systematic framework for stakeholder management in construction. To achieve this objective, empirical studies, comprising six interviews, a pilot study, and a questionnaire survey in Hong Kong,

and fifteen interviews in Australia, were conducted in 2008 and 2009. The comments from the industry practitioners were synthesised with the outcomes from previous studies, and a systematic framework has been proposed. Six activity groups, i.e. precondition, stakeholder identification, stakeholder assessment, decision making, action & evaluation, and continuous support, formulate the main body of the framework. A total of 18 activities within these groups and also their interrelations are illustrated by using different symbols and colours in the framework.

Experiences from the empirical studies show that the activities in the framework should be selected depending on the nature of the project and the project management team's decision. It also needs to be noted that for best results, the activities in the framework should be carried out iteratively during the overall project process. The significance of the framework is that it serves as a reference for the systematic consideration of the project management team about stakeholder management in construction.

As indicated in Sections 3.3.2.3 and 5.5.6, it is necessary to identify effective approaches for stakeholder management. The following chapter (Chapter 6) will focus on stakeholder management approaches.

CHAPTER 6 A TYPOLOGY OF APPROACHES FOR STAKEHOLDER MANAGEMENT

6.1 Introduction

Chinyio and Akintoye (2008) considered that: (1) it is essential to formulate a process for stakeholder management; and (2) to achieve this and hence the project objectives, it is necessary to identify effective approaches for stakeholder management. However, few studies have attempted to consolidate practical approaches that can be used for stakeholder management. This is given as the second research gap identified in the literature review (Chapter 2). In recognition of this gap and as a natural development of Chapter 5 in which a systematic framework for stakeholder management has been developed, this chapter focuses on the identification of approaches for stakeholder management, especially the operational approaches.

This chapter introduces the investigation of practical approaches for stakeholder management and measure the effectiveness of these approaches. This chapter is organised as follows:

- A review of approaches in previous studies is conducted in Section 6.2, and three important approaches are identified;
- The methods used to investigate the practice approaches for stakeholder management in construction are given in Section 6.3.
- Six interviews and a questionnaire survey were conducted in Hong Kong in 2008, and fifteen interviews were held in Australia in 2009. The findings from the interviews and the survey are given in Section 6.4.

- A typology of approaches, based on the findings in the literature review (in Section 6.2), the empirical studies (in Section 6.4), and the development of the systematic framework (in Chapter 5), is presented in Section 6.5; the strengths, limitations and engagement level of these approaches are described.

6.2 Approaches in Previous Studies

Various approaches potentially useful in stakeholder management as proposed in the literature are listed in Table 6.1. Although these scholars do not represent a complete picture of operational approaches for stakeholder management, these approaches do provide new perspectives in the process of stakeholder management, and could facilitate the process.

Table 6.1 Approaches used in previous studies

Approaches	Purposes	Authors
A two-dimensional matrix (the potential of stakeholders and the influence or power of stakeholders)	Classifying stakeholders; Identifying stakeholders influence	De Lopez (2001)
Power/Interest matrix	Classifying stakeholders; Analysing stakeholders influence; Analysing the change of stakeholders	Winch and Bonke (2002), Olander and Landin (2005), Olander (2006), Olander and Landin (2008), Chinyio and Akintoye (2008), Reed et al. (2009)
Power/Predictability matrix and Power/Interest matrix	Classifying stakeholders; Analysing stakeholders influence	Newcombe (2003)
Stakeholder-commitment matrix	Analysing stakeholder commitment; Analysing the change of stakeholders	Jepsen and Eskerod (2009)
Stakeholder interest intensity index	Analysing stakeholders influence	Walker et al. (2008)
Social Network Analysis	Analysing stakeholder relationships	Rowley (1997)

Table 6.1 (Continued)

Approaches	Purposes	Authors
Strategic needs analysis	Analysing stakeholder needs; Scoring options by stakeholders using Strategizer software; Deciding on preferred strategy	Smith et al. (2001), Smith and Love (2004); Heywood and Smith (2006)
The Stakeholder Circle methodology	Classifying stakeholders; Prioritise stakeholders; Visualising stakeholders; Developing strategies; Monitoring effectiveness	Bourne (2005), Bourne and Walker (2005); Bourne and Walker (2006), Walker et al. (2008)
The stakeholder influence matrix	Analysing information of stakeholders; Identifying stakeholders influence	Young (2006)
The stakeholder impact index	Analysing stakeholders influence	Olander (2007)

The approaches in Table 6.1 can be summarised as three key ones, i.e. power/interest matrix, Stakeholder Circle methodology and Social Network Analysis. The reasons are: (1) several approaches in Table 6.1, such as the stakeholder influence matrix, the stakeholder impact index, and stakeholder interest intensity index, were proposed and developed based on the rational of the power/interest matrix; (2) the Stakeholder Circle methodology, which is a relatively systematic method for stakeholder management, is applied in practice and considered to be useful (as indicated in Section 6.4.2); and (3) the Social Network Analysis is considered as a useful tool for analysing stakeholders' interrelationships (Rowley, 1997; Cova and Salle, 2006), so it is important for filling the third research gap as indicated in Section 2.4.3.3. These three approaches and their potential usefulness are explained as follows:

(1) The power/interest matrix is a common means proposed or modified by many scholars (Newcombe, 2003; Olander and Landin, 2005). In this matrix (Figure 6.1), stakeholders are categorised by their levels of power and interest in the project. The

project management team has to pay different attention to each type of stakeholder and apply different engagement approaches (Newcombe, 2003).

		Interest	
		Low	High
Power	Low	A Minimal effort	B Keep informed
	High	C Keep satisfied	D Key players

Figure 6.1 The power/interest matrix
(Source: Newcombe, 2003)

(2) The Stakeholder Circle methodology provides a means for the project team to identify and prioritise a project's key stakeholders, to develop an appropriate engagement strategy and communications plan to ensure that the needs and expectations of these key stakeholders are understood and managed, and to measure the effectiveness of the communication (Bourne, 2005). This methodology supports changes in stakeholders and their influence throughout the life of the project and holds historic data to enable the team to measure the effect of their efforts of stakeholder engagement. Figure 6.2(a) shows the prototype Stakeholder Circle map and Figure 6.2(b) describes its interpretation.

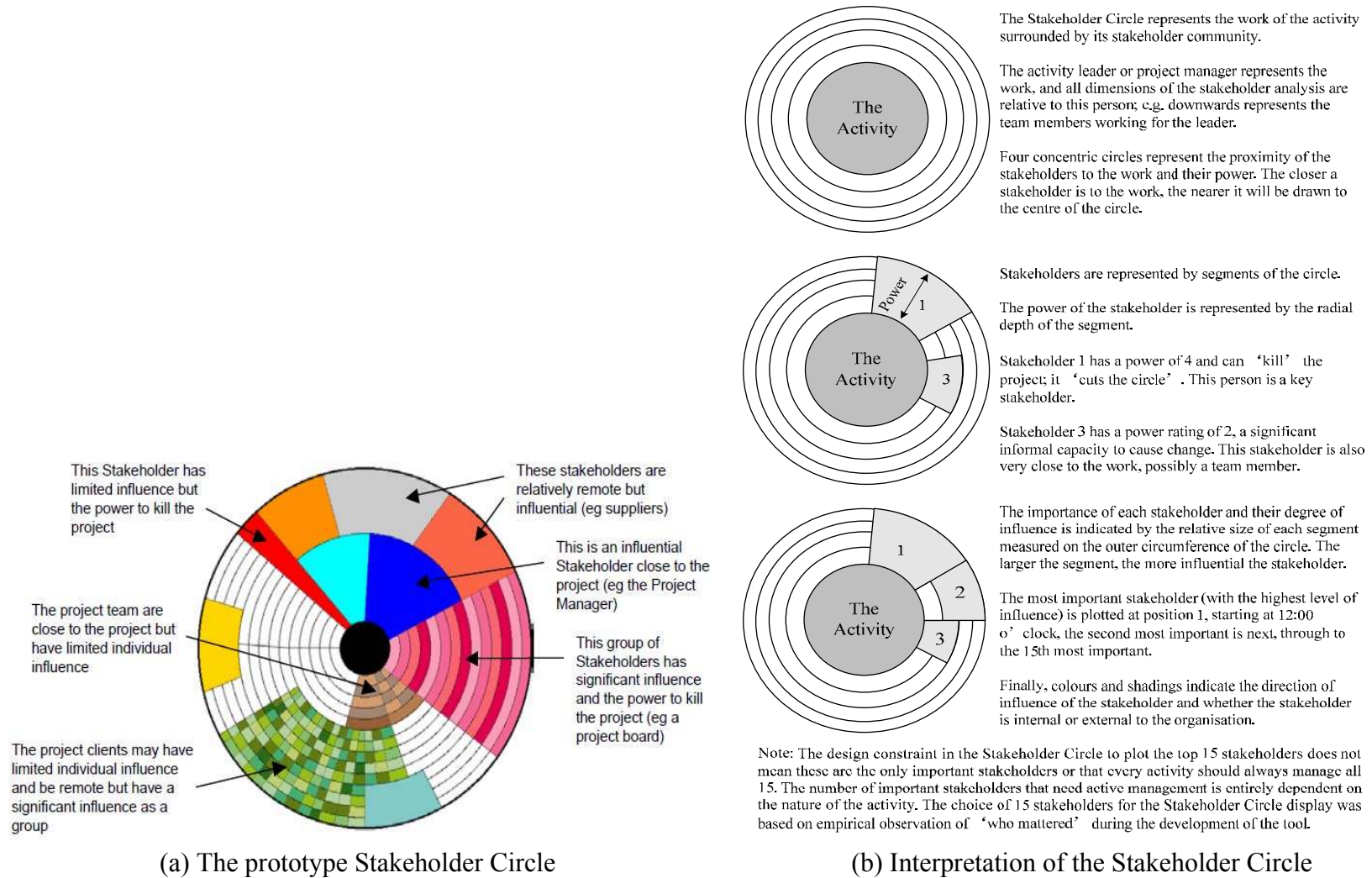


Figure 6.2 The Stakeholder Circle methodology
(Source: Bourne, 2005)

(3) In contrast to the power/interest matrix, the Stakeholder Circle methodology and other traditional social science focusing on the attributes of stakeholders, the information used in Social Network Analysis focuses on the relationships between pairs of stakeholders in a network. A construction project is a non-linear, complex, iterative and interactive project system environment (Bourne and Walker, 2006; and Pryke, 2006), so it is likely that the relationships among stakeholders will be complicated and dynamic, and take the shape of a network rather than spokes in a wheel. Traditional research only analyses the relationship between project managers and stakeholders (Pryke, 2006), and ignores the interaction among stakeholders. Since a social network is defined as a specific set of linkages among a defined set of persons (Mitchell, 1969), the stakeholders in the network can be viewed as “interdependent rather than independent, autonomous units” (Wasserman and Faust, 1994). Social Network Analysis interprets the project environment as a system connected by various relationships, and can be used for mapping the interrelationship among stakeholders and the social behaviour of the persons involved. Therefore, Social Network Analysis can be used to unlock the implications of both the causes and the results of the relationship network. Furthermore, Social Network Analysis can also be used to identify ‘hidden/invisible stakeholders’, who may have little apparent influence, but could cause major disruption to the project development through unseen power and influential links (Bourne and Walker, 2006). To examine the usefulness of Social Network Analysis, this approach was also used in the case studies in Chapter 7.

Since these three approaches are important, they will be included in the typology of approaches with the findings from empirical studies in Hong Kong and Australia. Besides the approaches in Table 6.1, Chinyio and Akintoye (2008) and PMI (2008)

also proposed collections of approaches for stakeholder management, and made classifications on the approaches they identified. However, these studies have limitations and are difficult for practitioners to use as direct approaches for stakeholder analysis and engagement.

In Chinyio and Akintoye's study (2008), they classified the approaches into 'overarching approaches' and 'operational approaches'. Regarding the 'overarching' type, the approaches are actually activities or critical success factors for stakeholder management. For example, 'responding to power-interest dynamism' has been indicated by Elias (2002) as a step for stakeholder management; 'providing top-level support' is proposed as a key indicator to evaluate the maturity of stakeholder management by Bourne (2008). Regarding the approaches in the 'operational' type, 'effective communication' is also considered as a factor contributing to the success of stakeholder management by Cleland (1996); 'people management skills' is a collection of methods, rather than one approach, so it is difficult for practitioners to use it directly; 'incentives' and 'concessions' are strategic approaches to deal with stakeholders, but in order to implement the 'incentives' and 'concessions' strategies, practitioners still need to identify approaches to engage stakeholders.

In PMI's study (2008), three groups of approaches were proposed, namely, communication methods, interpersonal skills, and management skills. However, similar problems within Chinyio and Akintoye's study exist in this classification. For example, 'resolving conflicts', as indicated by Freeman (1984), is an activity; 'building trust', as indicated by Bourne (2005) and Karlsen et al. (2008), is critical success factors for stakeholder management. Except these problems, the classification itself may confuse practitioners, because the 'presentation skills', 'writing skills' and

‘public speaking’ in the ‘management skills’ group are actually also ‘communication methods’, which is named as another group according to the classification.

Therefore, this study classifies approaches based on their applications, rather than their attributes. In other words, approaches to be identified in this study are operational ones which can be actually used in the activities during the stakeholder management process, and by applying which, project management teams can achieve effective communication, build trust with stakeholders, or etc. By using the potential typology in this study, practitioners can pick up suitable approaches easily when they conduct stakeholder management, such as identifying stakeholders, analysing their relationships, and communicating with them.

Therefore, the approaches in previous studies will be selectively included in the typology in this study by discussions with practitioners in empirical studies about whether they are operational approaches or not. The process of empirical studies is described in the next section.

6.3 Empirical Studies

The identification of the approaches, employed in stakeholder management practice in combination with those proposed by other scholars to develop a typology of approaches for stakeholder management, is described in this section.

Research began with six semi-structured interviews (full description is in Section 4.4) with the aim of identifying practical approaches for stakeholder management in Hong

Kong. A semi-structured approach was adopted in the interviews. Questions used in the interviews related to approach identification are as follows:

- how do you identify project stakeholders and their interests?
- how do you analyse the interrelationship among stakeholders?
- how do you identify which stakeholders are more important than others?
- how do you making decisions to deal with stakeholders? and
- what approaches do you use to engage project stakeholders?

Content analysis was used for “extracting and corroborating meaning from the interviews” (Chinyio and Akintoye, 2008). An initial list of approaches for stakeholder analysis was synthesised, and the first version of the questionnaire was developed after these interviews. As indicated in Section 4.5.1, the questionnaire was verified by two project managers and the full-scale survey was conducted in Hong Kong in August 2008. The outcome of this survey is rankings of the effectiveness of the identified approaches.

In order to identify practical approaches in a place with a different culture from Hong Kong, and compare & evaluate the results with those obtained in Hong Kong, fifteen interviews were conducted in Melbourne, Australia. The information of the fifteen interviewees has been described in Section 5.4. The same questions were used during the fifteen interviews as those in Hong Kong, but all of the identified approaches were listed under each question for the interviewees’ comments and references. Several suggestions for stakeholder management were synthesised to revise the list of practical approaches, which will be explained in Section 6.4. Based on the revised list, the literature review given in Section 6.2, and the systematic framework described in

Chapter 5, a typology of approaches for stakeholder management in construction was developed.

6.4 Research Findings in Relation to Approaches

6.4.1 Findings from the empirical studies in Hong Kong

Several approaches for analysing and engaging stakeholders were identified during the interviews and the questionnaire survey in Hong Kong (Table 6.2). The effectiveness of the identified approaches was explored based on the mean values of the responses. Kendall's Coefficient of Concordance was calculated for measuring the agreement of respondents on the approach rankings.

- (1) In terms of 'identifying stakeholders and their interests', 'personal past experience' ranked higher, the implication being that the experience of project managers is important. This finding was in line with the study conducted by Chinyio and Akintoye (2008), as they identified 'intuition' as an important approach in stakeholder management. It is interesting that 'asking the obvious/identified stakeholders to identify others' was also considered an effective approach in achieving that task. This approach is also called 'snowball sampling' (Patton, 1990). Its aim is to make use of stakeholder knowledge about those who have skills or information in particular areas. 'Focus group meeting' is ranked highest for identifying stakeholder interests. Focus groups aim to discover the key issues of concern for selected groups (Dawson et al., 1993), and may also be used to discover preliminary issues that are of concern in a group or community (Victorian Government Department of Sustainability and Environment, 2005).

Approaches for stakeholder identification also include: 'guidelines in the organisation, professional services, directed by higher authorities, interviews, public consultation, formal memos, and questionnaire'. Although these approaches are not ranked high, the results of the surveys show the mean values of 3 (Neutral) or larger.

- (2) Several approaches for relationship analysis were also identified in the interviews. According to the results of the questionnaire, 'personal past experience' is ranked highest, followed by 'workshops', 'interviews', and other 'public engagement approaches'. On one hand, this finding confirms the importance of project managers' experience; on the other, it reveals that, as yet, no effective approach has been determined and used in practice to help project managers analyse stakeholder relationships.

Table 6.2 Practical approaches for management of stakeholders in construction projects in Hong Kong

Purposes		Approaches preferred by the respondents	Mean	Kendall's W ^a
Identifying stakeholders and their interests	Stakeholder list	Personal past experience	4.15	0.094
		Asking the obvious/identified stakeholders to identify others	3.70	
		Guidelines in the organisation	3.61	
		Professional services	3.55	
		Directed by higher authorities	3.52	
	Stakeholder interests/information	Focus group meetings	4.28	0.197
		Personal past experience	3.80	
		Interviews	3.78	
		Public consultation approaches	3.75	
		Formal memos	3.45	
Analysing stakeholder relationships	Questionnaires	3.23	0.067	
	Personal past experience	3.91		
	Workshops	3.90		
	Interviews	3.79		
	Public engagement approaches	3.71		
Assessing stakeholder influence	Surveys	3.47	0.184	
	The stakeholder power	4.17		
	The directives from higher authorities	4.08		
	The urgency of the stakeholder requests	3.77		
Making decisions	The stakeholder proximity	3.60	0.175	
	Meetings	4.12		
	Negotiation	3.92		
	Personal past experience	3.84		
	Workshops	3.78		
	Using guidelines	3.63		
Directed by higher authorities	3.47			

Table 6.2 (Continued)

Purposes	Approaches preferred by the respondents	Mean	Kendall's W ^a
Engaging stakeholders	Meetings	4.31	0.202
	Workshops	3.96	
	Negotiations	3.92	
	Interviews	3.86	
	Social contacts	3.67	
	Public engagement approaches	3.63	
	Surveys	3.26	

^a Kendall's Coefficient of Concordance Level of significance = 0.000.

(3) Regarding ‘assessing stakeholder influence’, many scholars have proposed different kinds of approaches, such as ‘Power/Interest matrix’ (Olander and Landin, 2005), ‘Stakeholder Salience model’ (Mitchell et al., 1997), and ‘Stakeholder Circle methodology’ (Bourne, 2005). However, it is of interest to note that, during the six interviews in Hong Kong, none of the interviewees used, nor had heard of these approaches. These interviewees implied stakeholders were prioritised based on their experience and directives from higher authorities. This finding is in line with Rowlinson et al.’s (2010b). According to the “Comparison of scores for Hong Kong, the USA and the UK on Hofstede’s cultural dimensions” (Rowlinson et al., 2010b), the Confucian values of harmony and conflict avoidance are often an opposing force to the drive for stakeholder empowerment. Therefore, in Hong Kong, there is a general tendency for ‘rule following’, and project managers rely heavily on hierarchy. This finding also indicates the low level of stakeholder evaluation in construction projects. In order to identify the important stakeholder attributes for prioritisation, as indicated in Section 5.3.1, stakeholders’ potential power, urgency, legitimacy and proximity, identified by Mitchell et al. (1997) and Bourne (2005), were introduced to the interviewees. The interviewees confirmed the importance of these stakeholder attributes and recognised that they do consider them in practice, but in an unstructured way. In terms of ‘legitimacy’ and ‘proximity’, the interviewees thought the attribute of legitimacy to be imprecise and difficult to operationalise, and all preferred using the attribute ‘proximity’, possibly because the term was easier to explain both to the practitioners and the project stakeholders.

In addition, the interviewees, especially those whose part in the project was as contractors, insisted that ‘the directives from higher authorities’ were important in their decision making. In acknowledgement of this, ‘stakeholder power, the directives from higher authorities, the urgency of stakeholder requests, and stakeholder proximity’ were included in the questionnaire to enable an evaluation of stakeholder importance.

According to the results in Table 6.2, ‘stakeholder power’, which means the ability to “control resources, create dependencies, and support the interests of some organisation members or groups over others” (Mitchell et al., 1997), is considered to be the most important. This finding is in line with those of many previous studies, such as Newcombe (2003), and Bourne and Walker (2005). ‘The directives from higher authorities’ are ranked second as “the results”. The reason for this may be because more than half of the respondents (102 of 183) were contractors and consultants, and their clients’ requirements were important for them. Since the mean values of the four factors are larger than 3 (Neutral), they are all important for ‘assessing stakeholder influence’.

- (4) Regarding “making decisions”, meeting is the most popular approach, followed by negotiation and personal past experience. Though the approaches, i.e. workshop, directives from higher authorities, and guidelines, are not ranked high, they also play important roles for project management teams to develop strategies to deal with stakeholders.
- (5) The interviewees in Hong Kong were asked to summarise their approaches for ‘stakeholder engagement’. Seven approaches (Table 6.2) were identified, all with

mean values larger than 3 (Neutral). All kinds of meetings and workshops were regarded as the most common approaches for engaging stakeholders. Negotiations can also be categorised as communication with stakeholders, especially settling disputes and problems. Similar studies in UK, Chinyio and Akintoye (2008) also emphasised the importance of workshops, meetings and negotiations. An interesting finding is that the interviewees in Hong Kong proposed not only formal engagement approaches (e.g. interviews and surveys), but also an informal approach, i.e. 'social contacts'. As the interviewees acknowledged, this approach is usually used in the private sector, but it is an effective approach for establishing and maintaining relationships with some stakeholders.

To examine whether the respondents ranked the approaches in a similar order, Kendall's Coefficient of Concordance was calculated (Table 6.2). The Coefficients of Concordance are statistically significant at 1% level, which indicates that there is a general agreement among the 183 respondents on the ranking of these approaches. However, when looking at the values of the last column in Table 6.2, all of the Kendall's Coefficients of Concordance are relatively small. This implies that though the respondents consider all of the approaches to be important, the approaches for stakeholder management may vary, in relation to different situations. As Reed et al. (2009) stated, "choice of approaches will depend on the purpose of the stakeholder analysis, the skills and resources of the investigating team, and the level of engagement". This finding was also confirmed during the interviews in Australia, as will be seen in the next section.

6.4.2 Findings from the interviews in Australia

As indicated in Section 6.3, fifteen interviews were conducted in Australia. Although most of the interviewees agreed that the identified approaches from the empirical studies in Hong Kong were crucial and comprehensive, they also made contributions from their own experiences in stakeholder management. Some interviewees suggested a software tool, i.e. Darzin, and the Stakeholder Circle methodology, for stakeholder management. A further two suggestions for stakeholder engagement were synthesised based on the interviewees' comments.

Darzin, suggested by three interviewees is a data analysis software solution, created specifically for stakeholder engagement and community consultation (Darzin, 2009). This web based software was used to record project communications, stakeholder contact details and issues, and analyse this information qualitatively and quantitatively. The 'centralised' nature of the database ensures project team members can work from a range of locations to enter information about specific engagement activities and stakeholders. This software also has an automated reporting function to map issues throughout the project, ensuring all information is managed consistently and can be shared across a large project team. The interviewees consider that this software acts as a register to monitor emerging issues, which can provide a historical log on key stakeholders, their issues over the course of the project and how they have been managed/resolved during this time. The main advantages of this software are summarised as follows (Darzin, 2009):

- easy to create custom fields for contacts and communications,
- easy to record and manage restricted access to confidential communications,
- easy distribution of data with built-in mail merge,

- easy to view all contacts from an organisation and communications with them on one screen,
- integrated qualitative, quantitative and spatial analysis,
- charting issue trends over time,
- easy to create sophisticated, meaningful reports.

Regarding the Stakeholder Circle methodology, an interviewee thought that this approach implemented a straightforward methodology that allowed her team to make a meaningful assessment of the stakeholders and understand their relative power and influence. She recommended the researcher to include this methodology in the typology of approaches.

Both the Darzin and Stakeholder Circle tools were recommended by the interviewees. While Darzin focuses on recording and analysing stakeholder engagement activities, Stakeholder Circle offers a mechanism for assessing the relative influence of each stakeholder and tracking the progress of the relationship over time. They will be explained in detail in the action research in Chapter 7. Besides the Darzin and Stakeholder Circle, other important suggestions were raised by the Australian interviewees.

(1) Interviewees proposed that ‘public engagement approaches’ is a broad term and includes different kinds of approaches. One interviewee (3rd of the interviewees in Table 5.3), who works for the government in the sustainability and environment area, introduced about seventy approaches for stakeholder consultant and engagement. In order to identify the public engagement approaches, commonly

used in construction, the interviewees were asked to specify the public engagement approaches in the following interviews, and emails were also sent to the first two interviewees requesting their answers. Twenty three different engagement and consultant approaches, including, but not limited to, newsletters, forums, fact sheets, and walking tours, were proposed by the interviewees. The interviewees also indicated that there is no single, most effective approach to involve stakeholder; the selection of approaches depends on situations and the stakeholders themselves; and usually a number of alternative approaches are combined to engage stakeholders. These comments confirmed the Hong Kong finding, which is implied by the small values of the Kendall's Coefficients of Concordance in Table 6.2. Since many approaches for stakeholder management were identified, the interviewees also suggested that a list, interpreting the use of the approaches, as well as their constraints, should be made available and form decision-making criteria for project managers' benefit when making choices about appropriate approaches.

- (2) Two interviewees, one from the construction sector and one working on community relationships, suggested that the stakeholder engagement approaches need to match the level of engagement. This suggestion is in line with Reed's finding (2008). Reed (2008) conducted a literature review, and suggested that for best practice of stakeholder participation, "methods should be selected and tailored to [...] an appropriate level of engagement". As indicated in Section 5.4, the interviewees also recommended an engagement spectrum, developed by the International Association for Public Participation (IAP2). Five engagement levels, viz. inform, consult, involve, collaborate, and empower, comprise the

engagement spectrum (Victorian Government Department of Sustainability and Environment, 2005). Although several scholars, such as Pretty (1995), Rowe and Frewer (2000), and Richards et al. (2004), have proposed engagement levels, different from those found in Australia, the above five levels are used in this research, because the interviewees in Australia accepted them as being a standard, and one interviewee from the construction sector had applied this spectrum in his work and proved its effectiveness. As one interviewee stated, “this spectrum can be used to ensure a common understanding of stakeholder engagement”. According to this suggestion, the identified approaches for stakeholder engagement were matched to the IAP2 spectrum in the process of stakeholder management.

The findings in Australia, namely the Darzin software tool, the Stakeholder Circle methodology and the two suggestions above, are used to enhance the findings in Hong Kong. A typology of approaches for stakeholder management in construction is thus developed by synthesizing the findings from Hong Kong and Australia with the literature review (in Section 6.2) and the systematic framework (in Chapter 5). It is described as follows in Section 6.5.

6.5 A Typology of Approaches

To classify the approaches for stakeholder management, Chinyio and Akintoye (2008) and PMI (2008) proposed different categories (Table 6.3). Comparing to the systematic framework in Figure 5.3, the overarching approaches in Chinyio and Akintoye’s study (2008) are consistent with the support activities in the “continuous

support group”; and some of the approaches in PMI’s study (2008) are also implied in the systematic framework. For example, “building trust” is an outcome of “managing stakeholders with economic, legal, environmental, cultural and ethical responsibilities” (the precondition in Figure 5.3) and “communicating with and engaging stakeholders properly and frequently” (one support activity in Figure 5.3); and “resolving conflict” is an objective of “stakeholder assessment” and “decision making” that are two management activity groups in Figure 5.3. Therefore, the classifications in Table 6.3 are not applied in this research, and some of the approaches, such as overarching approaches, building trust, and resolving conflict, are considered as activities in the stakeholder management process, rather than approaches for stakeholder management. In other words, the approaches in this research refer to operational approaches for stakeholder management.

As indicated in Section 6.3, five questions regarding approaches were asked during the empirical studies. Comparing to the systematic framework in Figure 5.3, the first question is about “stakeholder identification”; the second and third are related to “stakeholder assessment”; and the fourth is about decision making. The fifth question is about stakeholder engagement. This is related to the activities in the “action & evaluation” group (in Figure 5.3), namely, “implementing the strategies”, “evaluating the effects of stakeholder management”, and “evaluating stakeholder satisfaction”, because these activities are actually those needing project management team to interact and communicate with stakeholders. Therefore, the typology of approaches in this research is a classification of approaches according to stakeholder management process.

Table 6.3 Classifications of approaches for stakeholder management

Authors	Classifications	Approaches
Chinyio and Akintoye (2008)	Overarching approaches	<ul style="list-style-type: none"> ● Systematic approach ● Providing top-level support ● Being proactive ● Maintaining existing relationships ● Responding to power-interest dynamism
	Operational approaches	<ul style="list-style-type: none"> ● Effective communication ● People skills – management ● People skill – negotiations ● Trade – offs ● Incentives ● Concessions ● Workshops and meetings ● Intuition
PMI (2008)	Communication methods	<ul style="list-style-type: none"> ● The methods for communication
	Interpersonal skills	<ul style="list-style-type: none"> ● Building trust ● Resolving conflict ● Active listening ● Overcoming resistance to change
	Management skills	<ul style="list-style-type: none"> ● Presentation skills ● Negotiating ● Writing skills ● Public speaking

As indicated in Section 6.2, the three approaches, i.e. the power/interest matrix, the Stakeholder Circle methodology and the Social Network Analysis, should be included in the typology. Thereby, a typology of approaches for stakeholder management is developed and shows in Table 6.4. The strengths, limitation and engagement level of each approach are described in Table 6.5. To execute the typology, project managers should choose approaches corresponding to the stakeholder management process in Figure 5.3. It should be reiterated that these approaches, their descriptions, strengths, and considerations are developed based not only on the findings of the empirical studies in Hong Kong and Australia, but also on several previous studies, including Patton (1990), Newcombe (2003), Bourne (2005), Foster and Jonker (2005), Victoria Government Department of Sustainability and Environment (2005), Olander (2006), Pryke (2006), Darzin (2009) and Reed et al. (2009). It also needs to be reiterated that

there is no stand-alone approach, and most of the approaches should be combined to whatever degree necessary. For example, the Stakeholder Circle must be accompanied by workshops, meetings or other means of joint data collection to identify and assess the nature of relationships with stakeholders; the technique of Social Network Analysis usually collects information with the help of surveys, emails, or interviews. The approaches selection should take into consideration not only the social and cultural context of the analysis but also the time limits and resources that can be reasonably allocated to this activity. To discuss how the approaches for stakeholder management were applied, and to illustrate the rationale behind the choice of approaches, five projects were used as case studies and are described in Chapter 7.

Table 6.4 A typology of approaches for stakeholder management in construction

Approaches	Classification			
	Stakeholder identification	Stakeholder assessment	Decision making	Action & Evaluation (Stakeholder Engagement)
Construction advice letters				√
Darzin (A software tool)	√			√
Directed by higher authorities	√	√	√	
Displays and exhibits	√			√
Door knocks	√			√
Email/mail/fax/phone	√	√		√
Feedback bulletins				√
Focus groups	√	√		√
Formal memos				√
Forums	√	√		√
Guidelines	√		√	
Information hotline	√			√
Interviews	√	√		√
Listening post	√	√		√
Media management				√
Meetings	√	√	√	√
Negotiations			√	√
Newsletters/Postcard series/Fact sheets				√
Open house/open day	√	√		√
Personal past experience	√	√	√	
Power/interest matrix		√		
Professional services	√	√		√
Questionnaires and surveys	√	√		√
Snowball	√	√		√
Social contacts	√	√		√
Social Network Analysis	√	√		√
Stakeholder Circle (A stakeholder management methodology)	√	√		√
Walking tour/Site tour				√
Website				√
Workshops	√	√	√	√

Table 6.5 Description of the approaches for stakeholder management

Approaches	Strengths	Limitations	Levels of engagement
Construction advice letters	<ul style="list-style-type: none"> • Can keep stakeholders informed; • Can include details such as date of delivery, and date of works. 	<ul style="list-style-type: none"> • Can be time-consuming; • May not send to all stakeholders due to information scarcity. 	<ul style="list-style-type: none"> • Inform
Darzin (A software tool)	<ul style="list-style-type: none"> • Easy to create custom fields for contacts and communications; • Can record and manage restricted access to confidential communications; • Easy distribution of data with built-in mail merge; • View all contacts from an organisation and communications with them on one screen; • Integrated qualitative, quantitative and spatial analysis; • Charts issue trends over time; • Easy to create sophisticated, meaningful reports. 	<ul style="list-style-type: none"> • Can be time-consuming to input the data; • Costly. 	<ul style="list-style-type: none"> • Inform
Directed by higher authorities	<ul style="list-style-type: none"> • Provides advices for project managers. 	<ul style="list-style-type: none"> • Not suitable for all issues. 	N/A
Displays and exhibits	<ul style="list-style-type: none"> • Can focus stakeholders attention on the project; • Can create interest from the media. 	<ul style="list-style-type: none"> • Stakeholders must be motivated to attend; • Can damage the project's reputation if not done well. 	<ul style="list-style-type: none"> • Inform • Consult
Door knocks	<ul style="list-style-type: none"> • Face-to-face contact ensures stakeholders understand issues and information can be elicited about opinions they express. 	<ul style="list-style-type: none"> • Can be time-consuming; • Work better if informing the stakeholders earlier. 	<ul style="list-style-type: none"> • Inform • Consult
Email/mail/fax/ phone	<ul style="list-style-type: none"> • Easy and convenient to communicate; • Can solve problems quickly. 	<ul style="list-style-type: none"> • Difficult to document. 	<ul style="list-style-type: none"> • Inform • Consult • Involve • Collaboration • Empower

Table 6.5 (Continued)

Approaches	Strengths	Limitations	Levels of engagement
Feedback bulletins	<ul style="list-style-type: none"> • Keep stakeholders informed; • Opportunity to satisfy stakeholders. 	<ul style="list-style-type: none"> • Can be time-consuming to prepare; • Not all feedback can be included in bulletins. 	<ul style="list-style-type: none"> • Inform
Focus groups	<ul style="list-style-type: none"> • Provide opportunity for a wider range of comments; • Good for identifying the reasons behind stakeholders' likes/dislikes; • Highly applicable when a new proposal is mooted and little is known of stakeholder opinions. 	<ul style="list-style-type: none"> • Requires careful selection to be a representative sample; • Skilled facilitators should be hired; • Can be costly; • Groups may not represent the majority opinion. 	<ul style="list-style-type: none"> • Consult
Formal memos	<ul style="list-style-type: none"> • Provides detailed information about stakeholders. 	<ul style="list-style-type: none"> • Can be time-consuming to document the information. 	N/A
Forums	<ul style="list-style-type: none"> • Encourage discussion between stakeholders; • Opportunity for exchanging ideas. 	<ul style="list-style-type: none"> • Some stakeholders may not have time to join; • May cause dispute. 	<ul style="list-style-type: none"> • Consult • Involve • Collaboration
Guidelines	<ul style="list-style-type: none"> • Easy to follow; • Includes stakeholder management as duties. 	<ul style="list-style-type: none"> • Takes time to formulate; • Stakeholders can change depending on situations. 	N/A
Information hotline	<ul style="list-style-type: none"> • Offers an inexpensive and simple device for publicity, information and public input; • It is easy to provide updates on project activities. 	<ul style="list-style-type: none"> • Must be adequately advertised to be successful; • Designated contact must have sufficient knowledge of the project to be able to answer questions quickly and accurately; • May limit a project officer from performing other tasks. 	<ul style="list-style-type: none"> • Inform • Consult

Table 6.5 (Continued)

Approaches	Strengths	Limitations	Levels of engagement
Interviews	<ul style="list-style-type: none"> • Allow in depth discussion and understanding of issues; • Individual contact means that the location of the meeting is flexible; • Able to explain points in own language; • Usually low cost and easy to arrange. 	<ul style="list-style-type: none"> • Can be time-consuming for project team; • Can be expensive; • May not have sufficient time; • Requires skilled interviewers; • Little quantitative information gathered and not majority opinion. 	<ul style="list-style-type: none"> • Consult
Listening post	<ul style="list-style-type: none"> • Provides an engagement opportunity for those stakeholders who may never attend a formal engagement opportunity. 	<ul style="list-style-type: none"> • Stakeholders may not have time at the listening post session; • Team members should arrange a regular time for it. 	<ul style="list-style-type: none"> • Consult
Media management	<ul style="list-style-type: none"> • Opportunity for promoting the project; • Opportunity for informing a broad range of stakeholders. 	<ul style="list-style-type: none"> • Can be costly. 	<ul style="list-style-type: none"> • Inform
Meetings	<ul style="list-style-type: none"> • Cheap and relatively easy to organise • Makes use of existing networks and allows specific stakeholders to be targeted; • Face-to-face contact ensures attendees understand issues and information can be elicited about opinions they express. 	<ul style="list-style-type: none"> • Unknown issues and previous relationships between the stakeholders may drive responses; • Opinions might not be representative of the wider community. 	<ul style="list-style-type: none"> • Inform • Consult • Involve • Collaboration
Negotiations	<ul style="list-style-type: none"> • Cheaper and faster to solve problems. 	<ul style="list-style-type: none"> • Project team should well prepared; • Concessions should be made sometimes. 	<ul style="list-style-type: none"> • Consult • Involve • Collaboration
Newsletters/Postcard series/Fact sheets	<ul style="list-style-type: none"> • Can provide regular updates on progress giving a sense of momentum; • Opportunity for stakeholders to get familiar with project issues; • Can give positive impression of desire to keep stakeholders informed. 	<ul style="list-style-type: none"> • Many stakeholders may never read them; • Can be time-consuming to prepare well on regular basis. 	<ul style="list-style-type: none"> • Inform

Table 6.5 (Continued)

Approaches	Strengths	Limitations	Levels of engagement
Open house/open day	<ul style="list-style-type: none"> • Useful when a large number of stakeholders exist; • Builds credibility; • Allows other team members to be drawn on to answer difficult questions. 	<ul style="list-style-type: none"> • It is important to advertise in a number of ways; • Difficult to document. 	<ul style="list-style-type: none"> • Inform • Consult • Involve • Collaboration
Personal past experience	<ul style="list-style-type: none"> • Clear understanding about the previous stakeholders; • Saves time for consultations. 	<ul style="list-style-type: none"> • May have cognitive limitations; • Can be useless due to the unique nature of construction projects. 	N/A
Power/interest matrix	<ul style="list-style-type: none"> • Project team can pay different attentions and apply different engagement methods according to each types of stakeholders; • Cheaper and easy to do. 	<ul style="list-style-type: none"> • Hard to assess power; • The assessment can not consider the interrelationship between stakeholders. 	N/A
Professional services	<ul style="list-style-type: none"> • Provide complete plans for stakeholder management; • Saves time for project managers. 	<ul style="list-style-type: none"> • Can be costly; • May have bias on the project. 	<ul style="list-style-type: none"> • Consult • Involve
Questionnaires and surveys	<ul style="list-style-type: none"> • Respondents' anonymity can encourage more honest answers; • Can reach respondents who are widely scattered or live considerable distances away; • Provides information from those unlikely to attend meetings and workshops; • Allows the respondent to fill out at a convenient time. • Provide larger samples for lower total costs. 	<ul style="list-style-type: none"> • Low response rates can bias the results; • Care must be taken that wording of questions is unambiguous to prevent skewed results; • Care is needed in sampling to make sure representative samples are taken; • Information gathered can be superficial and the reasons behind an opinion may not always be clear. 	<ul style="list-style-type: none"> • Inform • Consult
Snowball	<ul style="list-style-type: none"> • Helps to identify unknown stakeholders; • Reduces project risks; • Builds on resources of existing networks. 	<ul style="list-style-type: none"> • Choice of initial contacts is most important; • Boundary of stakeholders should be decided properly. 	<ul style="list-style-type: none"> • Consult • Involve • Empower
Social contacts	<ul style="list-style-type: none"> • Build trust with stakeholders; • Maximises two-way dialogue. 	<ul style="list-style-type: none"> • Only suitable for some stakeholders; • Requires creativity and resource investigation to reach a large number of people. 	<ul style="list-style-type: none"> • Inform • Consult • Involve

Table 6.5 (Continued)

Approaches	Strengths	Limitations	Levels of engagement
Social Network Analysis	<ul style="list-style-type: none"> Views a specific set of linkages among a defined set of persons as a whole to analyse the interrelationship between stakeholders; Can identify influential stakeholders and the way to engage them; Can visualise the relationship network. 	<ul style="list-style-type: none"> Data collection is difficult; Can be time-consuming; A specialist in SNA methods is needed. 	<ul style="list-style-type: none"> Involve
Stakeholder Circle (A stakeholder management methodology)	<ul style="list-style-type: none"> Allows project team to make a meaningful assessment of the stakeholders; Visualises stakeholder relative power and influence; Project team can develop engagement strategies according to the current and target levels of stakeholder interest and support. 	<ul style="list-style-type: none"> Costly. 	<ul style="list-style-type: none"> Collaboration
Walking tour/Site tour	<ul style="list-style-type: none"> Provides stakeholders with an understanding about the project; Can be easily remembered and understood. 	<ul style="list-style-type: none"> Can cause inconvenient in site; Facilities are needed. 	<ul style="list-style-type: none"> Inform Consult
Website	<ul style="list-style-type: none"> Provides access point for information that can be re-visited; Can provide an opportunity for direct feedback to project team or sharing of issues; Provides platform for regular updates for those who want to know more. 	<ul style="list-style-type: none"> Time-consuming to set up; Needs regular maintenance or will not have credibility; May not be accessed by all stakeholders. 	<ul style="list-style-type: none"> Inform Consult Involve Collaboration
Workshops	<ul style="list-style-type: none"> Ideal for looking at specific issues; Excellent for discussion on criteria or analysis of alternatives; Offers a choice of team members to answer difficult questions; Builds ownership and credibility for the outcomes; Maximises feedback obtained from participants. 	<ul style="list-style-type: none"> Not totally individualised discussion; Needs to well facilitated with credible individuals who have the interpersonal skills to deal with challenging issues; If actions not followed through can destroy trust. 	<ul style="list-style-type: none"> Consult Involve Collaboration Empower

6.6 Summary of the Chapter

The main focus in this chapter is the development of a typology of approaches for stakeholder management. The typology is developed based on a literature review, empirical studies in Hong Kong and Australia, and the systematic framework in Chapter 5. A total of thirty approaches are comprised in the typology, and they are classified by application according to the stakeholder management process.

Findings from this chapter show that the success of a particular approach depends on internal and external factors, such as the nature of the project, the resources in the organisation, and the communication environments. No approach for stakeholder identification and analysis is perfect. The selection of the approaches is an art and a contingency approach as well, requiring the practitioners judgements of ‘when, what, and how’ to choose approaches to achieve the project objectives. Each approach has its own strengths and limitations. Combining several approaches when necessary is the best way to manage stakeholders.

The relatively comprehensive typology of approaches for stakeholder management described in this chapter contributes to the body of knowledge on current studies on stakeholder management. A limitation of this research is that it is conducted in Hong Kong and Australia, and can only reflect these two environments. Meanwhile, only some of the identified approaches were evaluated by the questionnaire survey in Hong Kong, so the effectiveness of the approaches in Table 6.4 should be further explored.

To validate the typology of approaches (Chapter 6) and the systematic framework (Chapter 5), action research is applied to five real projects in Australia and Hong Kong, and are described and evaluated in the following chapter: Chapter 7.

CHAPTER 7 VALIDATION OF THE SYSTEMATIC FRAMEWORK AND THE TYPOLOGY OF APPROACHES

7.1 Introduction

Research gaps have been identified based on the results of a literature review (Chapter 2) which encompassed findings in general management areas, as well as those from the construction industry. The results of a questionnaire survey and interviews conducted with a wide range of management practitioners (Chapter 4) was used together with the review findings to firstly create a systematic framework for stakeholder management in construction (Chapter 5) and a typology of stakeholder management approaches (Chapter 6). The systematic framework and the typology of approaches were then validated. A description of the validation of the framework, together with the typology of approaches is given in this chapter.

Action research is used in the validation of the systematic framework and the typology of approaches. Five real case projects are used to this effect. An overview of the five projects is given in Section 7.2. The detailed action research is described in Section 7.3. The outcomes from these five cases are compared and summarised in Section 7.4 with the aim of exploring the applicability of the systematic framework and the typology of approaches. The finalised framework is introduced in Section 7.5.

Abbreviated forms of the five project names (T college project, CI project, NSP project, PU project, and ST project) and building names (such as WT in Section 7.3.4) are used in this chapter for confidential considerations.

7.2 An Overview of the Five Projects

The project characteristics are summarised in Table 7.1 below.

Table 7.1 The project characteristics

No.	Project name	Location	Project type	Project phase	Project complexity ^a	Cooperation ^b
1	T College project	Australia	A school building project	Construction	Medium	Client and other stakeholders
2	CI project	Australia	An urban renewal project	Design	High	Client
3	NSP project	Australia	An infrastructure project	Construction	High	Client and main contractor
4	PU project	Hong Kong	A school building project	Design	High	Client
5	ST project	Hong Kong	A school building project	Construction	Medium	Main contractor

^a Refer to Appendix D for the classification of project complexity;

^b Cooperation means whom the researcher communicated with during the action research.

As shown in Table 7.1, the selected projects are from two places: Australia and Hong Kong, both of which have different cultures. The project types all relate to the construction industry and include a building project, urban renewal project and infrastructure project. Although there are three school building projects, they are either at different locations, or at different phases in the project life cycle. These differences provide interesting comparative material. Medium and high project complexities make the management of stakeholders more meaningful, as there are relatively complex stakeholder relationships in these projects, and project managers normally have difficulties to manage the complex stakeholder relationships. These projects are analysed mainly from the client and contractor perspectives as they are key bodies to successful communication with other project stakeholders (as indicated in Table 5.2). The use of the systematic framework and the approaches chosen in each

project are explained individually in Section 7.3. At the end of each case study, project management team were asked to complete a feedback questionnaire (Appendix E) for evaluating the usefulness of the framework and the typology of approaches. The outcomes of the questionnaire survey are discussed in Section 7.4.1.

7.3 The Detailed Action Research

7.3.1 Project 1 – the T College project

T College is a unique tertiary institution that provides a diverse range of high-quality academic and extra-curricular programs for talented students from across Australia and around the world. The project is to construct a new building to provide new classrooms and facilities for the college's theological school. The project is relatively small with a contract price of AU\$2 million. The construction stage is the focus of this case study description. The project manager, who had also been a T College employee for more than ten years, had direct responsibility for buildings, grounds and infrastructure projects in the campus. He reported to the Director of Finance & Administration, the chief financial officer who was also a member of the senior management team in the college.

Since this project was small and the project manager and the Director of Finance & Administration had extensive experience in campus development, the stakeholders and their interests were identified during a meeting with the project management team (the Project Manager and the Director of Finance & Administration in the college). Stakeholder information profiles were developed during this meeting (Table 7.2).

Table 7.2 The stakeholders in the T College project

No.	Stakeholder	Descriptions	Internal/ External stakeholder ^a	Their interests about the project ^b
1	Warden	Governance & leadership of the organisation.	Internal	P1, P2, P4, P5, P6, E3, CS1 and CS2.
2	Financier	Family business that finances ecclesiastical projects.	External	P2, P4, P5, E3, E4 and CS2.
3	Director of Finance & Administration	Part of senior management team; college chief financial officer	Internal	P4, P5, P6, P8, E3, E4, CS1 and CS2.
4	Manager Buildings, Grounds & OHS	Project manager	Internal	All
5	External consultant	Professional and personal interest in organisational projects; network relationships with various people in college; acts as advisor and maintains a fair and equitable outcome.	Internal	All
6	Director of the Theological School	Part of senior management team; Manages operations of theological school, including associated staff.	Internal	All
7	Architectural firm	Design & developer	Internal	P1, P2, P3, P4, P5, P6, P7, P8, E3 and CS2.
8	Contractor	Construction contractor	Internal	P4, P6, P9, E1 and E2.
9	Sub-contractor	Trades people	Internal	P6 & P9
10	Consultants	Including Quantity surveyors, Building surveyor - building permit, Structural consultant, Services consultant, Acoustic consultant, Environmental consultant	Internal	P4, P6, P9, E1 and E2.
11	Suppliers	Various trades	External	P4, P6 and P9.
12	Students	Student representatives	External	P1, P2, P3, P5, P6, P7, E1, E2, E3, E4, CS1 and CS2.
13	Staff	Student representatives	External	P1, P2, P3, P5, P6, P7, E1, E2, E3, E4, CS1 and CS2.
14	City Council	Councillor	External	P3, P9 and CS2.

Table 7.2 (Continued)

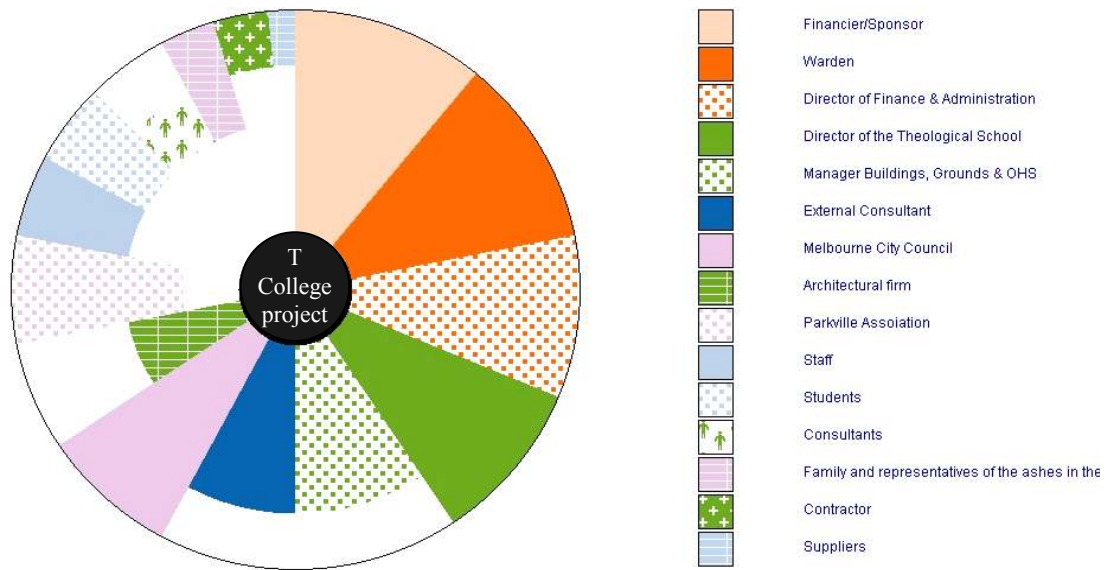
No.	Stakeholder	Descriptions	Internal/ External stakeholder ^a	Their interests about the project ^b
15	Family and representatives of the ashes in the landscape	Benefactors who have a standing relationship with the college. They like to have relatives' ashes remains placed on college grounds and provide a substantial amount of money as a gift in return.	External	E3.
16	Parkville Association	The Parkville Association is a strong community based organisation that voices a very strong opinion in support of these parameters.	External	CS2

^a The internal stakeholder is part of the performing project's management and staff structure; The external stakeholder is outside the performing project's management and staff structure (Bourne, 2005).

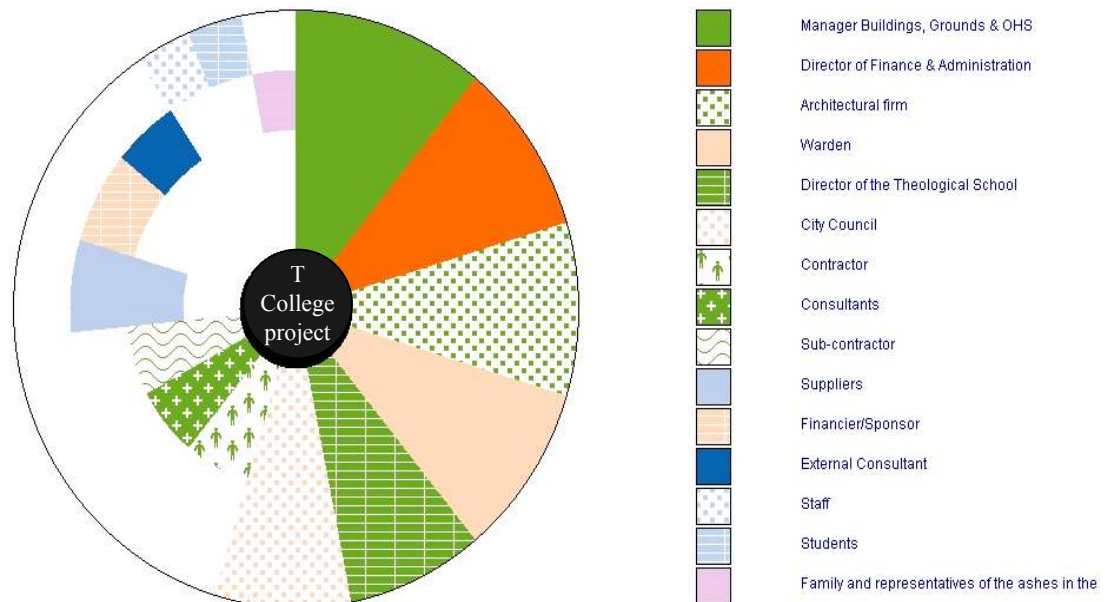
^b P1 - Improved services, P2 - Interior space, P3 - Mobility, P4 - Budget, P5 - Quality, P6 - Time, P7 - Connectivity, P8 - Storage, P9 - Occupational Health & Safety, E1 - Noise, E2 - Dust, E3 - Landscape, E4 - Sustainability practices, CS1 - Parking, CS2 - Heritage & streetscape

The project team was then asked, based on their experience, to prioritise all stakeholders. This was conducted using the Stakeholder Circle software (Bourne, 2005). Stakeholder power, proximity and urgency were evaluated according to the appropriate statements describing aspects of stakeholder relationships (Bourne, 2005). The results are shown in Figure 7.1. Although the project was at the construction stage at that time, in order to help the project management team realise the change of stakeholders and their influence during the project process, the team was also asked to assess the stakeholder attributes in the briefing stage. Figure 7.1(a) shows the stakeholder priorities during the briefing stage, and Figure 7.1(b) shows the priorities at the construction stage. The changes between these two priority lists are obvious. For example, the financier was important in the briefing stage as he could decide the funds for construction; while in construction, his responsibility was to monitor

expenditure, so he could not impact the project directly. Similarly, the Parkville Association was not on the list in Figure 7.1(b) as it was not influenced by the project during construction. The differences between these two priority lists verified the priority change of stakeholders, which has been indicted as a support activity ‘realizing the changes of the stakeholder information, influence, relationships and behaviour during the project processes in the continuous support group shown in Figure 5.3.



(a) Stakeholder priorities in briefing stage



(b) Stakeholder priorities in construction stage

Figure 7.1 Stakeholder Circle Chart for the T College project

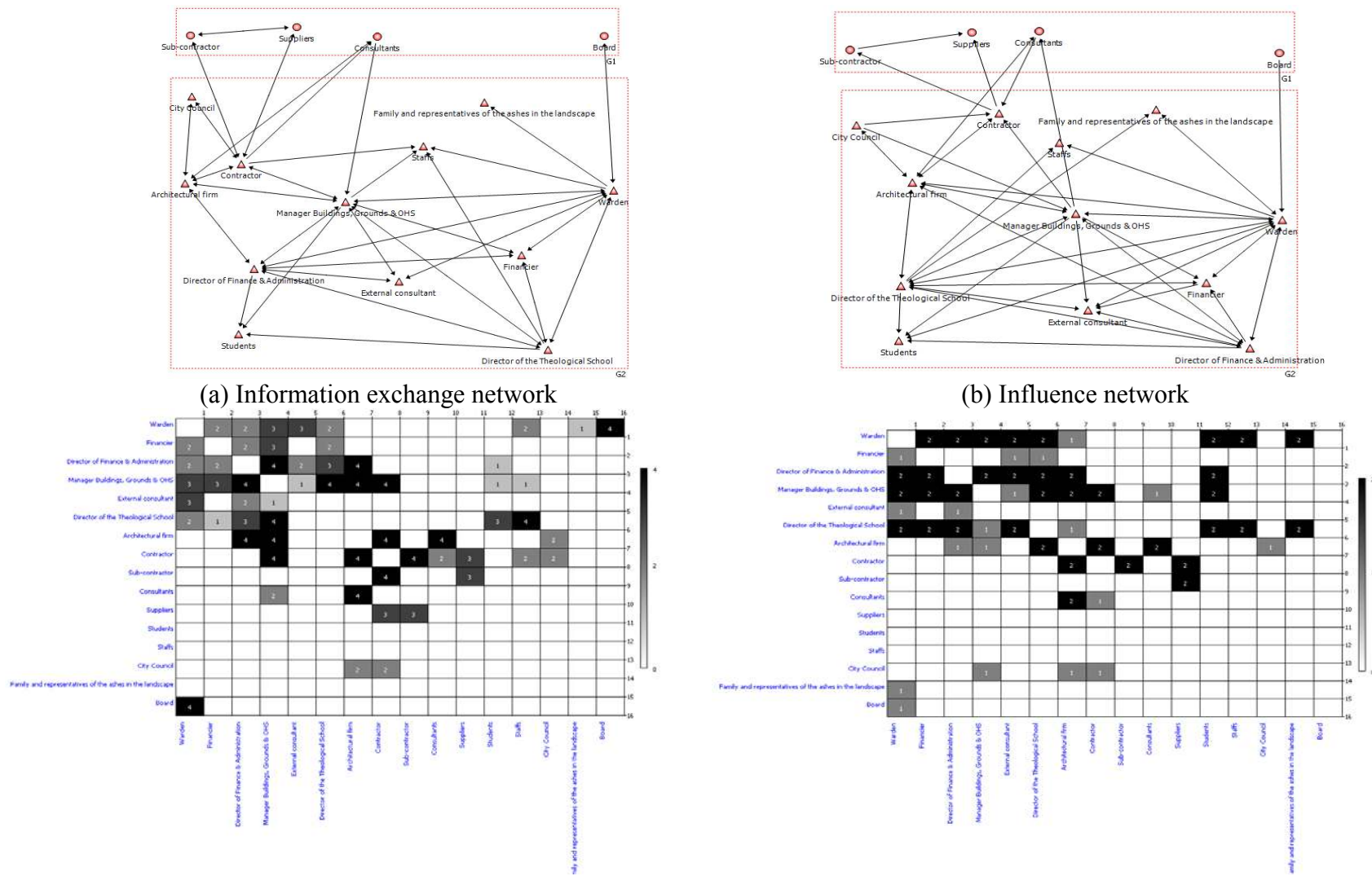
To analyse stakeholder relationships, a survey for Social Network Analysis was developed by the researcher and the project team. Two questions to determine the nature of the information exchange and influence networks were included in the survey and the purposes of the questions are shown in Table 7.3.

Table 7.3 The questions and purposes in the survey for Social Network Analysis

Questions	Extent	Purposes
Please nominate groups or individuals, or choose those from the following list with whom you typically exchange information regarding the project. (refer to Table 7.2)	<ul style="list-style-type: none"> • Direction: 1 = Provide information/advice to; 2 = Receive information/advice from; 3 = Both provide and receive. • Frequency: 1 = Seldom; 2 = Sometimes; 3 = Often; 4 = Very often. 	<ul style="list-style-type: none"> • To identify current or recent collaboration within a network; • To identify those who bridge different stakeholder categories and bring together disconnected segments of the network.
Please nominate groups or individuals, or choose those from the following list who changed or influenced your activities related to the project in the construction stage and to what extent? (refer to Table 7.2)	<ul style="list-style-type: none"> • 1 = To some extent; 2 = To a considerable extent 	<ul style="list-style-type: none"> • To identify those primary influencers, and to compare the outcomes with those from Stakeholder Circle; • To breach cognitive limitations and discover new opportunities: e.g. to identify and communicate with those “latent” stakeholders who could help to promote and control the project activities.

The questions were emailed by the project management team. One additional stakeholder, i.e. College Board Members, who was not identified during the meeting, was nominated by the Warden. It should be noted that not all of the sixteen stakeholders (including subcontractors, consultants and suppliers), were themselves surveyed, owing to time and resource limitations. However, the project was a usual design-build case, and it can be assumed that the project management team had a good understanding of the relationships between those non-surveyed stakeholders and the others. The data gathered from the survey was analysed by a Social Network Analysis tool, NetMiner (Cyram, 2009). Figure 7.2 is the map of the networks in the

project. Three network indices are used for analysis: density, cohesion, and status centrality (Wasserman and Faust, 1994; and Parise, 2007).



(c) Information exchange frequency matrix
 (d) Influence extent matrix
 Notes: G1 (Circular nodes): Not themselves surveyed stakeholders; G2 (Triangle nodes): Surveyed stakeholders.

Figure 7.2 The networks and matrices in the T College project

Density and cohesion are two network measures that are more descriptive of the entire network rather than of the individual nodes. Density in the information network is defined as the ratio of existing information ties in a network to the maximum number of ties possible if everyone in the group shared information with everyone else (Wasserman and Faust, 1994; and Parise, 2007). Network density ranges between 0 and 1. The higher the density, the more frequent the network information shares. The mean network density in Figure 7.2(a) is 0.667, indicating a high frequency of information exchange in the project (Parise, 2007). Cohesion measures “the distance, or the number of links, to reach nodes in a network”, and it is based on the shortest path (Parise, 2007). For an information network, the lower the cohesion number, the better the information return time, because there is a shorter path for information to be disseminated in the network. Cross and Parker (2004) consider an average cohesion number of around 2 to be acceptable for an information network. The average cohesion in the information exchange network of this project is 2.596, which indicates the average distance for sharing information from one stakeholder to the others, is between 2 and 3. As shown in Figure 7.2(a), the Warden was the person who brought together disconnected segments, i.e. Family and representatives of the ashes in the landscape and Board, in the network. The Warden was the only person with a link to these stakeholders, and thus was important in the network.

To estimate the degree of prominence of stakeholders, the status centrality concept was used as this considers every connection (even up to infinite length connections) between each node in Figure 7.2(b) (Cyram, 2009). If a node has many connections, it may have a large centrality score. As the length of a connection increases, however, influence attenuates exponentially (attenuation factor was 0.5 in this study). The status

centrality score for each node is shown in Table 7.4. The in-status centrality indicates the extent to which a stakeholder is affected by others; whereas, out-status centrality indicates the extent to which a stakeholder can affect others (Katz, 1953). Regarding the influence of a stakeholder, the out-status centrality is used as the outcome measure. The higher the out-status centrality values, the greater the importance of the stakeholder. As shown in Table 7.4, the project manager (project management team) had the highest influence in the construction stage. In view of the project management team's role in the construction stage, it is not surprising that the team is at the centre of the map. 'Warden', 'director of finance & administration', and 'director of the theological school' have a high level of influence because they all directly communicate with the project team, and supervise the process of construction.

Table 7.4 The status centrality vector

	Stakeholders	In-Status Centrality	Out-Status Centrality
1	Warden	0.734575	1.862931
2	Financier	0.632899	0.419561
3	Director of Finance & Administration	0.639276	1.741418
4	Manager Building, Grounds & OHS	0.540423	1.905681
5	External consultant	0.637312	0.340341
6	Director of the Theological School	0.716409	1.705585
7	Architectural firm	0.774864	1.103764
8	Contractor	0.427531	0.513178
9	Sub-contractor	0.136258	0.121456
10	Consultants	0.242928	0.347407
11	Suppliers	0.244714	0.000000
12	Students	0.632899	0.000000
13	Staffs	0.329397	0.000000
14	City Council	0.084705	0.396106
15	Family and representatives of the ashes in the landscape	0.329397	0.173860
16	Board	0.000000	0.173860

The outcomes from the Stakeholder Circle and Social Network Analysis were shown to the project management team at a following meeting. The team was satisfied with the current network collaborations (Network density is 0.0667, and Cohesion is 2.596). By comparing the outcomes of stakeholder priority between the Stakeholder Circle (SC) and Social Network Analysis (SNA), the main differences were identified as the priorities of 'Warden' (SC 4, SNA 2), 'Financier' (SC 11, SNA 7), 'Family and representatives of the ashes' (SC 15, SNA 11), and 'Board' (SC N/A, SNA 12). It can be found in Figure 7.2(a) that 'Financier', 'Family and representatives of the ashes', and 'Board' all share information with 'Warden', so a meeting was then conducted with the warden by the project manager and the researcher.

The warden indicated that he was friends with the financier and some benefactors (family and representatives of the ashes), and periodically communicated with them about the project. Although these two groups were less involved in the construction stage than in the briefing stage, they did care about the status of the project, particularly the budget (for financier) and the landscape (for benefactors). Regarding the data about the board, the warden explained that it was his responsibility to report to the board members monthly and that their satisfaction was important. Therefore, close attention should be paid to these three groups, namely, 'Financier', 'Family and representatives of the ashes', and 'Board'. After the meeting with the warden, the project management team re-thought the ranking list, generated via Stakeholder Circle, and re-organised the stakeholder list as shown in Table 7.5.

Table 7.5 The stakeholder engagement profile for the T College project

Priority	Stakeholder	Levels of engagement	Approaches
1	Manager Buildings, Grounds & OHS	Collaborate	E-mail, directed by higher authorities, focus groups, formal memos, interviews, meetings, personal past experience, site visit, Stakeholder Circle, surveys, telephone conversations.
2	Warden	Empower	E-mail, focus groups, guidelines, interviews, meetings, site visit, social contact, surveys, telephone conversations.
3	Director of Finance & Administration	Collaborate	E-mail, directed by higher authorities, focus groups, interviews, meetings, personal past experience, site visit, Stakeholder Circle, surveys, telephone conversations.
4	Architectural firm	Collaborate	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
5	Director of the Theological School	Involve	E-mail, focus groups, interviews, meetings, site visit, surveys, telephone conversations.
6	Contractor	Collaborate	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
7	Financier	Involve	E-mail, focus groups, meetings, site visit, social contact, surveys, telephone conversations.
8	City Council	Consult	E-mail, meetings, guidelines, telephone conversations.
9	Consultants	Involve	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
10	External consultant	Consult	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
11	Family and representatives of the ashes in the landscape	Involve	E-mail, meetings, site visit, social contact, surveys, telephone conversations.
12	Board ^a	Consult	Meetings.
13	Sub-contractor	Involve	E-mail, focus groups, meetings, site visit, surveys, telephone conversations.
14	Suppliers	Inform	E-mail, meetings, site visit, telephone conversations.
15	Students/Staff	Inform	E-mail, meetings.

^a Board is added in the list according to the SNA survey.

It is seen in the priority list generated by Stakeholder Circle, that the warden ranked higher, from fourth position to second position in Table 7.5 because, as seen in Figure 7.2(a), he was the only person who communicated with the board, the family and representatives of the ashes in the landscape, and also communicated with a relatively large number of stakeholders in the network. In contrast, the city council ranked lower (from sixth to eighth) in the re-organised list. The changed rankings were reasonable and were in line with the project manager's statement that the responsibilities of the city council were to approve the construction of the project and monitor the construction under the legal requirements. Hence, the city council at this time had less influence on the project. In addition, according to the warden's suggestions, given in paragraph above, the rankings of the financier and the family and representatives of the ashes in the landscape were higher in Table 7.5 than in the priority list (generated via Stakeholder Circle). It should be noted that no approach for identification and prioritization is perfect and that the use of the Social Network Analysis is to help the project team find any anomalies and make necessary corrections.

Stakeholder behaviour was also analysed using the Stakeholder Circle software. The status of stakeholder behaviour were all shown in green, indicating the high supportive behaviour of the identified stakeholders (refer to Bourne (2009) for the technique details). For example, as shown in Figure 7.3, the current and target levels of the architectural firm were the same (four degrees for support level, and five degrees for receptiveness level); this indicated that the attitude of this stakeholder was satisfactory.

The screenshot displays a software interface for stakeholder management. At the top, a profile for 'Architectural firm' is shown with attributes: Name (Architectural firm), Role (As architect), Power (4 High Power), Proximity (4 Internal to the project), and Urgency (4 High level of Urgency). Below these are radio buttons for Direction (U, D, S, D), Contribution (Internal, External), and To the organization. A grid on the right shows 'S/H Profile' and 'Receptiveness' levels. The bottom section features a 'Messages' panel with two templates: 'Site visit' and 'Meetings'. Each template has fields for Message Name, Format (Formal, Informal, Oral, Written), Frequency, Contents, and Cancellation options.

Figure 7.3 An example of stakeholder engagement and communication profile

Although the project management team believed the current communication with all team members was satisfactory, they were pleased to develop an engagement plan for further application. The engagement levels and methods for each stakeholder were developed (Table 7.5), based on the typology of approaches given in Table 6.4. It can be seen that the engagement level increases with stakeholder priority. Since there were no special issues at this stage of the project, the strategy formulation activity was not implemented. However, the project management team did think the strategy type shown in Figure 5.3 were reasonable.

One good example of strategy used during the briefing stage of this project is that the stakeholder ‘Family and representatives of the ashes in the landscape’ did not allow the project structure to occupy the ground where their relatives’ ashes were placed. Although the project management team proposed to move the earth at a certain depth to another place in the campus, the stakeholder did not agree. The final strategy was a concession. The project structure was sited near to, but not on top of the area

containing the ashes and met no objections. Thus the stakeholder management was evaluated as successful.

At the end of this case study, the project management team was asked to complete a feedback questionnaire on the usefulness of the systematic framework and the typology of approaches (Appendix E). The details are described in Section 7.4.1. Basically, the project management team considered the framework given in Figure 5.3 is useful, and will adopt it as a reference for future work.

7.3.2 Project 2 – the CI project

The CI project is an urban renew project in a district of M city with a contract price of AU\$1 Billion in new investments. The district was located 8 km north of the city CBD and was a vibrant and diverse community with a busy central retail hub. The study area for the CI project was approximately 35 hectares, of which Council 1 controlled 12 hectares. The CI project evolved from a government plan, itself the product of five years' consultation with associated communities, traders, landowners, state government agencies and other stakeholders. The project focuses on new connectivity between people and their places of work, culture, sport and leisure. The main goal of this project was the reinvigoration and renewal of a district.

Work began on the project in 2006, and at the time of writing was at the design stage. There were a large number of stakeholders with many interests in the project; hence the software Darzin was used to record the stakeholder management information. More than 400 stakeholders were identified and about 80 stakeholder interests were

classified in Darzin by the project manager's team, based on stakeholder engagement (Figure 7.4). Stakeholder information and all kinds of communications can be documented by the Darzin software (Figures 7.5 and 7.6). Based on the records, all communication activities, actions, and issues related to every stakeholder can easily be identified, and the content of meetings can be indexed according to the classification of stakeholder interests.

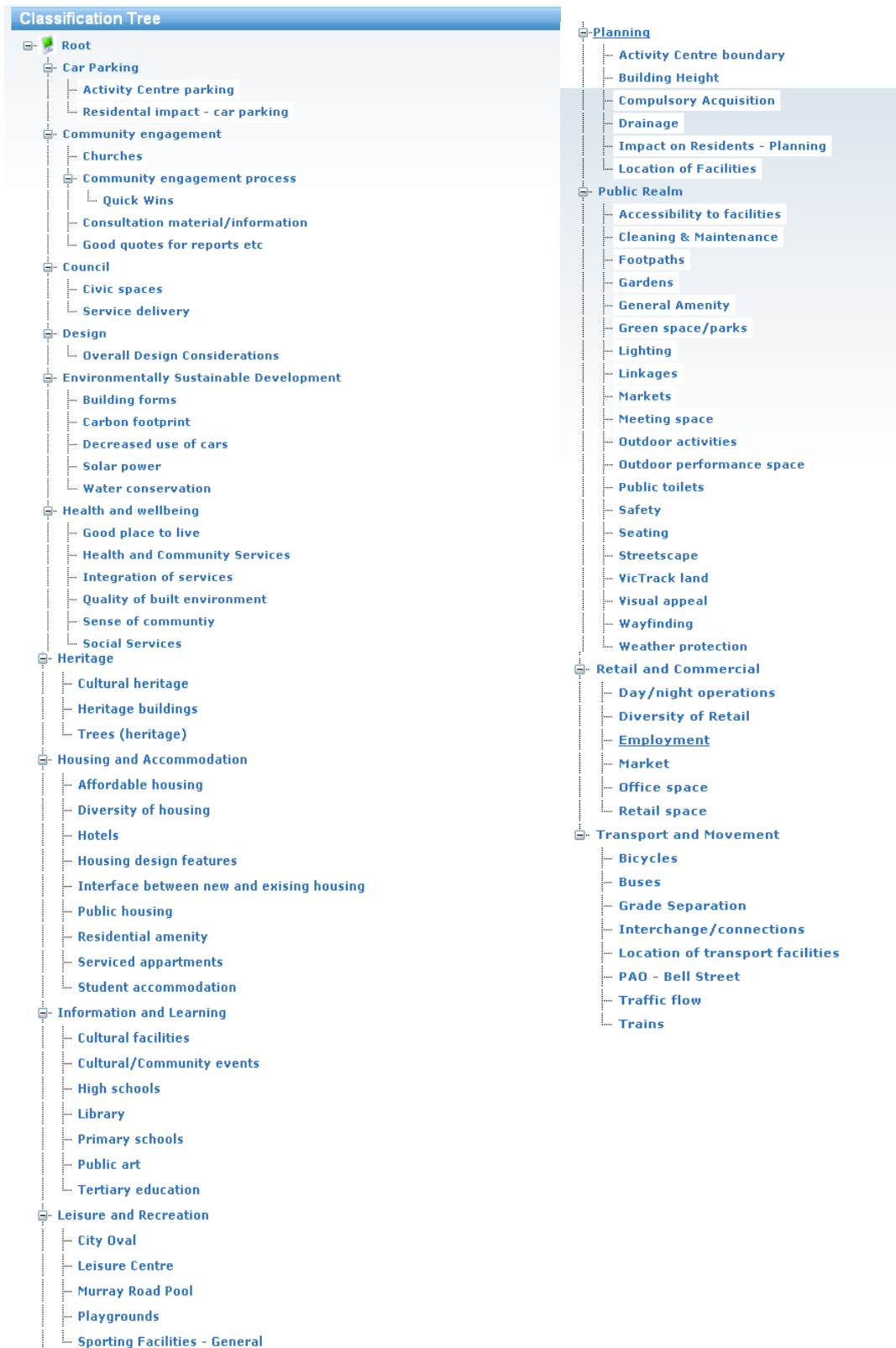


Figure 7.4 Stakeholders interest tree in the CI project

darzin v3.9.1
SOFTWARE

Welcome [Help](#) [Logout](#) [Switch Project/Domain](#)

Dashboard Stakeholders Properties Communications Actions Reports Admin

New Features!

Create

Please choose

Keyword Search

Communication

Last search results

Stakeholder [Save](#) [Cancel](#) [Delete](#)

Last Modified @ 16:31 21/08/2009 by Sandra Treise

Stakeholder ID:
 Customer ID:
 Title:
 First Name:
 Last Name:

Organisations

Add [Add New](#)

		STAKEHOLDER ID	NAME	POSITION
Edit Delete	Select	104	Uniting Church in Australia	-

Contact Details [Properties](#) [Contact Groups](#) [My Fields](#)

Add

	CONTACT DETAIL TYPE	CONTACT DETAIL
Edit Delete	Home Phone	<input type="text"/>
Edit Delete	Mobile Phone	<input type="text"/>
Edit Delete	Email	<input type="text"/>
Edit Delete	Address	<input type="text"/>

Communications [Actions](#) [Files](#) [Notes](#) [Issues](#)

Add [Add New](#)

		ID	DATE	SUBJECT	METHOD	DIRECTION
Select	Delete	1	4/03/2009	Coburg Uniting Church Property	Group Meeting	
Select	Delete	37	1/06/2009	Session 3: Land Ownership and Aspirations - Design Workshop 1-3 June 2009	Group Meeting	
Select	Delete	40	2/06/2009	Session 5: Social and Community Infrastructure Planning - Design Workshop 1-3 June 2009	Group Meeting	
Select	Delete	46	1/06/2009	Opening Session - The Coburg Initiative Design Workshop 1-3 June 2009	Group Meeting	
Select	Delete	61	27/05/2009	Invitation to Design Workshop 1-3 June 2009	Email	IN
Select	Delete	64	28/05/2009	Coburg Uniting Church Property	Group Meeting	
Select	Delete	65	3/06/2009	Vehicle traffic	Discussion	IN
Select	Delete	67	11/06/2009	Design Workshop outcomes	Phone Call	IN
Select	Delete	128	4/06/2009	August 2009 Newsletter notification	Email	OUT
Select	Delete	137	5/06/2009	Initial Coburg Concept Plan	Meeting	IN

Emails [Add new email](#)

Figure 7.5 A stakeholder profile in Darzin

darzin v3.9.1
SOFTWARE

Welcome Help Logout Switch Project/Domain

Dashboard Stakeholders Properties Communications Actions Reports Admin

New Features!

Create
Please choose
create

Keyword Search
Communication
search

Last search results
Return

Communication Save Cancel Delete

Last Modified @ 16:17:20/07/2009 by Tim Bruwer

Communication ID: 104
Document No.:
Method: Meeting
Date: 15 / 07 / 2009
Time: 10 : 00
Subject: Initial Coburg Concept Plan
Direction: IN
 Is Confidential

Stakeholders Properties Zones My Field

		ID	FIRST NAME/ORGANISATION NAME	LAST NAME
Select	Delete	1667	Nicky	Barry
Select	Delete	1134	Sue	Harris
Select	Delete	828	Dang	Luong
Select	Delete	1133	Sussex Neighbourhood House	

Message Actions Notes Files Mail Merge Send Email

B I U Arial 10pt

The multicultural community and the various cultures need to be celebrated through performing arts, dance performances and music performances.

Youth spaces need to be provided.

Music venues outside of pubs need to be provided because many Moreland residents cannot access pubs, e.g. young people under 18yo, older women, many CALD people, etc.

General purpose spaces need to be provided, e.g. for community style performances.

Concerns were raised about the narrowing of Sydney Road, as many cars come off the freeway at Bell Street to evade paying the toll and then taking Sydney Road southwards.

User pays car parks would not be acceptable.

Women are not safe in underground car parks.

Multi-level car parks are not safe for women with children in tow, as they can be run over

Classification
Classify Delete

- 10. (Outdoor activities)
- 11. (Diversity of Retail)
- 12. (Retail and Commercial)
- 13. (Outdoor activities)
- 14. (Civic spaces)
- 15. (Accessibility to facilities)(Day/night operatio
- 16. (Public Realm)(Outdoor performance space)
- 17. (Traffic flow)
- 18. (Activity Centre parking)
- 19. (Activity Centre parking)(Safety)

Figure 7.6 An example of meeting minutes in Darzin

In order to prioritise the stakeholders, the Stakeholder Circle software was used during a project management team workshop. A sample of 29 individuals or groups, considered more important by the project management team, was chosen for analysis from the full list available, owing to the limited time available. The stakeholders and their interests are listed, in order of priority, in Table 7.6. Stakeholder behaviour, i.e. levels of support and receptiveness, were also analysed. As shown in the last column of Table 7.6, stakeholders with red engagement status should have priority handling in the following works. The project director and manager thought that the use of Stakeholder Circle for analysing stakeholder influence contributed effectively to stakeholder management by enhanced communication.

Since the project manager was involved in the project from the start, he was asked to review the typology given in Table 6.4 and indicate the approaches for stakeholder analysis and engagement in the CI project. The main approaches used in this project are summarised as follows:

- inform: newsletters, postcard series, feedback bulletins, displays, Darzin, media management, fact sheets;
- consult: focus groups, surveys, walking tour, website, online community forum, listening posts, interviews;
- involve: community champions, community forums/speak out, meetings;
- collaborate and empower: communication café, workshops, community infrastructure reference group.

Most of the approaches are identical to those in Table 6.4 although some are named differently. Since among the 400 stakeholders, all of the 29 stakeholders in Table 7.6 are important, the project manager indicated that as the representatives of

Council 1, the project management team should collaborate with these 29 stakeholders, negotiate with them and try to find compromising solutions to safeguard the interest during the design stage. The opinions of the project management team about the framework and typology of approaches were obtained by a feedback questionnaire and are described in Section 7.4.1.

Table 7.6 The selected stakeholders and their priority in the CI project

Priority	Stakeholders	Their interests	Engagement status ^a
1	Director of Vic Roads	traffic flow; traffic management; road widening at busy intersection	Yellow
2	Director of Vic Track	underground railway line; possible development on Vic track land	Yellow
3	Councillors	development concept plans; safety; greater variety of shopping; better quality shops; car parking; community facilities; partnering arrangements; project funding; project budget	Green
4	Internal management executive group	all aspects of the project, including funding/financing, master planning, stakeholder engagement strategy; public/private partnership; development management agreement, project plan/timeframes, design concepts, planning framework, etc	Green
5	Chief Executive Officer (Local community health service)	development of new facility within the activity centre	Green
6	CEO of Tram company	traffic issues in relation to trams; installation of super tram stop	Yellow
7	Director of Public Transport Department - Bus	bus routes within new development; public transport interchange	Yellow
8	President of Local traders' association	parking; traffic/transport flow; shopper access	Green
9	Financiers	investment opportunities; project proposals; business plans for initial projects	Red
10	CEO of Affordable housing association	opportunities for development of affordable housing	Green
11	CEO of Local energy foundation	partnership options/joint projects; environmentally sustainable design	Green
12	CEO of a major retail store	ongoing presence in activity centre; location of store within the new development; parking; access; linkages to other parts of the development	Green
13	Local activist (Coach of Under 16 football club)	the redevelopment of existing football oval into a town park; development of a sports precinct to be developed within the activity centre	Green

Table 7.6 (Continued)

Priority	Stakeholders	Their interests	Engagement status ^a
14	President of Primary School Council	security of school children; combination of two school campuses on one site.	Red
15	Convenor (Save the Olympic Outdoor Pool Group)	relocation of leisure centre from activity centre; development of regional leisure centre adjacent to outdoor pool	Red
16	Coordinator (Local child care centre)	safer drop-off by parents; more space for child care centre; development of high buildings near centre that will overlook the centre	Yellow
17	Convenor of Disability Advisory Group	disability access; development of concept plans	Green
18	Hudson Street residents	concern that council may compulsorily acquire their properties; building heights; possible increase in traffic in their road; residential parking; building noise	Red
19	President of Local residents' association	24 hour medical clinic; parking charges	Green
20	Chairman of Library advisory committee	new library facility; location and size of new library	Green
21	Small business owners in local mall	car parking; shop access; improvements to mall	Green
22	CEO of Cinema group	opportunities for incorporating a cinema in the development project	Green
23	Convenor (Local bicycle users group)	improvements to bike paths; dedicated bike path on main road; traffic calming measures; improvements to public transport; secure bicycle parking; environmentally sustainable design	Green
24	President of Uniting Church Council	development opportunities; vehicle access to property; car parking; nature of adjacent developments	Red
25	President of Local historical society	options for local history facility/museum; possible relocation	Red
26	Residents of Local retirement village	parking; safety; disability access to facilities; access to health/medical services providers	Green

Table 7.6 (Continued)

Priority	Stakeholders	Their interests	Engagement status ^a
27	Director of Small local investment group	possible investment opportunities in the development project	Green
28	Convenor of Youth Advisory Group	facilities for young people; provision of live music venues; provision of a cinema; public transport after dark activity in centre	Red
29	Lebanese women's group	safety; greater variety of shopping; better quality shops; car parking; youth facilities	Green

^a Engagement status: Green – the stakeholder engagement is totally satisfied; Yellow – the stakeholder engagement is to some extent satisfied; Red – the stakeholder engagement is unsatisfied.

7.3.3 Project 3 – the NSP project

The NSP project is an AU\$650 million essential infrastructure project involving the construction of approximately 12.5km of new sewer pipes in the north of the city. The project will increase the sewerage system capacity for the city's growing northern suburbs and help to protect the two creeks from the damaging impact of sewage overflows that can occur after heavy rain. It will also help to improve the health of waterways flowing into the main river. The NSP project, which was in the construction stage, comprised two approximately concurrent stages: Stage 1 to be delivered by Client 1 and Stage 2 to be delivered by Client 2. JH construction, one of Australia leading and most diversified contracting, engineering and service providers, was responsible for both stages of the NSP. Three community relations managers, from Client 1, Client 2, and the JH construction company were appointed at the early stage of the project.

As this project is complex, the software Darzin was used to record project communications, stakeholder contact details and issues. Based on the historical records in the software package, more than fifty stakeholder groups were identified. The main stakeholder groups and interests are shown in Figure 7.7 and Table 7.7.

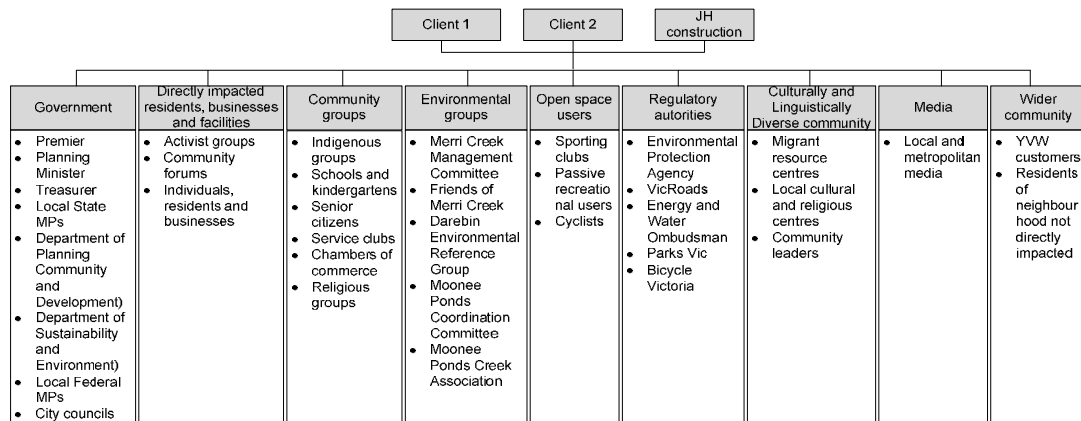


Figure 7.7 The stakeholder groups in the NSP project

Table 7.7 The stakeholders interests in the NSP project

Group	No.	Interests
Mitigation	M1	Mitigation works
	M2	Property purchase
	M3	Rate reimbursement
	M4	Relocation
	M5	Rental guarantee
Project	P1	Occupational health and safety
	P2	Cost
	P3	Quality
	P4	Progress of construction works
Environment	E1	Flora/fauna
	E2	Visual/landscape amenity
	E3	Noise and/or vibration
	E4	Emission of odour
	E5	Water quality
	E6	Dust
Traffic management	T1	Changes to Traffic conditions
	T2	Traffic movement within and accessing site
	T3	Parking restrictions and amendments
	T4	Mud and Dirt on Roads
	T5	Truck driver behaviour
Community/Social	C1	Safety of residents and users of the site
	C2	Property damage by vibration
	C3	Restrictions to sports and recreation areas
	C4	Pedestrian and cyclist access
Others	O1	Job opportunity
	O2	Capacity of the sewerage system
	O3	Protection to the creeks

The stakeholder attributes were assessed by the three community relations managers with the aid of the software, Stakeholder Circle. The top 20 stakeholders were

identified based on the program priority index (Table 7.8). The relationships among stakeholders were analysed, based on the stakeholder interests, by using the Social Network Analysis technique. The coalition matrix is shown in Table 7.9. The first row and column in the table represent the number of stakeholders. This number is in line with the priority number given in Table 7.8. The coalition values range from 0 to 1. The higher the score, the higher the coalition between two stakeholders. As shown in Table 7.9, the two clients and the JH construction company coalesced well, because they have the same interests in the project. This coalition matrix can enable the project management team to understand the interest similarity between the stakeholders. The current and target stakeholders attitude levels were evaluated by the community relations managers using the software, Stakeholder Circle. Satisfactory stakeholder behaviour is represented in Table 7.8, by the use if the colour is green, while unsatisfactory behaviour is represented by the colour, red. The latter should receive more attention/monitoring during the following management activities. The stakeholder engagement level and methods, applied during the succeeding construction process, were then decided based on the priority list and stakeholder attitudes (Table 7.8). More engagement activities with those stakeholders marked as having unsatisfactory behaviour will be conducted by the project team in the following work processes.

The effectiveness of the framework given in Figure 5.3 was confirmed as satisfactory by the community relations managers (as indicated in Section 7.4.1) and further confirmed for a request for help in the development of a survey to evaluate satisfaction regarding current engagement activities.

Table 7.8 The stakeholder priority list and their attitude classifications

Priority	Stakeholders	Attitude classifications	Engagement levels	Engagement methods										
				Community surveys	Bulletins	Community forums	Meetings/ Interviews	Briefing	Hotline	NSP news	Website	Displays	Advertising	Prepared articles/reports
1	Client 1	Green	Empower	•	•	•	•	•	•	•	•	•	•	•
2	Client 2	Green	Empower	•	•	•	•	•	•	•	•	•	•	•
3	JH construction	Green	Empower	•	•	•	•	•	•	•	•	•	•	•
4	Directly affected residents	Red	Collaborate	•	•	•	•	•	•	•	•	•	•	
5	Environmental Protection Agency	Green	Involve				•	•		•				
6	VicRoads	Green	Involve				•	•		•				
7	Ivanhoe Bus Lines	Green	Involve				•	•		•				
8	Parks Vic	Green	Involve				•	•		•				
9	Moreland City Council	Red	Involve			•	•			•				•
10	Moonee Valley City Council	Red	Involve			•	•			•				•
11	Darebin City Council	Red	Involve			•	•			•				•
12	Merri Creek Management Committee	Red	Consult	•		•	•	•	•	•	•	•	•	•
13	Moonee Ponds Creek Co-ordination Committee	Red	Consult	•		•	•	•	•	•	•	•	•	•
14	Friends of Merri Creek	Red	Consult	•		•	•	•	•	•	•	•	•	•

Table 7.8 (Continued)

Priority	Stakeholders	Attitude classifications	Engagement levels	Engagement methods										
				Community surveys	Bulletins	Community forums	Meetings/Interviews	Briefing	Hotline	NSP news	Website	Displays	Advertising	Prepared articles/reports
15	Friends of Moon Ponds Creek Association	Red	Consult	•		•	•	•	•	•	•	•	•	•
16	Darebin Environment Reference Group	Red	Consult	•		•	•	•	•	•	•	•	•	•
17	Moonee Ponds Creek Association	Red	Consult	•		•	•	•	•	•	•	•	•	•
18	Energy and Water Ombudsman	Green	Consult				•	•		•				•
19	Department of sustainability and environment	Red	Consult				•	•		•	•			•
20	Local Federal Member of Parliament	Red	Consult				•	•		•	•			•

Table 7.9 The stakeholder coalition matrix in the NSP project

Stakeholder No. *	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	1	1	1	0.22	0.37	0.41	0.37	0.48	1	1	1	0.56	0.56	0.56	0.56	0.56	0.56	0.33	0.52	0.78
2	1	1	1	0.22	0.37	0.41	0.37	0.48	1	1	1	0.56	0.56	0.56	0.56	0.56	0.56	0.33	0.52	0.78
3	1	1	1	0.22	0.37	0.41	0.37	0.48	1	1	1	0.56	0.56	0.56	0.56	0.56	0.56	0.33	0.52	0.78
4	0.22	0.22	0.22	1	0.07	0	0	0	0.22	0.22	0.22	0	0	0	0	0	0	0	0.43	0
5	0.37	0.37	0.37	0.07	1	0.11	0.11	0.53	0.37	0.37	0.37	0.39	0.39	0.39	0.39	0.39	0.39	0.12	0.09	0.41
6	0.41	0.41	0.41	0	0.11	1	0.91	0.14	0.41	0.41	0.41	0.44	0.44	0.44	0.44	0.44	0.44	0.82	0.19	0.52
7	0.37	0.37	0.37	0	0.11	0.91	1	0.15	0.37	0.37	0.37	0.47	0.47	0.47	0.47	0.47	0.47	0.9	0.14	0.48
8	0.48	0.48	0.48	0	0.53	0.14	0.15	1	0.48	0.48	0.48	0.56	0.56	0.56	0.56	0.56	0.56	0.16	0.23	0.62
9	1	1	1	0.22	0.37	0.41	0.37	0.48	1	1	1	0.56	0.56	0.56	0.56	0.56	0.56	0.33	0.52	0.78
10	1	1	1	0.22	0.37	0.41	0.37	0.48	1	1	1	0.56	0.56	0.56	0.56	0.56	0.56	0.33	0.52	0.78
11	1	1	1	0.22	0.37	0.41	0.37	0.48	1	1	1	0.56	0.56	0.56	0.56	0.56	0.56	0.33	0.52	0.78
12	0.56	0.56	0.56	0	0.39	0.44	0.47	0.56	0.56	0.56	0.56	1	1	1	1	1	1	0.5	0.16	0.71
13	0.56	0.56	0.56	0	0.39	0.44	0.47	0.56	0.56	0.56	0.56	1	1	1	1	1	1	0.5	0.16	0.71
14	0.56	0.56	0.56	0	0.39	0.44	0.47	0.56	0.56	0.56	0.56	1	1	1	1	1	1	0.5	0.16	0.71
15	0.56	0.56	0.56	0	0.39	0.44	0.47	0.56	0.56	0.56	0.56	1	1	1	1	1	1	0.5	0.16	0.71
16	0.56	0.56	0.56	0	0.39	0.44	0.47	0.56	0.56	0.56	0.56	1	1	1	1	1	1	0.5	0.16	0.71
17	0.56	0.56	0.56	0	0.39	0.44	0.47	0.56	0.56	0.56	0.56	1	1	1	1	1	1	0.5	0.16	0.71
18	0.33	0.33	0.33	0	0.12	0.82	0.9	0.16	0.33	0.33	0.33	0.5	0.5	0.5	0.5	0.5	0.5	1	0.1	0.43
19	0.52	0.52	0.52	0.43	0.09	0.19	0.14	0.23	0.52	0.52	0.52	0.16	0.16	0.16	0.16	0.16	0.16	0.1	1	0.3
20	0.78	0.78	0.78	0	0.41	0.52	0.48	0.62	0.78	0.78	0.78	0.71	0.71	0.71	0.71	0.71	0.71	0.43	0.3	1

* The stakeholder number is in line with the number in Table 7.8.

7.3.4 Project 4 – the PU project

The PU project dealt with the new Hong Kong 3+3+4 education reform policy. The A University difficult to cater for such a change. Owing to the need to accommodate the expanding academic structure and more diversified educational training and practice, the main campus in A University is incapable of meeting the anticipated demand which would require a the provision of a relatively large floor area. The campus itself is already highly congested. The University, therefore, submitted an application for the rezoning of government land, located to the north of the existing main campus, in order to be able to cope with the proposed reform policy. At the time of this study, the PU project was at the early stage for rezoning application.

The PU project site is located to the immediate north of the existing campus across C Road South in Y District. The site area is approximately 9,600m² and is at present predominantly surrounded by government, institution and community use buildings, as well as sports, private and recreation clubs on its southern and western sides. The only vehicular access to the site is via a slip road off C Road South currently maintained by Kowloon-Canton Railway Company (KCRC), under the land vesting plan of the East Rail Extension, as a vehicular/pedestrian right of way to the H KCR Substation in the further northeast of the Site.

The stakeholder management team comprises a project manger, an assistant project manager, a senior E&M, project manager on a senior E&M, project officer on a senior project officer on contract management, who are all from the Campus Development Office (CDO). Apart from the CDO, a team of design consultants on, E&M, structural,

planning and contract matters were also engaged in the project. Table 7.10 gives the list of stakeholders in this project.

Table 7.10 The stakeholder list in the PU project

No.	Stakeholder
1	A University
2	Staff
3	Students
4	Highways Department (HD)
5	Residents
6	Leisure and Cultural Services Department (LCSD)
7	Transport Department (TD)
8	District Council (DC)
9	Environmental Protection Department (EPD)
10	Town Planning Board (TPB)

The information about these stakeholders was gathered from surveys, meetings, forums and workshops.

(1) The University

The University expected that the design population of this project should be 3,000 full-time students, 1,000 part-time students and 600 teaching staff. The major accommodation/facilities should include lecture theatres, general teaching rooms, workshops, laboratories, staff offices, amenities and catering facilities. As the undergraduate students will undertake more common and faculty based subjects in their first year of study, under the new 4-year system, more classrooms with seats for 100 to 300 will be required.

The proposed development would need to be close to the main campus for operational reasons, such as share essential core facilities. No alternative site was available in the vicinity, leaving the proposed site as the only suitable option for the University.

Owing to the poor accessibility of the site location in that it was surrounded by main roads, an underpass linkage between it and the existing campus was proposed. In the previous rezoning, vehicular traffic and pedestrian access application for access use was to be made of the existing campus driveway. The proposed underpass is a 6m two-way driveway plus footpath width of 3m to 4m, and aimed to cater for about 3000 students / staff.

(2) Staff

The staff was concerned about the configuration of the proposed underpass. Some considered the security issue to be of paramount importance as many students/staff would walk through the underpass after classes at night. They were also concerned about the connection of this construction project to the main campus by only one underpass, as flooding of the underpass in the monsoon season may affect egress and ingress and hence negatively influence the smooth operation of the offices and facilities during construction.

They also wondered if dining and commercial facilities such as car parks, supermarkets, convenience stores or ATM machines would be provided in the new building. A total of 15 car parking spaces for authorized staff were proposed. One loading / unloading bay needs to be provided for maintenance and service purposes.

(3) Students

The concerns of students were similar to those of staff. Worries about security issues and facilities in the new building were expressed. In addition, the students asked for more space for recreational activities.

(4) The Highways Department

The Highways Department and Kowloon-Canton Railway Company (KCRC) raised concerns regarding the proposed S district to Central Link (SCL) and in particular about the area required future associated works and relocated facilities.

There were objections to the proposed development based on the understanding and mutual agreement with the University. The objections concerned:

- whether there was sufficient space (about 5,000m²) within the rezoning site reserved for the future SCL project and the associated railway facilities;
- whether the detailed building design to cater for the specific needs and requirements of the SCL would be agreed with KCRC, prior to the building plans submission; and
- whether the access road via the rezoning site would be maintained during railway operations, maintenance and emergency use.

(5) Residents

WR is a high-rise residential premises erected on a podium and at some 50 meters from the northwest area of the proposed project. There are three residential towers above this podium, with heights of approximately 70mPD for each tower. The WR residents opposed the new development giving the following concerns:

- There was no large greening area nearby. The residents strongly requested that the “Open space” zone be retained and for greening in the surrounding areas to improve air quality.

- Although education institutions are neither an air polluting source nor a major noise emitter, the building blocks proposed on the representation site would adversely affect the dispersal of noise.
- The height of part of the proposed school buildings would create a wall effect blocking the natural ventilation to the residential units on or below 11/F, Block D, and leading to accumulation of pollutants undesirable to the health of nearby residents.
- The proposed development would create an adverse traffic impact leading to traffic congestion on the adjoining traffic network, thereby causing inconvenience to road users and delay emergency vehicles.
- The existing trees at the subject site are important assets in an urban area, both aesthetically and in their contribution to air quality. The school development proposal would cause the removal of many of these trees.
- The proposal would adversely affect property value and also the interests of residents in the district.
- The project height would have a negative visual impact on neighbouring buildings.

Some proposed an alternative scheme. This scheme suggested that the new development should be built on the existing soccer pitch in the existing campus and for the soccer pitch to be relocated to the proposed campus building site.

(6) Leisure and Cultural Services Department (LCSD)

Open space is needed for the public around the proposed project. If the application site is rezoned from Open Space to a Government, Institution or Community (GIC)

area, open space of approximately 6,080m² with convenient accessibility was requested by LCSD.

(7) The Transport Department

Confirmation should be given to the Transport Department, that the proposed underpass linkage between the existing campus and the proposed site across C Road South would not cause any disruption to the existing heavy traffic. Concerns, in this respect, raised by the local public on the likely additional traffic impact should be addressed.

(8) District Council (DC)

The District Council actively reflected Government attitude to local issues that people's well-being should not be negatively impacted. The DC has the aim to further improving the living standards of local residents.

The main concerns of the DC were the issues proposed by the residents around the site. The issues are given in the fifth subsection above.

(9) Environmental Protection Department (EPD)

The missions of the environmental Protection Department (EPD) are to formulate policies and plans on environmental protection and conservation, to increase community awareness of environmental protection and conservation issues, and to implement environmental protection legislation and plans.

The key environmental issues of the proposed development included noise and air quality during the construction and operational phases. Among these environmental issues, the air quality impact due to the vehicular and industrial emissions generated from the surrounding environs during the operational phase of the development were the major concerns.

(10) The Town Planning Board (TPB)

The Town Planning Board (TPB) has the responsibility listen to the requests of all the above parties, and make decisions under the Ordinance. Hence consideration has to be given to the issues proposed by the stakeholders. In order to persuade the TPB to pay attention to the demands, the management team of this project must propose schemes for dealing with the needs of all the participants.

The project management team then analysed the interrelationships between stakeholders instead of the attributes of stakeholders, the management team thought it was different to evaluate the urgency and proximity attributes as the stakeholders have interrelations with each other. Therefore, a question was answered by the project management team members:

Please evaluate the impacts among the ten stakeholders, that is, who changed or influenced others' activities related to the project in the design stage and to what extent? (0 – no impact, 1 - vary small impact, 2 – small impact, 3 – medium impact, 4 – high impact, and 5 – very high impact).

The interrelationship matrix of the stakeholders in this project is shown in Table 7.11. It should be noted that the project management team has extensive experiences in

campus development projects and communicates with all of the stakeholders from the start of this project. Even though this evaluation was conducted by the project management team rather than by each stakeholder, it was assumed to be reliable.

Table 7.11 The interrelationship matrix in the PU project

Impact ^a	University	Staff	Students	HD	Residents	LCSD	TD	DC	EPD	TPB
University	-	4	4	0	0	0	0	0	0	0
Staff	4	-	0	0	0	0	0	0	0	0
Students	4	0	-	0	0	0	0	0	0	0
HD	2	0	0	-	0	0	0	2	0	0
Residents	0	0	0	0	-	2	0	4	0	0
LCSD	3	0	0	0	0	-	0	0	0	0
TD	3	0	0	0	0	0	-	0	0	0
DC	0	0	0	0	0	4	3	-	4	0
EPD	3	0	0	0	0	0	0	0	-	0
TPB	5	0	0	3	5	3	3	5	3	-

^a 0 – no impact, 1 - vary small impact, 2 – small impact, 3 – medium impact, 4 – high impact, and 5 – very high impact

This matrix, as was the first case in Section 7.3.1, was analysed also by NetMiner, and the out-status centrality was used for indicating stakeholder priorities. The outcome is presented in Table 7.12.

Table 7.12 The priority of stakeholders in the PU project

Stakeholder	Out-status centrality	Priority
TPB	1.19	1
DC	0.44	2
A University	0.33	3
Residents	0.28	4
HD	0.19	5
Staff	0.18	6=
Student	0.18	6=
LCSD	0.14	8=
TD	0.14	8=
EPD	0.14	8=

The Town Planning Board (TPB) had the priority, since TPB has the final decision on the design of project. Of interest is the finding from the interrelationship matrix in Table 7.11 that although Residents did not have a high impact on the University, it did have a high impact on the DC. This, in turn, had a high influence on the TPB. Through the interaction of the ‘network of relationships’, the residents achieved more benefits than they would otherwise have achieved.

Based on the information of the stakeholders, the project management team was able to analyse the conflicts and coalitions among stakeholders. The major examples of coalitions and conflicts, among the stakeholders, are listed in Table 7.13.

Table 7.13 The coalitions and conflicts among the stakeholders in the PU project

Interrelationship	Interests	Stakeholder
Coalition	Campus expansion	A University, Staff, Students
	More communal space and recreational facilities	A University, Staff, Students
	Convenient connection with the existing campus	A University, Staff, Students
	Security issues	Staff, Students
	Open space for public	Residents, LCSD, DC
	Environmental issues	Residents, DC, EPD
	Traffic impact	Residents, DC, TD
Conflict	Area of the open space for public	Residents, LCSD, DC ↔ A University, Staff, Students
	More space to use	HD ↔ A University
	Environmental issues	Residents, DC, EPD ↔ A University
	Traffic impact	Residents, DC, TD ↔ A University
	Visual impact	Residents, DC, LCSD ↔ A University

The project management team gave their comment, in terms of the stakeholder behaviour. The comment was there should be one more stakeholder behaviour type in practice: neutral attitude. The management team took the behaviour of the Town

Planning Board (TPB) is an example. The mission of the TPB is to combine all of the stakeholder interests and get a balance of the interests. The attitude of TPB is neutral and it has no preference regarding the interests of all stakeholders. This comment on stakeholder behaviour types will be considered in the final framework. Table 7.14 gives an overview of the stakeholder behaviour.

Table 7.14 The behaviour of the stakeholders in the PU project

Behaviour	A University
Staff	Cooperative potential
Students	Cooperative potential
HD	Opposite position
Residents	Opposite position
LCSD	Opposite position
TD	Opposite position
DC	Opposite position
EPD	Opposite position
TPB	Neutral attitude

The Town Planning Board had the power to approve the project but before doing so they consulted all stakeholders involved to collaborate in an effort to resolve compromising conflicts. The conflicts and opponent behaviour of the most important stakeholders (see priority scored, Table 7.12) were considered first. The proposed actions and strategies are given in detail in Table 7.15. The finalised scheme was finally approved by the Town Planning Board, and no further counterview was received after the approval was given. This particular project then moved to the detail design and construction phases. The project management team evaluated the usefulness of the framework and the typology of approaches at the end of this case study, and the details are in Section 7.4.1.

Table 7.15 The strategies and actions in the PU project

Issues	Action	Stakeholders	Strategies
Accommodation Needs	<p>The massing of the PU project consists of one low block and one high block, with disposition to setback from C Road such that a greater sense of spatial openness will be experienced from C Road, and that a public open space is formed fronting onto C Road. The new development can cater for needs of accommodation.</p> <p>The proposed project will use similar façade design, colour scheme and external finishing materials to visually integrate with the existing main campus</p>	A University	Concession
Security issues	The project management team would liaise with Facility Management Office of A University concerning the management of the proposed underpass; essential security devices such as CCTV would be installed at the underpass. The project management team also informed that the configuration of the proposed underpass would be very different from that of the existing one. Environmental issues of natural lighting, ventilation and drainage of the underpass would be worked out by consultants during the detailed design stage.	Staff, Student	Concession
Facilities	<p>The design of the PU project has incorporated much communal space for use by students and staff. Consideration for the provision of commercial facilities would be made after consulting relevant government departments. The project management team informed that a small scale cafeteria would be located within the building.</p> <p>To reduce the sizing requirement of the proposed underpass link, it is proposed not to provide any car parking spaces for the authorized staff (i.e. 15 spaces) at the captioned site. The university should manage staff cars to park at the existing campus as the same management for other existing phases of the university. The proposed underpass link will only serve the students / staff / general public to and from the subject site where public open space is located.</p>	Staff, Student, A University	Compromise
Open space	<p>The application site should provide an open space of approximately 6,080m² with convenient accessibility from the surrounding areas.</p> <p>Because of the limited space at the ground floor, landscaped roof garden will be provided on the roof of the low block, which also acts as visual enjoyment for residents from WR.</p>	TPB, LCSD, Residents, DC	Compromise Concession

Table 7.15 (Continued)

Issues	Action	Stakeholders	Strategies
Traffic impact issues	<p>A Traffic Impact Assessment (TIA) was conducted by an appointed consultant.</p> <p>There is no car parking to be provided at the site. The parking demand for the staff will be served using the existing facility in the main campus. The underpass linkage the main campus and the subject site will be for pedestrian only.</p> <p>The existing access road to the MTRC area for future SCL project and the existing substation will be realigned and is restricted for goods vehicles during non-peak period. All cars / taxis accessing the proposed project will be via the existing campus for pick-up / drop-off. An underpass link will be constructed to serve pedestrians only between the proposed project and the existing main campus. Pedestrian railing is also proposed to discourage picking-up / setting-down activities at the proposed new bus bay outside the proposed project.</p> <p>As Transport Department raised concerns about the potential illegal pick-up / drop-off at the road side causing traffic congestion at C Road, a restriction on opening time for the pedestrian entrances from 08:00am to 10:00pm is proposed for not allowing entry of the public open space.</p> <p>Junction assessments with and without the development were carried out for 2011 traffic situation. The results indicated that the additional traffic generated by the proposed project is relatively low and will not significantly affect the junction reserve capacities of C Road South / A Road / C W Road, which is forecasted to remain overloaded in the future.</p> <p>This TIA study has demonstrated that the traffic impact induced by the proposed project on the surrounding road networks would not cause any significant impact to the surrounding road network.</p>	TPB, TD, Residents, DC	Compromise
Space for SCL	An area of about 30m long and 165m wide with headroom of 10m should be reserved at the ground floor to satisfy the future maintenance of SCL.	HD, TPB	Concession

Table 7.15 (Continued)

Issues	Action	Stakeholders	Strategies
Environmental issues	<p>An Environmental Assessment (EA) and a tree survey was conducted. This EA has studied the potential noise and air quality impacts on the proposed project and recommended appropriate mitigation measures.</p> <p>It was considered that there was insignificant traffic noise impact from the nearby roads networks and no railway noise impact from MTR East Railway on the proposed development because all function rooms /classrooms in the proposed development will be equipped with central air conditioning system as well as well-gazetted windows.</p> <p>As the proposed development would be equipped with central air conditioning, it was proposed to install the fresh intake at the roof level of the proposed development so as to maintain adequate buffer distance.</p> <p>The proposed educational institution is neither an air polluting source nor a major/potential noise emitter in accordance with the Hong Kong Planning Standards and Guidelines. With the implementation of the recommended mitigation measures as mentioned in this EA, it is anticipated that the proposed development would not pose any significant adverse environmental impacts.</p> <p>Among the 121 numbers of living trees, 62 numbers of trees are proposed to be retained in-situ. Among the 121 numbers of living trees, 11 numbers of trees are proposed to be transplanted. Generally, fruit trees are not suitable for transplanting for their low survival rates after transplant. Resources should be reserved for the planting of new trees of better amenity and educational value. Among the 121 numbers of living trees, 48 numbers of trees, i.e. a total aggregated 12320mm DBH are proposed to be felled.</p>	TPB, EPD, Residents, DC	Defence Compromise

Table 7.15 (Continued)

Issues	Action	Stakeholders	Strategies
Environmental issues	<p>The trees proposed to be felled can be justified by the following reasons:</p> <ul style="list-style-type: none"> • No irreplaceable rare species of tree is involved. • Felling of trees would not cause a serious and adverse environmental impact. • A genuine construction of a school development works is required which cannot be reasonably overcome. • Compensatory landscaping/replanting and transplanting will be undertaken. • The trees are not unusually large or fine example of its type. • The trees are not one of the specimen listed in the “Champion Trees in Urban Hong Kong” published by the Urban Council. • The trees are not one of the “King of Trees”, or a tree of similar community status. <p>The proposed development will minimize disruption to existing trees in the proposed boundary. The building masses are setback from C Road South such that major mature trees on site will be preserved. The vegetation along C Road South will remain dense and intact. Public open spaces will be formed at the ground level around the preserved trees. The affected mature trees will be transplanted according to the latest standard.</p>	TPB, EPD, Residents, DC	Defence

Table 7.15 (Continued)

Issues	Action	Stakeholders	Strategies
Visual Issues	<p>The height limit of +30mPD and +60mPD at different areas will be strictly followed.</p> <p>The low block lies on the west of the site along the north-south direction and covers the MTRC reserve area below.</p> <p>The roof level of the low block does not exceed +30mPD, which satisfies the height restriction and enables unobstructed view from WR to the East. Landscaped roof garden will be provided on the roof of the low block, which also acts as visual enjoyment for residents from WR.</p> <p>There are also recessed areas in building form of the low block which form a number of sky courtyards. The sky courtyards help to prevent massiveness in building form and facilitate lighting and ventilation to inner part of the building, and facilitate surrounding's air ventilation.</p> <p>The high block, with roof level not exceeding +60mPD, is located on the South-East of the site. The disposition of the high blocks creates a welcoming entrance plaza at the southeast corner of the site.</p> <p>The high block has a central void which act as visual corridor and allow free air flow through the building mass to prevent wall effect.</p> <p>Below the central void is the main circulation system with escalators and landscaped terraces which brings people from the ground level entrance plaza to upper levels and landscaped open spaces above.</p>	TPB, LCSD, Residents, DC	Defence Compromise

Table 7.15 (Continued)

Issues	Action	Stakeholders	Strategies
Visual Issues	<p>Similar to the low block, recessed areas in building form are provided in the upper levels of the two high blocks, which form sky courtyards to prevent massiveness in building form and facilitate lighting and ventilation to inner part of the building, and facilitate surrounding's air ventilation.</p> <p>Only one among the six identified visual sensitive receivers (VSRs), Block D of WR, will experience limited visual impact, which the view to the southeast direction is affected. The impact will be minimized by variation in building forms, voids through building and landscaped sky courtyards. The roof garden on the low block of the project also enhances the aesthetic quality of view from Block D of WR.</p> <p>No significant visual impact was identified in the other 5 visual sensitive receivers.</p> <p>The project will also provide public open spaces within the site for public enjoyment. The proposed project demonstrates a good use of a currently idle site while preserving and enhancing existing visual quality of the site.</p>	TPB, LCSD, Residents, DC	Defence Compromise

7.3.5 Project 5 – the ST project

The ST project is in B University and likewise has to cater for the new 3+3+4 education reform policy in Hong Kong. However, unlike the A University in the PU project, B University is located in the suburb of Hong Kong, where there is much open space. This project is on a hill and with no surrounding buildings. Therefore, although this project is composed of a group of three buildings with a total of site area of up to 72,000m², the complexity of this project is relatively lower than the PU project. At the time of this research, the project was at the early construction stage.

In this project, the stakeholders were analysed from the main contractor's perspective, that is, from the same perspective as that of the last two school building projects (the T college project and the PU project) were analysed from the clients' point of view. The project manager identified the stakeholders and their interests in this project (Table 7.16). The project manager thought that a 'Leaser', which is a stakeholder to lease machines, materials etc. to the project team for project use, is an important stakeholder type, and should be included in the stakeholder classification. The stakeholders were prioritised by the project manager (see the fourth column in Table 7.16) by assessing their power, proximity and urgency. In terms of the stakeholder behaviour, the internal stakeholders, i.e. B University, CO Construction, Consultants, Subcontractors, were cooperative. The external stakeholders were either cooperative (e.g. Suppliers and Leasers), or neutral (e.g. the government departments, Staff and students, and Shaw Brothers (HK) Ltd). The external stakeholders only interacted with the project team when there were special issues raised. The engagement methods were relatively simple in this project. One reason is that this project was not complex.

The other reason could be this was the first time the project manager had been fully responsible for a project, and did not have sufficient experience in stakeholder engagement. When he saw the typology of approaches for stakeholder management, he was interested and started to apply some methods in his future works.

Table 7.16 The stakeholder management profile in the ST project

Stakeholder	Classification	Interests	Priority	Behaviour	Engagement levels	Engagement methods
B University	Client	Cost, Quality, Progress, Safety	1	Cooperative potential	Empower	Meetings, Email
CO Construction	Main contractor	Cost, Quality, Progress, Safety	2	Cooperative potential	Empower	Meetings, Email
Consultants	Consultants	Quality, Progress, Safety	3	Cooperative potential	Empower	Meetings, Email
Subcontractors	Subcontractors	Quality, Progress, Safety	4	Cooperative potential	Collaborate	Meetings, Email
Labour Department	Government	Safety, Environmental issues	5	Neutral attitude	Consult	Meetings, Interview
Suppliers	Suppliers	Cost, Quality, Progress	6=	Cooperative potential	Collaborate	Meetings, Email
Leasers	Leasers	Cost, Quality, Progress	6=	Cooperative potential	Collaborate	Meetings, Email
Environmental Protection Department	Government	Environmental issues	8=	Neutral attitude	Consult	Meetings, Interview
Buildings Department	Government	Quality, Safety	8=	Neutral attitude	Consult	Meetings, Interview
Police Force	Government	Quality, Safety	8=	Neutral attitude	Consult	Meetings, Interview
Staff and students	End users	Quality, Traffic conditions	11=	Cooperative potential	Consult	Meetings
Shaw Brothers (HK) Ltd.	Community	Traffic conditions	11=	Neutral attitude	Consult	Meetings, Interview

7.4 Discussion

7.4.1 Comments from the project management teams

7.4.1.1 Comments on the systematic framework

The results of the feedback questionnaire survey are shown in Table 7.17. The results indicated the five project management teams were satisfied with the framework in general. They were willing to use the framework as a systematic reference for future work. Two suggestions were also proposed by the project management teams of Project 4 and Project 5: (1) one type of stakeholder, Leaser, should be added in the framework; (2) one type of stakeholder behaviour, neutral attitude, should be added. These comments are considered to revise the systematic framework in Figure 5.3.

7.4.1.2 Comments on the typology of approaches

The analysed results in Table 7.17 indicated the project management teams considered the typology of approaches was useful, and it should be used as a supplement to the systematic framework. Comments were also given by the project management teams. Based on their experiences in stakeholder management, although the approaches in the typology can cover different methods in general, the management teams may name them differently, or combine different approaches in practice. For example, in Project 2, the project management team applied “online community forum”, which is a combination of “forum” and “website”. From this point of view, it is hard to say the typology includes all methods for stakeholder management. Nevertheless, the project management teams do think this typology is a relative comprehensive collection of approaches and they may develop their own

approach profile based on the typology according to the resources in projects and organisations.

Table 7.17 Results of the feedback questionnaire survey

Descriptions	Score *					Mean
	Project 1	Project 2	Project 3	Project 4	Project 5	
1. The systematic framework for stakeholder management in construction projects						
a) The structure of the framework is well-organised.	5	5	5	5	5	5.0
b) The framework comprises all activities in stakeholder management.	5	5	5	4	4	4.6
c) The activities in the framework are grouped appropriately.	4	5	4	4	5	4.4
d) The interrelationships of the activities in the framework are defined appropriately.	4	4	5	4	5	4.4
e) The stakeholder management process and information flow are easy to follow.	4	5	4	5	5	4.6
f) The framework will be used as a systematic reference for future work.	5	5	5	5	5	5.0
2. The typology of approaches for stakeholder management in construction projects						
a) The classification of the approaches in the typology is appropriate.	4	5	5	4	5	4.6
b) The approaches in the typology include all methods for stakeholder management in practice.	5	3	4	4	5	4.2
c) The descriptions of the approaches are appropriate and useful for learning about the approaches.	5	4	5	4	5	4.6
d) The typology is a supplement to the systematic framework.	5	4	5	5	5	4.8
e) The typology will be used a tool collection for stakeholder management.	4	5	5	5	5	4.8

* 5 - Strongly agree, 4 – Agree, 3 – Neutral, 2 – Disagree, 1 – Strongly disagree.

7.4.2 Inter-case analysis of the typology of approaches

A wide range of approaches for stakeholder management were used in these five projects, and to some extent, have demonstrated the applicability of the typology proposed in Chapter 6. The studies of the five projects confirm the findings from previous empirical studies that the selection of approaches should be suitable for a particular situation and depend on resources of the project, the nature of the project and the aims and objectives of the engagement.

In the first project (the T college project), the survey for Social Network Analysis (SNA) is shown to play a valuable role as an evaluation tool for the estimation of ‘whole-of-system’ stakeholder relationships. However, in the second and third projects, the project management teams gave two reasons for their preference not to use this kind of survey: (1) the projects included a number of sub-projects, and involved a substantial amount of stakeholders, so the collection of data for Social Network Analysis would be too time-consuming; (2) most of the stakeholders were external stakeholders, and the respondent rate, if a SNA survey was conducted, could not be guaranteed. Although these considerations were undoubtedly reasonable, the researcher considers that in all probability, the project management team hesitated to use surveys for Social Network Analysis in the project because this approach is in its infancy in the construction industry, and many practitioners, as yet, had not fully understood its significance. In the NSP project and the PU projects, instead of collecting data by a broad survey, the researcher analysed the interrelationships among stakeholders by using SNA, based on the management teams experience, the

application of SNA is still limited in practice and has many unsolved problems (e.g. the selection of analysis methods).

Similarly, because of the different resources and complexity of the projects, the Darzin software which was the software of choice, may not be appropriate for the T college project and the ST project. These two projects were relatively small projects with less than 20 stakeholder groups, so the approaches for stakeholder analysis and engagement were simplistic and conventional. Use of the software could possibly waste time and money for the project management team. A formal memo such as the example given in Tables 7.5 and 7.16 would be more useful for such teams.

A comparison of the engagement approaches used in the five projects reveals that more types of engagement methods were applied in highly complex projects. For example, in the NSP project, not only meetings, interviews and surveys were conducted, but also a hotline, news and website were established for the government departments and public's information. In contrast, in the T College project and the ST project which were considered to be medium complexity projects, only the basic engagement approaches (e.g. meetings, and interviews) were used. Of note is the fact that the project manager in the ST project had insufficient experience in stakeholder engagement and the management of stakeholders was basically random. Thus, based on these five projects, it can be assumed that the complexity of projects and the experience of the project management teams are contributory to the importance that is attached to stakeholder management.

The approach selection observed in the case studies, again, also confirms that there is no single, most effective approach, and usually a number of alternative approaches are

combined to analyse and engage stakeholders. A more obvious example is the combination of the outcomes from Stakeholder Circle and Social Network Analysis for re-prioritizing stakeholders in the T college project. The same opinion is also suggested by Chinyio and Akintoye (2008) in their studies in UK. They found that the respective approaches supplement each other and can be drawn or activated from a pool.

7.4.3 Inter-case analysis of the systematic framework

The systematic framework includes six activity groups, and is shown in Figure 5.3. The analysis in this section conducted based on these six activity groups.

7.4.3.1 Analysis 1 – precondition

In Figure 5.3, the precondition group is ‘managing stakeholders with economic, legal, environmental, cultural and ethical responsibilities’. Throughout the five project studies, all of the management teams considered the economic (e.g. cost, job opportunity), legal (in terms of the governments’ approval), and environmental (e.g. flora/fauna, noise, water quality, and dust) issues. Cultural and ethical responsibilities were selectively taken in to consideration, in accordance with the nature of each project. For example, in the CI project, the residents affected by the project were from at least nine non-English speaking countries including but are not limited to China, Italy, Turkey, Vietnam, Spain, and Arab-speaking countries; therefore, the differences in culture and tradition should be fully considered in that project. In the T College project, the stakeholder ‘Family and representatives of the ashes in the landscape’ was an ethical consideration by the project management team. This stakeholder wanted the

relatives' ashes to remain in the college grounds and the original placement to be uninterrupted. As the project manager stated, instead of moving the ashes, the landscape of the project structure was laid on an alternative place near the ashes.

7.4.3.2 Analysis 2 – stakeholder identification

The project management teams in the five projects knew their project objectives clearly. Based on their experience or historical records (e.g. Darzin), the teams identified stakeholders and their interests. A new group 'Leaser' was proposed by the project manager in the ST project.

A comparison of the five projects, showed that on one hand, the projects at the design stage, i.e. the CI project and the PU project, focused more on the external stakeholders (those who were outside of the performing project's management and staff structure); on the other hand, focus of the project management teams, at the construction stage, was on the internal stakeholders (e.g. consultants and contractors). This reflects the dynamic nature of stakeholder management in the project life cycle.

The complexity of projects can be identified by the number of stakeholders and their types. An increase in the stakeholder number, especially the number of external stakeholders, increases the project complexity. In the CI project, there were more than 400 stakeholders and most were external stakeholders; but in the ST project, only a total of 12 stakeholders were identified and almost half were internal stakeholders.

7.4.3.3 Analysis 3 – stakeholder assessment

The project management teams considered this ‘stakeholder assessment’ group as most important. This corresponds to the outcomes by factor analysis described in Section 4.6.5. Although the teams chose different methods (e.g. Stakeholder Circle software and Social Network Analysis) for the analysis, they all felt this group of steps helped them realise the underlying relationships of the stakeholders. The main considerations for method selection are the project stage and complexity.

One more type of stakeholder behaviour was identified by the management team in the PU project. That is ‘neutral attitude’. Though there was no stakeholder in the five projects who was a competitive threat, all the management teams agreed to keep this type in the framework for completeness.

Another finding, during the comparison, is that it is relatively easier to satisfy the stakeholders in medium complexity projects, for example, in the T College project, all the stakeholders were satisfied, and in the ST project, most stakeholders were cooperative except those with a neutral attitude. However, in the more complex projects, i.e. the CI project, the NSP project and the PU project, opposite voices or unsatisfied engagement statuses were evident, usually expressed by external stakeholders.

7.4.3.4 Analysis 4 – decision making

In terms of the engagement levels (inform, consult, involve, collaborate, and empower), basically the levels increased along with the stakeholders’ priority in the

five projects. As discussed in Section 7.4.2, more types of engagement methods were applied in the high complex projects.

Regarding the strategy types, namely, holding, defence, compromise, and concession, as shown in Figure 5.3, holding was not used in any of the five projects to deal with stakeholder requests. One reason may be that the identified stakeholders were all major stakeholders and the management teams could not ignore their interests. The team members indicated that compromise was the best way to solve problems.

7.4.3.5 Analysis 5 – action & evaluation

It should be noted that not all the studies in the five projects implemented the management activities in the actions & evaluation group. The main reason was time limitation. In the NSP project, although the project management team asked the research to develop a survey for stakeholder satisfaction, it takes time to send out the survey and collect data. In the CI project, the design stage will last for another two or three years. Within one or two months study, there is no response from the stakeholders. In contrast, in the PU project, which the researcher tracked for more than one year, the actions and the stakeholder responses were analysed in detail.

Another reason for the absence of this group of actions is the stage of the project at the research time. The T College project, NSP project and ST project were at the construction stage, and the works on site were comparatively regular and routine without big issues to solve. However, according to ninth characteristic of action research (in Table 3.3) proposed by Gummesson (2000), while action research is a

'live' case study being written as it unfolds, it can also take the form of a traditional case study written in retrospect, when the written case is used as an intervention into the organisation in the present (Coughlan and Coughlan, 2002). In such a situation the case performs the function of a 'learning history' and is used as an intervention to promote reflection and learning in the organisation (Kleiner and Roth, 1997). The project management teams in this research further confirmed Gummesson's opinion (2000), as these teams indicated that during the action research, they learnt how to manage stakeholders systematically and what approaches can be used for stakeholder analysis and engagement, and they would like to use the proposed framework (Figure 5.3) as a reference for their following works.

7.4.3.6 Analysis 6 – continuous support

The issues in this group considered as importance by the management teams during the action research. One more important issue summarised in the ST project is that increasing the project managers' knowledge and experience can contribute to the success of stakeholder management.

7.4.3.7 Summary of analyses 1 - 6

The project management teams in the five cases confirmed and evaluated highly the systematic framework given in Figure 5.3. They felt the framework systematically illustrated the activities and outcomes during the stakeholder management process. The framework subsequently will provide a reference for them, to enable the efficient conduct of stakeholder management during their daily work.

The case studies also confirmed the reiterated opinion that the purpose of the framework was as a reference for the project management team. Thus depending on the characteristics of the project, the stage of the project, and the resources in the organisation, some identified activities can be omitted. For example, the activity ‘formulating appropriate strategies to deal with the issues raised by the stakeholders’ was not implemented during several case studies owing to there being no special issues raised at that stage. Similarly, the stakeholder categories in Figure 5.3 do not aim to exhaust all kinds of stakeholders in construction, so the categories can be selected and revised depending on the project.

The limitations of the case studies in this research could not be avoided. They are as follows:

- Owing to time limitation, use of the framework had to be confined to one example, hence feedback from several attempts could not be obtained and therefore there was no basis on which to build improvements, either for stakeholder management use or to the framework itself.
- Owing to time limitation, changes in stakeholder influence, relationships and attitudes could not be analysed, although the changes did exist at different project stages, according to the project management teams’ statements. However, the project managers thought the use of this framework provided them with a clear summary of the stakeholder management tasks and outcomes in their projects and would be suitable for future use.

7.5 The Finalised Framework

Based on the findings of the action research, the systematic framework (Figure 5.3) was finalised with minor changes. The finalised framework is shown in Figure 7.8.

A comparison of the contents of Figure 5.3 and Figure 7.8 reveal the following changes:

- one type of stakeholder, Leaser, was added;
- one type of stakeholder behaviour, neutral attitude, was added;
- one action in the ‘continuous support’ group was added, that is ‘increasing the project managers’ knowledge and experience on stakeholder management’.

As indicated in the results of interviews in Hong Kong and Australia (Chapters 5 and 6), it needs to be clarified that stakeholder management is context-specific. Depending on the characteristics of the project, the stage of the project, and the resources in the organisation, the project management teams can choose suitable approaches and activities for their own use in practice.

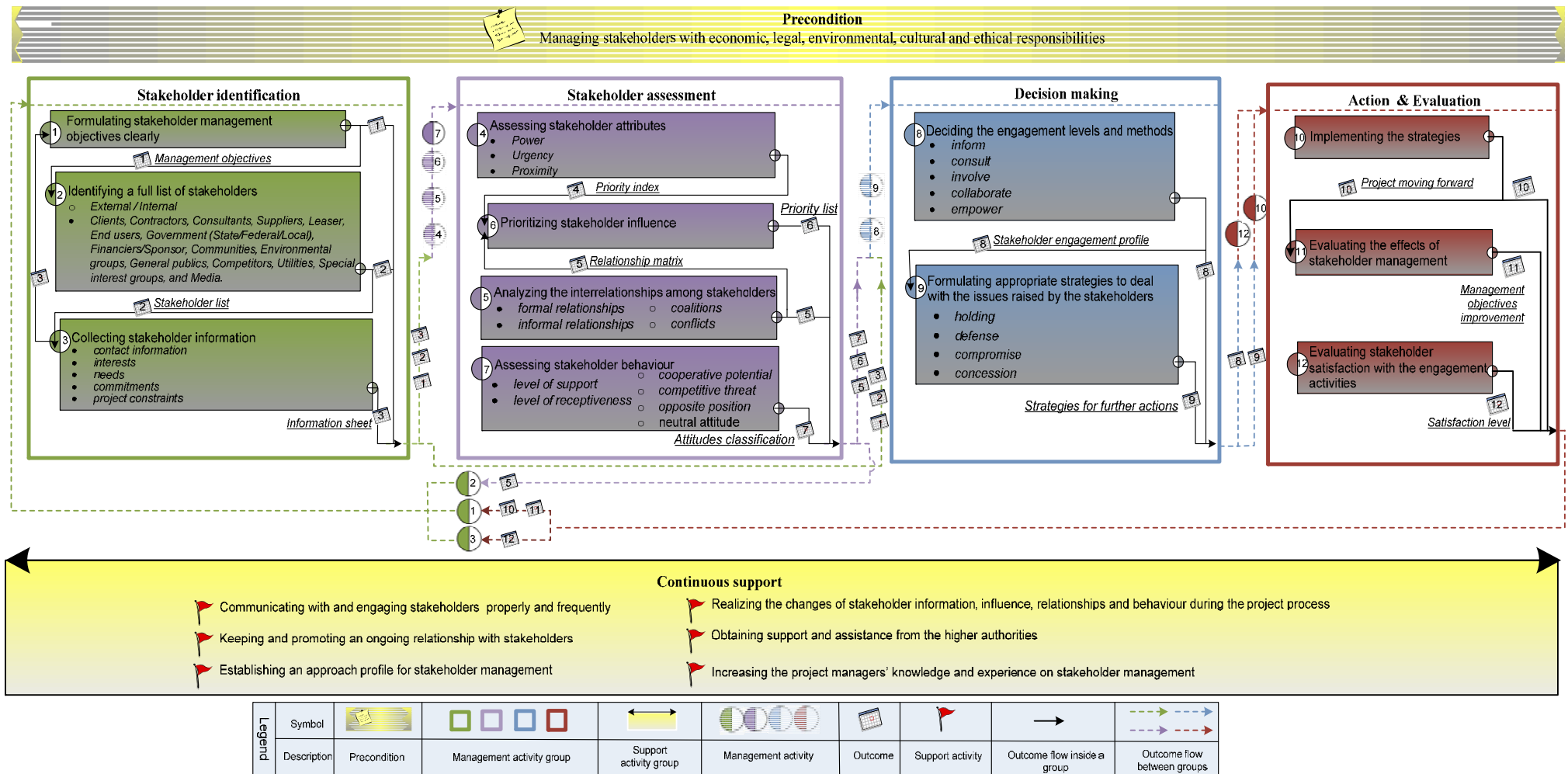


Figure 7.8 The finalised framework for stakeholder management in construction projects

7.6 Summary of the Chapter

The validation of the proposed framework and the typology of approaches have been described in this chapter. The research methods used in this chapter are action research and a feedback questionnaire survey based on five real case projects.

The projects were selected from two countries, Australia and Hong Kong. The project types include: building, urban renewal and infrastructure. Three are school building projects, each located in a different environment and each at a different construction stage of the project life cycle. The projects display medium and high complexities which involve relatively complex stakeholder relationships. Hence the management of stakeholders is challenging and the results useful to further knowledge in this area. These projects were analysed mainly from the client and contractor's perspectives primarily because they have a major part to play in project stakeholder communication.

The systematic framework in Figure 5.3 was supported, evaluated and approved by the project management teams in the five cases. They found the framework systematically illustrated the management and support activities and outcomes during the stakeholder management process and provided a reference and framework, from which the project management teams would benefit, by providing a daily/weekly reminder of steps and important factors to conduct stakeholder management during their work. The case studies also confirmed the reiterated opinion in Chapter 5 that the purpose of the framework was to use it as a reference for the project management team. Thus depending on the characteristics of the

project (project complexity), the stage of the project, and the resources in the organisation, some of the identified activities can be omitted.

A wide range of approaches for stakeholder management were used in these five projects, and these approaches, to some extent, demonstrated the applicability of the typology proposed in Chapter 6. Different approaches were applied in the five projects for stakeholder analysis and engagement. The results confirmed the findings of other empirical studies in Chapter 6, namely, that the selection of approaches should be suitable for a particular situation and depend on resources of the project, the nature of the project and the aims and objectives of the engagement. Besides the considerations in the approach selection, the studies also confirm that no single, suitably effective approaches is applicable to all projects, and that usually a number of alternative approaches are combined to analyse and engage stakeholders, as indicated in Chapter 6.

The framework for stakeholder management in construction projects was finalised based on the outcomes of the action research. The finalised framework describes a collection of diverse knowledge areas in a formalised and standardised view, and consists of six activity groups, i.e. precondition, stakeholder identification, stakeholder assessment, decision making, action & evaluation, and continuous support. For each of the groups, a number of activities have been defined with their logical sequence and outcomes. A total of 19 activities and their interrelations are illustrated by using different symbols and colours in the framework. One important conclusion is that stakeholder management is context-specific, which should be

used as a guideline for the practical stakeholder management in construction projects.

CHAPTER 8 CONCLUSIONS

8.1 Introduction

This chapter presents the conclusions of this research. The objectives of this research are re-introduced, the main findings are summarised, prior to the presentation of the contributions and significance of the research. The limitations of this research are indicated and recommendations for future research are suggested.

8.2 Review of Research Objectives

As has been made clear throughout this thesis, stakeholder management has been considered to be important by many scholars in recent years. Operational knowledge for the practice of stakeholder management is found in the literature, software packages, and, to a degree, in current practice. Despite this interest, the construction industry still has had a poor stakeholder management record over the past decades. A reason for this is that a formal and systematic project stakeholder management framework applicable to construction projects does not exist. Although many successful initiatives have been taken to improve the process of stakeholder management, it is felt that the development of a formal framework is necessary. Hence the aim of this research has been to:

- to develop a framework that aims at being a systematic and generic reference to the practice of stakeholder management in the construction industry.

In order to achieve the above aim, four objectives needed to be completed:

1. to identify and quantitatively prioritise Critical Success Factors (CSFs) associated with stakeholder management in construction projects;
2. to develop and refine a systematic framework for stakeholder management in construction projects;
3. to identify and validate a typology of approaches for stakeholder management;
4. to validate the systematic framework and the typology of approaches by using real-life projects..

8.3 Research Conclusions

The research objectives have been achieved mainly through a literature review, interviews, questionnaire surveys, and action research conducted in Hong Kong and Australia. Findings from the research can be categorised into the following four areas.

8.3.1 Critical success factors

As indicated in Chapter 4, an ordered and grouped set of CSFs and an initial framework for stakeholder management in construction projects were identified through a literature review, face-to-face interviews and a pilot study in Hong Kong.

Findings from this research show that all of the CSFs (refer to Chapter 4) are regarded as critical for the success of stakeholder management in construction projects by most respondents. There was a general consensus on the overall rankings of the CSFs among different respondents from the construction industry. A notable result is that the scores of the CSFs basically have positive or negative correlations with group

types (such as client, contractor and consultant), but these correlations are not particularly strong.

The detailed pairwise comparisons actually show the existence of a few differences in perceptions on the relative importance of the CSFs, even though there is a general consensus on the rankings of the CSFs among different respondents. The major difference in opinions of the relative importance of CSFs are between pairs of building works and civil works, public projects and private projects, private projects and quasi-public or regulated private projects, and client organisations and contractor organisations. Therefore, these results reflect that though the respondents share a certain degree of commonality with respect to the relative importance of the CSFs, their working priorities for managing stakeholders are context specific, depending on the nature, client sector, and cost of projects, and also on the nature of their organisations and the project manager's level in the organisation hierarchy.

8.3.2 A systematic framework for stakeholder management in construction projects

The 15 CSFs (as described in Section 8.3.1) were judged as necessary inclusions in an initial framework for successful stakeholder management in construction projects. The initial framework proposed consists of five activity groups: (1) precondition factor, (2) stakeholder assessment, (3) stakeholder identification, (4) decision making, and (5) continuous support.

Based on the initial framework, a systematic framework for stakeholder management in construction (refer to Chapter 5) was developed. Six activity groups were identified for the formulation of the main body of the framework. They include precondition, stakeholder identification, stakeholder assessment, decision making, action & evaluation, and continuous support. A total of 18 activities within these groups and also their interrelations were identified.

Experiences gained from the empirical studies indicate that the activities in the framework should be selected depending on the nature of the project and the choice is dependent on project management team's decision. It also needs to be noted that for best results the activities in the framework should be carried out iteratively during the overall project process.

8.3.3 A typology of approaches for stakeholder management

A typology has been proposed (refer to Chapter 6), based on a literature review, and empirical studies in Hong Kong and Australia, and comprises 30 different approaches.

Findings show that the success of a particular approach depends on internal and external factors, such as the nature of the project, the resources in the organisation, and the communication environments. No approach for stakeholder identification and analysis is perfect. The selection of the approaches is an art and a contingency approach as well, requiring practitioners' judgements of 'when, what, and how' to choose approaches to achieve project objectives. Each approach has individual

strengths and limitations. A combination of several approaches when necessary is the best way to manage stakeholders.

8.3.4 Validation of the systematic framework and the typology of approaches

A finalised framework for stakeholder management in construction projects has been proposed (refer to Chapter 7). The framework was based on the findings of action research from five real case projects, located in Australia and Hong Kong.

The effectiveness of the framework was confirmed as a useful reference by project managers in the case studies, all of whom felt that all steps and important factors had value. Thus stakeholder managers felt confident about selecting or rejecting activities, from the framework, which were appropriate to the characteristics of the project (project complexity), the stage of the project, and the resources in the organisation.

The applicability of the proposed typology of stakeholder management approach was tested on these five projects. Different approaches regarding stakeholder management were applied according to the demands of each project. This confirms the findings from previous empirical studies in Chapter 6 that the selection of approaches should be suitable for a particular situation and depend on resources of the project, the nature of the project and the aims and objectives of the engagement. Also confirmed, was the findings of other researchers which maintains that there is no single, most effective approach, and usually a number of alternative approaches are combined to analyse and engage stakeholders.

As indicated in Chapters 4 to 7, an important conclusion is that stakeholder management is context-specific, and that the finalised framework can be used as a guideline for the practical stakeholder management in construction projects

8.4 Contributions of the Research

The research has contributed to new knowledge and improved understanding of multi-stakeholders management in construction in at least four areas.

Firstly, this research provided a relatively completed list of CSFs, and introduced the main components of stakeholder management activities. These findings provide an assessment tool to evaluate the performance of stakeholder management, and can help project managers become more aware of their responsibilities and important issues for the management of stakeholders in a particular project

Secondly, this research developed a coherent and detailed process for stakeholder management, and emphasised the importance of analysing stakeholder interrelationship. These findings provide a reference for project managers to consider stakeholder management systematically, and ensure that project managers do not omit any step in stakeholder management process.

Thirdly, this research developed a typology of approaches, which comprises 30 approaches with their strengths and limitations, and demonstrated that the selection of the approaches is an art and a contingency approach. These findings can

facilitate the management practice, as practitioners can select appropriate approaches based on the description details in the typology.

Lastly, the demonstration of the usefulness of the ‘Social Network Analysis’ (SNA) technique, which can be used for the analysis of stakeholder interrelations, contributes to the development of stakeholder management theory from a ‘network’ perspective.

8.5 Limitations of the Research and Suggestions for Future Research

8.5.1 Limitations of the research

Limitations of the research need to be acknowledged as follows:

- (1) The development and refinement of the framework and practical approaches for stakeholder management are based on only twenty-one interviews and a questionnaire survey in Hong Kong and Australia. Since the interviewees and respondents were only from two regions, the findings are limited to the Hong Kong and Australia construction projects. The main reason of this limitation is time and resource shortages. The reason to choose Australia for validation of the findings got in Hong Kong is that Australia has mature management in construction field, which is similar to Hong Kong, but different cultural environments with Hong Kong. The culture of Hong Kong is oriental, which is very different from the western culture of Australia. This makes the proposed framework more meaningful to be used as a general reference for project managers from different culture backgrounds.

- (2) The questionnaire survey was conducted only in Hong Kong. This is because the aim of this research is to develop a systematic framework for stakeholder management in construction projects, but not to evaluate the effectiveness of approaches and activities

- (3) Data from these five projects are a snapshot of each project, and the framework was applied only in one phase of each project. Time limitation is the main reason. For example, in the NSP project, although the project management team asked the research to develop a survey for stakeholder satisfaction, it takes time to send out the survey and collect data. In the CI project, the design stage will last for another two or three years. Within one or two months study, there is no response from the stakeholders.

- (4) The investigation into the stakeholder impact on a project which results because of “the network of relationships” was not totally adequate. An attempt was made to analyse stakeholder interrelations, and thereby demonstrated the usefulness of the technique of ‘Social Network Analysis’ (SNA). However, the data collected from most projects was insufficient for a robust analysis. When collecting and reporting data for applying the SNA method, many practical and ethical challenges were evident. For instance, the secure promise of the required number of participating stakeholders is necessary, as missing data, obviously, make Sociograms give a less accurate portrayal of communities. Problems of data limitation may arise because of project managers’ reluctance to intrude upon key

stakeholders' time, or stakeholders reluctant to provide data because the anonymity of the data collected cannot be assured.

- (5) Various methods for analysing data from social network surveys exist, especially for centrality analysis. However, for both practitioners and researchers it remains difficult to establish which method is the most effective. Putting theory into practice is always a challenge. Project management teams in construction were reluctant to use Social Network Analysis, possibly because this approach is in its infancy and as yet there has been insufficient training in its use and practitioners do not fully understand its significance.

8.5.2 Suggestions for future research

Based on the limitations of my research, three suggestions are proposed for future studies. They are listed as follows:

- (1) The framework in this research should be further refined for other regions in construction field, for example, mainland China.
- (2) It will be necessary to conduct additional research on more projects, across complete project lifecycles to develop a robust theory about the links between the content of the framework and the performance of stakeholder management.
- (3) More research is necessary to enable analysis of the interrelations among stakeholders, especially as regards the application of SNA.

APPENDICES

Appendix A: Sample of Invitation Letter for Interviews

Dear,

Invitation for participating in an interview

I am a PhD Research Student at the Department of Building Real Estate of the Hong Kong Polytechnic University. My research title is “A Framework for Stakeholder Management in Construction Projects”. A detailed understanding of the process and approaches of stakeholder management in practice contributes the core subject of this research.

It would be extremely useful for me to learn about your expert experience and knowledge of managing stakeholders. In order to grasp an in-depth insight of the topic, I would be very grateful if you spend 30 minutes to allow me to conduct a short interview. The time and date will depend on your agenda, and the interview will basically cover the following ten questions:

- What is your understanding about project stakeholders?
- How do you identify project stakeholders and their interests?
- Which kind of information do you usually gather about project stakeholders?
- How do you analyse the interrelationship among stakeholders?
- How do you identify which stakeholders are more important than others?
- How do you classify stakeholders' behaviours?
- Which kind of strategies in practice do you use in dealing with the issues raised by the project stakeholders?
- How do you making decisions to deal with stakeholders?
- What approaches do you use to engage project stakeholders?
- Would you please describe the work processes for stakeholder management?
- What factors do you think contribute to the success of stakeholder management?

Please note that any information kindly provided by you in the interview will be kept strictly confidential and used solely for academic purposes. Your participation will significantly contribute to the success of this research and your help would be highly appreciated. Should you have any queries, please contact me at 27665874 or 0690 . Thank you for your kind attention and I am looking forward to receiving your reply soon.

Yours Sincerely,

Rebecca J. Yang
PhD Research Student
Dept. of Building and Real Estate
The Hong Kong Polytechnic University

Appendix B: Sample of Invitation Letter for Questionnaire Survey

Date

Receiver's Address

Dear,

Invitation for participating in a questionnaire survey

I am a PhD Research Student at the Department of Building Real Estate of the Hong Kong Polytechnic University. My research title is "A Framework for Stakeholder Management in Construction Projects". A detailed understanding of the process and approaches of stakeholder management in practice contributes the core subject of this research. It would be extremely useful for me to learn about your expert experience and knowledge of managing stakeholders.

I have developed a questionnaire about stakeholder management in construction projects. In order to grasp an in-depth insight of the topic, I would be very grateful if you could complete the questionnaire and kindly return it to me by email to 0690 _____, or by fax at 27645131 on or before 30 August 2008.

You can be assured that any information provided by you in the questionnaire survey will be kept strictly confidential and used solely for academic purposes. Your participation will significantly contribute to the success of this research and your help would be highly appreciated. Should you have any queries, please contact me at 27665874 or 0690 _____.

Thank you very much for your help in advance.

Yours Sincerely,

Rebecca J. Yang
PhD Research Student
Dept. of Building and Real Estate
The Hong Kong Polytechnic University

Appendix C: Sample of Questionnaire for Stakeholder Management

Please return the completed questionnaire to Ms. Rebecca Yang by email to 0690 , or by fax at 2764 5131 on or before 17 November 2008. Thank you very much for your cooperation.

Questionnaire on Stakeholder Management in Construction Projects

This questionnaire forms part of a research project, which studies the process and critical success factors for stakeholder management in construction projects.

Stakeholder: Any group or individual who can affect or is affected by the achievement of the firm's objectives. (Freeman, 1984)

Project stakeholders: Individuals and organisations who are actively involved in the project, or whose interests may be positively or negatively affected as a result of project execution or successful project completion. (PMI, 1996)

Instructions:

1. Please answer this questionnaire with reference to your previous experience about stakeholder management of one representative project that you have participated.
2. Please answer the questions by ticking the appropriate box(es), e.g. Building work.

Section A – Background Information

1. Nature of the project:

- Building work Civil work

2. Sector of the client of the project:

- Public Private
 Quasi-Public or Regulated Private (e.g. MTRC)

3. The estimated project cost:

- ≥ \$200 million < \$200 million & > \$100 million
 ≤ \$ 100 million

4. Your role in the project:

- Client Contractor Consultant

5. Your position in the organisation:

- Project Director Chief Project manager/Architect/Engineer
- Senior Project manager/Architect/ Engineer
- Project manager/Architect/ Engineer
- Others, please specify:

Section B – Your stakeholder management practice

6. Which of the following statement best describes your stakeholder management practice?

- I have an established procedure for stakeholder management in formal ways.
- I have an established procedure for stakeholder management in my mind.
- I have no established procedure for stakeholder management. Stakeholder management is carried out as seems appropriate in each project.

Section C – Key issues about stakeholder management

7. To what extent do you think the following individual or organisations are project stakeholders?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a) Clients	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) End users	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Contractors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Consultants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Governments/ Other departments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Local communities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) District councils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) General publics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Financiers/Sponsors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Utilities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Special interest groups	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) Suppliers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) The Media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n) Competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o) Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. To what extent do you think the following methods are effective to identify project stakeholders?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a) Personal past experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Asking the obvious/identified stakeholders to identify others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Guidelines in the organisation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Professional services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Directed by higher authorities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9 To what extent do you think the following issues about stakeholders should be addressed?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a) Their interests on the project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Their needs in the project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Their commitments to the project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Their constraints about the project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

10. To what extent do you think the following methods are effective to analyse stakeholders' information?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a) Questionnaires	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Interviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Focus group meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Personal past experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Public consultation (e.g. Gazette)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Formal memos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. To what extent do you think the following methods are effective to analyse the interrelationships (Conflicts/Coalitions) among project stakeholders?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a) Personal past experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Workshops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Interviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Public engagement approaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Surveys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. How do you classify the stakeholders' behaviour (You can select more than one box.)?

- Cooperative potential Competitive threat
 Opposite position Others:

13. To what extent do you think the following factors are important in your decision making when there are conflicts among stakeholders?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a) The stakeholders' power to the project	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The urgency of the stakeholders' requests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Proximity of the project (It can be rated from "directly working in the project" to "remote from the project")	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The directives from higher authorities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. Which methods did you use to make decisions to deal with stakeholders?

Please rate the methods based on a scale of 1-5 (where 1 represents "Never use"; 5 represents "Always use"; and select "N/A" if you are uncertain in rating any statement).	1	2	3	4	5	N/A
	Never use ← → Always use					
a) Directed by higher authorities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Negotiation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Using guidelines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Any others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

15. To what extent do you think the following types of strategies should be used in dealing with stakeholders?

Strategy type	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Holding: Either fighting against addressing a stakeholder's issues or completely withdrawing and ignoring the stakeholder.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Defence: Doing only the minimum legally required to address a stakeholder's issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compromise: Negotiating with stakeholders and trying to get a compromising solution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Concession: Implementing stakeholders' requirements or yielding to stakeholders' demands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. To what extent do you think the following methods are effective to engage stakeholders?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a) Meetings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Workshops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Negotiations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Social contacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Public engagement approaches	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Surveys	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. To what extent do you think the following factors are critical to the success of stakeholder management?

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
a) Managing stakeholders with social responsibilities (economic, legal, environmental and ethical)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Formulating a clear statement of project missions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Identifying stakeholders properly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Understanding area of stakeholder interests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Exploring stakeholder needs and project constraints	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Assessing stakeholder behaviour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Predicting stakeholder influence accurately	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. (Continued)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
h) Assessing stakeholder attributes (power, urgency, and proximity)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Analysing conflicts and coalitions among stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Resolving conflicts among stakeholders effectively	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Keeping and promoting a good relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) Formulating appropriate strategies to manage stakeholders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) Predicting stakeholder reactions for implementing the strategies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n) Analysing the change of stakeholder influence and relationships during the project process	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o) Communicating with and engaging stakeholders properly and frequently	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p) Others:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section D – Remarks about the questionnaire

18. Overall, do you think the issues in this questionnaire have covered all activities of stakeholder management in construction projects?

Yes

No Please specify: _____

Optional: If you wish to have a copy of the report on research findings, please provide your contact details.

Your name: _____
 Organisation name: _____
 Address: _____

Telephone No: _____ Fax No: _____
 Email address: _____

End of the questionnaire

Thank you for your valuable contribution

Appendix D: Project Characteristics and System Scope Levels

(Source: Shenhar and Dvir, 2004)

	Assembly (low complexity)	System (medium complexity)	Array (high complexity)
Definition	A collection of components and modules in one unit, performing a single function	A complex collection of assemblies that is performing multiple functions	A widespread collection of systems functioning together to achieve a common mission
Examples	A system's power supply; a single functional service	A complex building; a radar; an aircraft; a business unit	A city's highway system; an air fleet. A national communication network; a global corporation
Customers	Consumers or a subcontractor of a larger project	Consumers, industry, public, government or military agencies	Public organisations, government of military agencies
Form of purchase and delivery	Purchase or a simple contract; contract ends after delivery of the product	Complex contract; payments by milestones; delivery accompanied by logistic support	Multiple contracts; sequential and evolutionary delivery as various components are completed
Project organisation	Performed within one organisation, usually under a single functional group. Almost no administrative staff in project organisation	A main contractor, usually organised in a matrix or pure project form many internal and external subcontractors technical and admin staff	Umbrella organisation-usually a program office to coordinate subprojects; many staff experts: technical, admin, finance, legal
Planning	Simple tools, often manual; rarely more than 100 activities in the network	Complex planning; advanced computerized tools and software packages; hundreds or thousands of activities	A central master plan with separate plans for subprojects; advanced computerized tools; up to ten thousand activities

Appendix D (Continued)

	Assembly (low complexity)	System (medium complexity)	Array (high complexity)
Control and reporting	Simple, in-house control; reporting to management or main contactor	Tight and formal control on technical, financial, and schedule issues; review with customers and managers	Master or central control by program office; separate additional control for subproject; many reports and meetings with contractors
Documentation	Simple, mostly technical documents	Many technical and managerial formal documents	Mostly managerial documents at program office level; technical and managerial documental at lower level
Style, attitude, and concern	Mostly informal style; family like atmosphere	Formal, bureaucratic; informal relationship with subcontractors, customers; political and inter-organisational issues	Formal, tight bureaucracy; high awareness to political environmental and social issues

Appendix E: Feedback Questionnaire on the Systematic Framework and the Typology of Approaches

INSTRUCTION: Please put a tick in the appropriate boxes in Section A and input text into the space provided in Section B.

Section A

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1. The systematic framework for stakeholder management in construction projects					
a) The structure of the framework is well-organised.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The framework comprises all activities in stakeholder management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The activities in the framework are grouped appropriately.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The interrelationships of the activities in the framework are defined appropriately.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) The stakeholder management process and information flow are easy to follow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) The framework will be used as a systematic reference for future work.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The typology of approaches for stakeholder management in construction projects					
a) The classification of the approaches in the typology is appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) The approaches in the typology include all methods for stakeholder management in practice.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) The descriptions of the approaches are appropriate and useful for learning about the approaches.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The typology is a supplement to the systematic framework.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) The typology will be used a tool collection for stakeholder management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section B

3. What are your comment(s) or suggestion(s) to improve the systematic framework?

4. What are your comment(s) or suggestion(s) to improve the typology of approaches?

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