

A Framework for Stakeholder Management in Construction Projects

Rebecca J. Yang¹

Geoffrey Q.P. Shen²

Abstract: This paper presents a systematic and generic framework reference for the practice of stakeholder management in the construction industry. It contains findings from empirical studies, comprising six interviews, a pilot study, a questionnaire survey in Hong Kong and fifteen interviews in Australia. Six activity groups (i.e. precondition, project data identification, stakeholder estimation, decision making, action and evaluation, and sustainable support) and a total of 18 activities within these groups and their interrelations formulate the main body of the framework. The proposed framework was validated by five real-life projects, the results of which confirm the applicability of the proposed framework. This study serves as a reference for project management teams to systematically manage stakeholders in construction projects.

Keywords: Framework, Stakeholder management, Construction, Empirical studies, Action research.

Introduction

Many scholars have considered stakeholder management to be important in construction in recent years (e.g. Newcombe, 2003; Olander and Landin, 2005; Chinyio and Akintoye, 2008; Yuan et al., 2010), and as a result has become increasingly professionalized. Operational knowledge of the practice of stakeholder management is found in 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 (Loosemore, 2006). One reason for this, as stated by Karlsen (2002), is the lack of an established systematic framework for project stakeholder management. There are no routine functioning strategies, plans, methods or processes. The result is random stakeholder management.

¹ School of Architecture and Built Environment, Deakin University

² Department of Building and Real Estate, Hong Kong Polytechnic University

33

34 Although many initiatives within the stakeholder management community have made
35 significant progress to improve the process, a formal framework has yet to be fully
36 developed for construction projects (Chinyio and Akintoye, 2008). This leads to a
37 research question, which is “what the key components and their interrelationship are
38 in a systematic stakeholder management framework for construction projects”.
39 Previous studies have concentrated on either one stage/issue of stakeholder
40 management, or proposed several stages which are not coherent or not detailed
41 enough in practice. One reason for the lack of an established formal stakeholder
42 management framework could be the multiplicity of tasks and parties involved in a
43 construction project. Such projects are subject to many changes; hence although
44 informal project stakeholder management is inadequate, the task of formalising a
45 framework is difficult to complete.

46

47 Project stakeholder management should provide the project team with adequate
48 support for the selection of realistic options in the management of project
49 stakeholders. Therefore, a formal approach needs to be synthesised and developed in
50 order to improve the performance of the stakeholder management process in
51 construction projects.

52

53 To address the abovementioned research question, this study presents a framework
54 which offers a systematic and generic reference for stakeholder management in the
55 construction industry. The two main objectives of this research are: (1) to develop a
56 systematic framework for stakeholder management; and (2) to validate and implement
57 the proposed framework in construction projects. These objectives have been
58 achieved through a literature review, interviews, questionnaire surveys, and action
59 research, all targeting construction projects. It should be noted that as the findings in
60 this study are based on a literature review, and empirical studies in Hong Kong and
61 Australia, they may also be considered limited in scope. Nevertheless, the study
62 contributes to the body of knowledge on stakeholder management, especially the
63 framework for stakeholder management, organized as follows:

64 First, a review of stakeholder management in previous studies is conducted.

65 Second, the methods for the investigation of the framework for stakeholder
66 management in construction are set out.

67 Third, the findings from the empirical studies in Hong Kong and Australia are
68 presented.

69 Fourth, a systematic framework for stakeholder management based on the findings in
70 the empirical studies, is described.

71 Finally, action research was conducted to illustrate the application of the framework
72 for stakeholder management. The outcomes of the action research are discussed and
73 summarized.

74

75 **Literature review**

76 **The development of stakeholder theory**

77 The origin of 'stakeholder' in management literature can be traced back to 1963,
78 when the word appeared in an international memorandum at the Stanford Research
79 Institute (Freeman, 1984). Thereafter the concept diversified into four different fields
80 (Elias et al, 2002): corporate planning, systems theory, corporate social responsibility
81 and organisation theory.

82

83 The next landmark in the development of stakeholder literature was the publication of
84 Strategic Management: a Stakeholder Approach by Freeman (1984). The
85 term 'stakeholder' is defined as "any group or individual who can affect or is affected
86 by the achievement of the firm's objectives" (Freeman, 1984). Freeman not only
87 acknowledged the importance of stakeholder management, but also developed a
88 framework. In response to this work, scholars, in general, studied stakeholder theory
89 from three aspects, i.e. the descriptive/empirical aspect (seeking to describe and
90 explain the methods and process in stakeholder management), the instrumental aspect
91 (exploring the impact of stakeholder management on the achievement of corporate
92 performance goals), and the normative aspect (seeking to examine moral and
93 philosophical guidelines for management; these were brought together by Donaldson
94 and Preston in 1995).

95

96 Subsequently, two models were proposed, one by Mitchell et al. (1997) and the other
97 by Rowley (1997) based on the concept of the "dynamics of stakeholders". Mitchell
98 et al. (1997) proposed that classes of stakeholders could be identified by the
99 possession, or the attributed possession, of one or more of three relationship attributes:

100 power, legitimacy and urgency. By analysing the possession of these three attributes
101 project managers can realise the change of stakeholders' salience. Instead of
102 analysing stakeholder attributes, Rowley (1997) focused on the "network of
103 stakeholder relationships". He highlighted that stakeholder relations are not static,
104 they are dynamic and in a constant state of flux. The attitudes and actions of
105 stakeholders may change at different stages. This reflects the dynamic nature of the
106 relationship between stakeholders.

107

108 During the last decade more stakeholder theories and empirical studies have emerged.
109 In construction, Bourne (2005) proposed the stakeholder circle methodology; Olander
110 (2006) applied the stakeholder impact matrix in practice; and in 2008, a group of
111 scholars, such as Chinyio, Rowlinson, Akintoye, Skitmore and Walker, presented
112 their findings on stakeholder management in a special issue of 'Construction
113 Management and Economics'. These specific studies have contributed to the
114 development of stakeholder theory and also formed a theoretical foundation for this
115 research.

116

117 **Stakeholder management in construction projects**

118 A construction project comprises a series of complex activities. Different stakeholders
119 have different levels and types of investments and interests in the project in which
120 they are involved. Engaging stakeholders prior to "the time a decision is reached" is
121 considered crucial for construction projects (Eschenbach and Echenbach, 1996).
122 According to Cleland (1999) and Karlsen (2002), managing multiple stakeholders and
123 maintaining an acceptable balance between their interests is crucial to successful
124 project delivery. Olander and Landin (2005) opined that a negative attitude to a
125 construction project by stakeholders can severely obstruct its implementation. Such
126 obstruction will lead to overruns in time and cost, and poor quality, due to conflicts
127 and controversies concerning the design and implementation of the project. Their
128 study reveals that an evaluation of the demands and influence of the stakeholders
129 should be considered as a necessary and important step in the planning,
130 implementation, and completion of any construction project. Jergeas et al. (2000) also
131 suggested that the purpose of the project needs to be understood, and feedback from
132 stakeholders be solicited in order to achieve alignment between the stakeholders and
133 project team. Many problems can be overcome if the stakeholders are actively

134 engaged in early planning and integrated into the project team, and if a systematic
135 approach is used to identify and manage stakeholders in the project delivery process
136 (Jergeas et al., 2000). They indicated that this was the only way expectations can be
137 managed, hidden agendas brought to the surface, and project priorities established.

138

139 However, according to Rowlinson et al.'s study (2010), "the issue of stakeholders and
140 their management was paid scant regard; the government was used to making
141 decisions on development rather than consulting widely with the major players."
142 Rowlinson et al. (ibid) further stated that, in the construction industry, stakeholder
143 management and relationship management were still in their infancy. The
144 management of the stakeholders was rather ad hoc, since there are no 'well-
145 functioning' strategies, plans, methods or processes. Most recently, Widén et al.
146 (2013) also emphasised that a structured process of stakeholder engagement has to be
147 an integral part of the construction innovation process.

148

149 It appears that previous studies either concentrated on one stage of stakeholder
150 management, such as stakeholder identification in Smith and Love (2004), and
151 stakeholder influence analysis in Newcombe (2003), or proposed several stages which
152 are not coherent or not detailed enough to be used in practice. For example, Karlsen
153 (2002) considers "identification of stakeholders" and "analysing the stakeholders" are
154 the first two stages for stakeholder management; however, he ignored the stage of
155 "gathering information about stakeholders", which is considered important by Young
156 (2006). Therefore strong indications exist to suggest a formal approach should be
157 further synthesised and developed in the interest of both the project and its
158 stakeholders.

159

160 This research defines stakeholder management as a process comprising problem
161 solving activities, minimizing project risks, and facilitating projects to move forward
162 in a timely and effective manner.

163

164 **Research methods**

165 This research is conducted in two phases with two objectives.

166

167 **Phase 1 - an iterative development and refinement process**

168 Six semi-structured interviews were conducted in the initial stage of the research, with
169 the aim of identifying stakeholder management practice in Hong Kong. The six
170 experts were selected because they all had more than 10 years' experience in
171 stakeholder management on construction projects, had different roles in projects
172 (client, consultant and contractor), and were from different types of organizations
173 (government, education and company). A semi-structured approach was adopted in
174 the interviews. Questions used in the interviews included but were not limited to:

- 175 • Who are the stakeholders in construction projects?
- 176 • Which kind of information do you usually gather about project
177 stakeholders?
- 178 • How do you classify stakeholders' behaviours?
- 179 • How do you identify which stakeholders are more important than
180 others?
- 181 • Which kind of strategies in practice do you use in dealing with the
182 issues raised by the project stakeholders?
- 183 • What factors do you think contribute to the success of stakeholder
184 management?

185

186 Content analysis was used for 'extracting and corroborating meaning from the
187 interviews' (Chinyio and Akintoye, 2008). An initial list of key issues during the
188 stakeholder management process was synthesized, and the first version of the survey
189 questionnaire was subsequently developed with the aim of further verifying the
190 outcomes from the interviews through a broad survey.

191

192 Prior to sending questionnaires, a pilot study was conducted to ensure the suitability
193 and comprehensiveness of the questionnaire. Two project managers, a client
194 representative and a contractor, were asked to complete the preliminary questionnaire.
195 Their suggestions were incorporated into the final version of the questionnaire. The
196 main part of the questionnaire rated the importance of key issues during the
197 stakeholder management process according to a five-point Likert scale (1 = strongly
198 disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree) or a yes/no selection.
199 The full-scale survey was conducted in Hong Kong, and its respondents were project
200 managers selected from internet information, newspapers, magazines, membership

201 lists of two institutes (i.e. the Association for Project Management Hong Kong, and
202 the Hong Kong Construction Association), and registered lists (including the
203 Authorized Architects' register, the Authorized Engineers' register, the Authorized
204 Surveyors' register, and the General Building Contractors' register) published by the
205 Buildings Department of Hong Kong.

206

207 A total of 654 copies of the questionnaire were delivered to the potential respondents.
208 The majority of copies were sent by mail, although for those potential respondents
209 whose mailing address was unknown copies were sent by email. About three weeks
210 were given for the respondents to complete and return the questionnaire. The ways for
211 returning the questionnaire comprised mail, email and fax. A total of 183 completed
212 questionnaires were received consisting of 81 respondents from client organizations,
213 45 from contractor companies and 57 from consultant organizations. The response
214 rate was 28%, which was consistent with 'the norm of 20–30% with most
215 questionnaire surveys in the construction industry' (Akintoye, 2000). The results of
216 this survey show the importance of key issues during the stakeholder management
217 process, and the main components in an initial framework for stakeholder
218 management in construction projects.

219

220 The findings from the empirical studies in Hong Kong were validated and revised by
221 fifteen interviewees in Australia. Australia has mature management in the
222 construction field and as such was suitable to validate the data collected from Hong
223 Kong. The Australian construction industry is similar to Hong Kong, but possesses a
224 different cultural environment. The culture of Hong Kong is oriental, whereas the
225 dominant culture in Australia is western. This potentially allows the proposed
226 framework to be used as a general reference for project managers from different
227 cultural backgrounds. The 15 experts, whose experiences on stakeholder management
228 ranged from 11 to 20 years, worked for governments, educational organizations,
229 companies or non-government organizations. They were not only from the
230 construction industry, but working for general management, community relationships
231 and business. Stakeholder management in construction projects is closely related to
232 general management and community engagement. However, differences in these
233 areas potentially occur principally due to the complexity of construction projects.
234 Nonetheless, a wider investigation of stakeholder management, which incorporates

235 the techniques and findings common to non-construction industries, could make a
236 sound basic contribution to the eventual establishment of a systematic framework in
237 construction. The same questions and interviewer, who is familiar both western and
238 eastern cultures, were used during the fifteen interviews as those in Hong Kong, and
239 in addition, outcomes from the empirical studies in Hong Kong were presented to and
240 discussed with the interviewees. It should be noted that due to time constraints, a
241 questionnaire survey was not conducted in Australia. This is a limitation of this study
242 which is described in the conclusion section. Based on the outcomes in the empirical
243 studies in Hong Kong and Australia an initial framework for stakeholder management
244 in construction was developed.

245

246 **Phase 2 - action research to validate the systematic framework in five real-life** 247 **projects**

248 The second objective of this research is to validate the proposed framework, and as
249 such the researchers were obligated to test the outcomes in practice and be involved in
250 projects to help project teams manage their stakeholders. Action research, which
251 focuses on research in action rather than research about action (Coughlan and
252 Coughlan, 2002), was chosen as suitable in this phase of the study. Five real case
253 projects are used to this effect. The outcome from this phase is a finalised framework
254 for stakeholder management in construction. The overview of the case projects will be
255 described in the “research finding from action research” section.

256

257 **Research findings from the iterative development and refinement** 258 **process**

259 **Findings from the empirical studies in Hong Kong**

260 A list of key issues arising during the stakeholder management process was identified
261 through the interviews and questionnaire survey in Hong Kong (Table 1). The relative
262 agreements of the respondents were analysed with the aid of the Statistical Package
263 for Social Sciences (SPSS) computer software by calculating the mean values and
264 conducting factor analysis.

265

266

267

(Insert Table 1 here)

268 In terms of construction stakeholders and their information, the interviewees
269 identified a number of groups relating to the construction projects. These groups
270 include: clients, contractors, consultants, suppliers, end users, Government,
271 financiers/sponsor, communities, district councils, general public, competitors,
272 utilities, special interest groups and the media. Besides the basic contact information
273 of these stakeholders, the interviewees also collected information on stakeholder
274 interests, needs, and constraints to the project, which are the same as the findings of
275 previous studies, such as Cleland (1999) and Freeman et al. (2007). According to the
276 mean values in Table 1, the respondents agreed that most of the fourteen groups were
277 project stakeholders and all their interests, needs, commitments and constraints should
278 be gathered. The main discrepancy was in the respondent opinions regarded the
279 inclusion of ‘competitors’ and ‘the media’. This is consistent with similar findings in
280 the literature. Donaldson and Preston (1995) and Olander and Landin (2005) present
281 the media as typical positive or negative influencers, but obviously not as
282 stakeholders in the literal sense. However, according to Pinto (1998), a stake can be a
283 moral or legal claim, rather than a literal or practical claim, and it is evident that the
284 media can have a tremendous impact on project activities (Olander, 2007). Similarly,
285 based on a survey in Norway, Karlsen (2002) included ‘competitors’ and ‘the media’
286 in the stakeholder list as well. The aim of categorising the project stakeholders is to
287 help the project teams identify stakeholders as completely as possible; hence
288 ‘competitors’ and ‘the media’ are included in this research.

289

290 In regards to ‘prioritising stakeholders’, three stakeholders’ attributes, i.e. power,
291 urgency and proximity, were considered important by the interviewees. According to
292 the results in Table 1, ‘stakeholder power’, or “the ability to control resources, create
293 dependencies, and support the interests of some organization members or groups over
294 others” (Mitchell et al., 1997), is considered to be the most important. This is in line
295 with many previous studies, such as Winch and Bonke (2002), Newcombe (2003),
296 and Bourne and Walker (2005). Meanwhile, the interviewees also implied that they
297 prioritised stakeholders based both on their intuitive experience and the directives
298 from higher authorities. ‘The directives from higher authorities’ are ranked second for
299 prioritizing stakeholders, possibly because more than half of the respondents (102 of
300 183) were contractors and consultants, and hence, clients’ instructions were important

301 directives. Since the mean values of the four factors are more than three, they are all
302 important for ‘prioritizing stakeholders’.

303

304 In terms of stakeholder behaviour, and the strategies employed to deal with
305 stakeholders, the interviewees thought that the behaviour and strategies adopted were
306 dependent on different situations and issues, and these two steps are indispensable.
307 Three types of stakeholder behaviour and four types of strategies were identified by
308 the interviewees:

- 309 ○ Stakeholder behaviour
 - 310 • Cooperative potential: The behaviours that would help the project
311 achieve its objective on the issue in question;
 - 312 • Competitive threat: The behaviours that would prevent or help to
313 prevent the project’s achieving its goal;
 - 314 • Opposing position: The behaviour that would be observed when the
315 stakeholders totally disagreed with the project team.
- 316 ○ Strategies
 - 317 • Holding: either fighting against addressing a stakeholder’s issues or
318 completely withdrawing and ignoring the stakeholder;
 - 319 • Defence: doing only the minimum legally required to address a
320 stakeholder’s issues;
 - 321 • Compromise: negotiating with stakeholders and trying to reach a
322 mutually acceptable solution;
 - 323 • Concession: implementing stakeholder requirements or yielding to
324 stakeholder demands.

325 86% of respondents agreed with the inclusion of the characteristic, ‘cooperative
326 potential’; while only half, or less than half, of the respondents chose to include
327 ‘competitive threat’ and ‘opposite position’. The implication of this selection
328 percentage implies that the respondents considered most stakeholders to show
329 potential support or acceptance of projects. The positivity of such acceptance
330 encourages the project managers to try for a ‘win-win’ situation, based on cooperation,
331 rather than confrontation. This finding is confirmed in Table 1 by the response to the
332 question regarding strategies since the respondents usually chose compromise or
333 concession to deal with essential stakeholder requirements. Most of the respondents

334 disagreed with the 'holding' strategy, or 'do nothing and let the situation take care of
335 itself'. This indicates that it is felt that project managers should deal with every issue
336 raised by stakeholders in an appropriate manner.

337

338 The interviewees identified fifteen factors in regards to the critical factors for
339 successful stakeholder management (as shown in Table 1). Analysis of the survey
340 response data produced the mean for the 15 factors ranging from 3.80 to 4.43. This
341 indicates that all respondents considered these 15 factors critical for stakeholder
342 management in construction projects. The highest ranking by all respondents was
343 'managing stakeholders with social responsibilities (economic, legal, environmental
344 and ethical)' (mean value = 4.43) which is therefore considered an influential factor to
345 the success of stakeholder management. 'Exploring stakeholders needs and project
346 constraints' and 'communicating with and engaging stakeholders properly and
347 frequently' (mean value = 4.26) were both ranked as the second most influential
348 factors. The fourth ranked factor was 'understanding areas of stakeholder interests'
349 (mean value = 4.22), whereas the fifth ranked factor was 'identifying stakeholders
350 properly' (mean value = 4.21), and the sixth factor was 'keeping and promoting a
351 good relationship with stakeholders' (mean value = 4.17). These factors were the top
352 six for stakeholder management in Hong Kong construction projects. In addition, it is
353 worth noting that all respondents perceived 'predicting stakeholder reactions for
354 implementing the strategies', 'analysing the change of stakeholder influence and
355 relationships during the project process' and 'assessing stakeholder behaviour' as the
356 least influential factors.

357

358 In order to represent relationships among sets of factors, factor analysis was used.
359 According to Pallant (2001), two main issues have to be considered in determining
360 whether a data set is suitable for factor analysis: sample size and the strength of the
361 relationship among the factors. In terms of sample size, Nunnallyy (1978)
362 recommends a 10 to 1 ratio; that is, "10 cases for each item to be factor analysed".
363 The minimum number for factor analysis suggested by Pallant (2001) is 150. There
364 were 15 factors in this survey, so according to Nunnallyys' recommendation (1978),
365 150 respondents should be obtained. There were 183 respondents in this study and
366 therefore is above the recommended limit, and adequate for factor analysis. In terms
367 of the strength of relationship among the factors, the Bartlett's test of Sphericity

368 (Bartlett, 1954) and the Kaiser-Meyer-Olkin (KMO) (Kaiser, 1970) were
369 recommended. The Bartlett's test of Sphericity is significant ($p < 0.05$), and the value
370 of the KMO index is above 0.6, suggesting the data set is suitable for factor analysis.
371 In this survey, Bartlett's test of Sphericity was significant ($p < 0.05$) and the value of
372 the KMO index was 0.870 (above 0.6). The results of these tests confirmed that the
373 data were appropriate for factor analysis.

374

375 A four-component solution was produced based on Varimax rotation of principal
376 component analysis (Table 2). These four factor groupings with Eigenvalues greater
377 than 1.000 explain 61.532% of the variance. Each of the factors belonged to only one
378 grouping, with the value of factor loading exceeding 0.50 (Norusis, 1992; Li et al.,
379 2005; Aksorn and Hadikusumo, 2008). It was noticed that C1 "managing stakeholders
380 with social responsibilities (economic, legal, environmental and ethical)" does not
381 belong to any of the factor groupings. The residual 14 factors can be grouped into
382 four principal components, and the corresponding importance ranking of the extracted
383 components was: (1) stakeholder assessment, (2) stakeholder identification, (3)
384 decision making, and (4) continuous support.

385

386 *(Insert Table 2 here)*

387

388 Based on the results of factor analysis, an initial framework for stakeholder
389 management in construction is proposed (Refer to Yang et al., 2009). Although C1
390 "managing stakeholders with social responsibilities (economic, legal, environmental
391 and ethical)" was not grouped into the four components, it was ranked first among the
392 15 critical factors for stakeholder management in construction projects. These indicate
393 that it is the priority factor for stakeholder management success. Owing to the
394 significance of this factor, this factor is hence named as the 'precondition factor' for
395 stakeholder management; that is, stakeholder management should be conducted with
396 social (economic, legal, environmental and ethical) responsibilities.

397

398 Therefore, an initial framework for stakeholder management in construction
399 comprises five components, i.e. precondition factor, stakeholder assessment,
400 stakeholder identification, decision making, and continuous support. Since the factor
401 regarding social responsibilities (C1) is the precondition of any activities for

402 managing stakeholders, it is placed above the other four groupings. According to
403 general management processes, information should be input first during the process of
404 stakeholder management in order that stakeholders be assessed based on the
405 information obtained. After an accurate stakeholder assessment, further decisions can
406 be made. Continuous support and appropriate communication needs to be conducted
407 during the whole process of stakeholder management, to promote the management
408 process through methods such as monitoring the change of stakeholder influence, and
409 keeping a steady relationship with stakeholders.

410

411 **Findings from the interviews in Australia**

412 The interview questions used in the fifteen interviews in Australia were synonymous
413 with those in Hong Kong. In addition, outcomes from the empirical studies in Hong
414 Kong were presented to and discussed with the interviewees in Australia. The main
415 comments from the interviewees are summarised as follows:

416 • Regarding the construction groups, the interviewees considered the
417 categorised stakeholder groups to be systematic, but they queried whether the
418 categories were mutually exclusive, since they observed that one stakeholder
419 may belong to several groups. An obvious example is that ‘government’ could
420 also be a ‘client’. The interviewees thought another way to classify
421 stakeholders was to divide them into ‘internal stakeholders’ and ‘external
422 stakeholders’, which is an arrangement used by Bourne (2005) in the
423 Stakeholder Circle methodology. This classification can solve the
424 ‘overlapping’ problem. However, the main purpose of this list is for use as a
425 reference for the project management team to identify stakeholders not for the
426 means of classification. The purpose of the list was discussed with the
427 interviewees and subsequent approval achieved, with the addition of some
428 suggestions.

429 • The interviewees also considered ‘government’ to include ‘district councils’,
430 which are called ‘city councils’ in Australia, so the government group can be
431 revised to ‘government (state/federal/local)’. One more group, i.e.
432 ‘environmental groups’, was proposed by the interviewees. Although
433 ‘environmental groups’ can be considered as ‘special interest groups’, at

434 present, due to the importance of environmental issues, the interviewees
435 preferred to emphasise this group by giving it its own identity.

436

437 As such, the finalised list of stakeholder groups in construction is: clients, contractors,
438 consultants, suppliers, end users, government (state/federal/local), financiers/sponsor,
439 communities, environmental groups, general public, competitors, utilities, special
440 interest groups, the media and others. It should be noted that a particular stakeholder
441 could have multiple roles. For example, the government could be an end user,
442 financial sponsor, environmental regulator or utility. Even within one government
443 organization, different branches may fill these different roles and have differing
444 objectives. Due to the uniqueness nature of construction projects, broad terms are
445 used for the stakeholder list. When using this list, industry practitioners should bear in
446 mind a stakeholder may take multiple roles in a project, and this list is suggested as a
447 common reference for project management teams in the construction field. In addition,
448 while this list has been confirmed through a series of interviews, it is not exhaustive
449 of all stakeholders in construction. Thereby, 'others' was added to the list for
450 extraordinary cases.

451

452 Regarding stakeholder behaviour, the interviewees agreed with the three types,
453 namely cooperative potential, competitive threat, and opposite position. Nevertheless,
454 one interviewee recommended 'support & receptiveness' evaluation in the
455 Stakeholder Circle methodology to classify the stakeholder behaviour. According to
456 Bourne (2005), the attitudes of stakeholders can be assessed by the current and target
457 levels of stakeholder interest and support. The level of support has a similar meaning
458 to behaviour types, and therefore can be visualised in the Stakeholder Circle software.

459

460 The interviewees agreed with the classification of stakeholder attributes (power,
461 urgency and proximity), and four strategy types (holding, defence, compromise, and
462 concession) necessary to deal with the issues raised by stakeholders.

463

464 In terms of the factors contributing to successful stakeholder management and the
465 initial framework, the interviewees made seven suggestions:

466 • The interviewees thought communicating with and engaging stakeholders
467 were important for stakeholder management and therefore should be included

468 in the framework. Two interviewees, one from the construction sector and one
469 working on community relationships, suggested that project managers should
470 also decide the level of stakeholder engagement, and match it with the
471 appropriate methods. This suggestion is in line with the finding of a literature
472 review conducted by Reed (2008) which suggested that for best practice in
473 stakeholder participation, “methods should be selected and tailored to [...] appropriate level of engagement”. The interviewees also recommended an
474 engagement spectrum, developed by the International Association for Public
475 Participation (IAP2). The engagement spectrum comprises five engagement
476 levels - ‘inform (to provide the stakeholders with balanced and objective
477 information to assist them in understanding the problems, alternatives and/or
478 solutions)’, ‘consult (to obtain stakeholders’ feedback on analysis, alternatives
479 and/or decisions)’, ‘involve (to work directly with the stakeholders throughout
480 the process to ensure that stakeholder concerns and aspirations are consistently
481 understood and considered)’, ‘collaborate (to partner with stakeholders in each
482 aspect of the decision)’, and ‘empower (to place final decision-making in the
483 hands of stakeholders) (Victorian Government Department of Sustainability
484 and Environment, 2005). One interviewee from the construction sector had
485 prior experience of this spectrum in his work and confirmed its effectiveness.
486 As the interviewee stated, “this spectrum can be used to ensure a common
487 understanding of stakeholder engagement”.

489

490 • The interviewees considered ‘compromising conflicts’ and ‘predicting
491 stakeholder reactions’ are, in fact, implied in ‘formulating appropriate
492 strategies’, hence, these two activities should not be listed in the framework as
493 separate concepts.

494

495 • The interviewees considered there should be one more step after ‘decision
496 making’, i.e. ‘action & evaluation’. The corresponding strategies should be
497 implemented, and the management process evaluated. One interviewee stated
498 that ‘it is essential that the project managers monitor and review the
499 stakeholder management activities to ensure objectives and actions are being
500 implemented’. Thus this step is not merely decision-making, but also problem-

501 solving. The stakeholders should be interviewed or surveyed at a subsequent
502 stage regarding their opinions about the management activities.

503

504 • ‘Obtaining support and assistance from the higher authorities’ is considered
505 important by the interviewees, and should be included in the ‘continuous
506 support’ box in the framework for stakeholder management. Similarly,
507 according to Chinyio and Akintoye (2008), practitioners in the United
508 Kingdom hold the same point of view, and they stated that “the ‘top-level
509 support’ was essential for effective stakeholder management”. A similar
510 opinion was expressed by Bourne (2008), who considered ‘centralised support’
511 as a criterion for evaluating the organisational maturity of stakeholder
512 management. Therefore, this factor should be included in the framework for
513 stakeholder management.

514

515 • In regards to the complexity of stakeholder management, the interviewees
516 believed that an approach profile should be established for the project
517 management team’s reference. The profile should not only include the
518 methods for stakeholder engagement, but also those of stakeholder analysis
519 and estimation.

520

521 • Regarding the precondition factor, i.e. ‘managing stakeholders with social
522 (economic, legal, environmental and ethical) responsibilities’, in the initial
523 framework, the interviewees confirmed the importance of this factor.
524 Meanwhile, they proposed one more responsibility -cultural responsibility. By
525 this, they mean that cultural diversity needs to be considered as Australia has a
526 large number of immigrants and a highly diverse population. This is a
527 reasonable consideration and should therefore be included. One interviewee
528 explained cultural responsibility by using an urban renewal project as an
529 example. He said that the residents affected by the project were from at least
530 nine non-English speaking countries including but not limited to China, Italy,
531 Turkey, Vietnam, Spain and Arab-speaking countries. It was important that
532 the differences in culture and tradition be fully considered in that project

533 because the community involvement or ownership was integral to the success
534 of the project.

535

536 • The interviewees thought that although the interaction and dependencies
537 among the activity sets are connected in the initial framework, they are too
538 simple to be used as a reference in practice. A framework for management
539 process should not only define the activities that exist within the process, but
540 also illustrate how and what information needs to flow between activities
541 (Federal Information Processing Standards, 1993). Additional meetings were
542 arranged with four of the fifteen interviewees to discuss the interrelations and
543 outcome flows among the activities for stakeholder management.

544

545 All comments from the interviewees were considered in the revision of the initial
546 framework. A revised framework (Figure 1) was presented to the fifteen interviewees
547 at meetings or in emails at a later time with the aim of asking their comments. The
548 interviewees' replies matched the content of the revised framework, with minor
549 changes to the vocabulary, as such there were no major changes to the substance of
550 the framework. The logical sequence, and information flows in the revised framework
551 were praised by the interviewees. Further explanations regarding the systematic
552 (revised) framework for stakeholder management in construction are explored in the
553 next section.

554

555 *(Insert Figure 1 here)*

556

557 **The Details of the Systematic Framework**

558 A collection of diverse knowledge areas is described, giving a formalised view of the
559 systematic framework (Figure 1), which consists of a precondition group, four
560 management groups (stakeholder identification, stakeholder assessment, decision
561 making, and action & evaluation), and a continuous support group. For each group a
562 number of activities have been defined in logical sequence. A detailed description of
563 the groups and activities within the systematic framework is provided below. There
564 are also twelve outcomes from each management activates, which link the four
565 management groups as inputs and outputs. As indicated in Figure 1, the outcomes are
566 numbered as follows:

- 567 1. Management objectives
- 568 2. Stakeholder list
- 569 3. Information sheet
- 570 4. Priority index
- 571 5. Relationship matrix
- 572 6. Priority list
- 573 7. Attitude classification
- 574 8. Stakeholder engagement profile
- 575 9. Strategies for further actions
- 576 10. Project moving forward
- 577 11. Management objective improvement
- 578 12. Satisfaction level

579

580 It should be noted that, as every construction project is likely to be unique, some of
581 the identified activities can be omitted depending on the characteristics of the project,
582 the stage of the project and the resources in the organisation. In addition, this
583 framework indicates the sequences of stakeholder management, but not those of
584 project management, so it should be implemented continuously at every stage during
585 the overall project process.

586

587 **Precondition**

588 ‘Managing stakeholders with economic, legal, ethical, environmental, and cultural
589 responsibilities’ is defined as the precondition for stakeholder management. As
590 indicated in the last section, it is deemed a ‘precondition’ as the core function of
591 stakeholder management is to analyse social responsibilities by delineating the
592 specific groups or persons that the management team should consider in its
593 management activities (Carroll, 1991; Donaldson and Preston, 1995). According to
594 Carroll’s definition (1979) of social responsibility, economic responsibility is the
595 obligation to produce goods and services, sell them at fair prices and make a profit;
596 the legal responsibility refers to the obligation to obey the law; ethical responsibility
597 covers those issues not embodied in law but expected by society. Recently
598 environmental expectations have also been given increased attention by numerous
599 scholars (e.g. AlWaer et al., 2008; Prager and Freese, 2009) because of the
600 expectations for sustainable development. Environmental considerations include air,
601 flora/fauna, dust, water and noise. The purpose is to protect the environment and to
602 provide healthy living conditions. Cultural responsibility is related to the
603 consideration of cultural diversity, especially the differences in language and tradition.
604 Project managers should manage stakeholders by taking into consideration all of these

605 social responsibilities to ensure the project objectives are achieved. Therefore, this
606 group is placed at the top of the framework (Figure 1) to remind the project managers
607 to bear it in mind during the stakeholder management process.

608

609 **Stakeholder identification**

610 The stakeholder identification group in Figure 1 includes management activities for
611 the identification and collection of information (data) which will be used in the
612 subsequent management activities. The outputs of this group are: (1) the management
613 objectives, (2) stakeholder list, and (3) stakeholder information sheet. Three
614 management activities are included in this group.

615

616 Management activity 1 ‘Clearly formulating management objectives’: The
617 identification of a clear mission for a project at different stages is widely considered
618 to be essential for the effective management of stakeholders (Winch, 2000). Before
619 every stakeholder management activity, project management teams should have a
620 clear understanding of the tasks and objectives at particular stages of the project
621 lifecycle, including issues such as cost, schedule and budget (Yang et al., 2009). In
622 order to formulate the management objectives, stakeholder information (interests,
623 needs, commitments and project constraints) should be considered. If the project has
624 entered its middle stage, the effects of stakeholder management should be re-
625 evaluated to ascertain whether the former objectives have been achieved. The re-
626 evaluation should determine whether a revision and improvement of the current
627 objectives has to be considered.

628

629 Management activity 2 ‘Identifying a full list of stakeholders’: This serves to answer
630 the question of “who are stakeholders?” (Frooman, 1999). The project management
631 team could identify stakeholders either by following the ‘external/internal’ guidelines,
632 or by their functions such as clients, contractors, and consultants. The identification
633 should be based on the management objectives of the project, and the output is a
634 full stakeholder list.

635

636 Management activity 3 ‘Collecting stakeholder information’: Freeman et al. (2007)
637 believe identifying stakeholder information is an important task for assessing
638 stakeholders. This information includes stakeholder contact information, their

639 interests, needs, commitments and constraints to projects. The outcome of this activity
640 is a detailed information sheet regarding the issues of interest to the stakeholders.

641

642 **Stakeholder assessment**

643 The stakeholder assessment group refers to the analysis and assessment of
644 stakeholders. The baseline of the activities in this group is the information profiles,
645 which are developed during the three management activities in the 'stakeholder
646 identification' group. The outputs of this group are a stakeholder priority list,
647 relationship matrix, and attitude classification. This group is broken down into four
648 management activities.

649

650 Management activity 4 'Assessing stakeholder attributes': Based on the project
651 objectives, and stakeholder information, stakeholder attributes, namely, power,
652 urgency and proximity, need to be evaluated by the project management team. The
653 concepts of these attributes follow the studies of Mitchell et al. (1997) and Bourne
654 (2005). Power is the ability to "control resources, create dependencies, and support
655 the interests of some organisation members or groups over others"; urgency is "the
656 degree to which stakeholder claims call for immediate attention"; proximity is the
657 distance of stakeholders and the project. The outcome of this activity is a priority
658 index, which is a term used in the Stakeholder Circle methodology (Bourne, 2005).

659

660 Management activity 5 'Analysing the interrelationships among stakeholders': This
661 serves to map stakeholder relationships and analyse their coalitions and conflicts. In
662 terms of relationships, according to Cross and Parker (2004), two types of
663 relationships exist among stakeholders: formal relationships and informal
664 relationships. Formal relationships include contracts, and the hierarchy in
665 organisations/projects; informal relationships can refer to many interactions, such as
666 information exchange, help seeking, communication and influence. In addition,
667 stakeholder conflicts and coalitions should be analysed. These concepts are suggested
668 by Freeman's strategy model (Freeman, 1984). He believes conflict occurs whenever
669 disagreements exist in a social setting; and the groups, who share objectives,
670 stakeholders or interests about the project, are more likely to form coalitions. The
671 coalition matrix can enable project management teams to understand the interest
672 similarity between the stakeholders. Thereby, project teams could engage

673 stakeholders with similar interests in a consistent way. Analysing the
674 interrelationships among stakeholders is useful in identifying the ‘hidden/invisible
675 stakeholders’ (Bourne and Walker, 2005), and can be used as one method for
676 stakeholder identification, i.e. the second management activity in Figure 1. The
677 relationship matrix/network can also be analysed through ‘Social Network Analysis’,
678 and can help to prioritise stakeholders (Rowley, 1997).

679

680 Management activity 6 ‘Prioritizing stakeholders according to their influence’: This
681 activity enables the creation of a finalised priority list of stakeholders by synthesizing
682 the results of ‘priority index’ and ‘relationship matrix’. While the ‘priority index’ is
683 based on the traditional evaluation of stakeholder attributes, the analysis of
684 ‘relationship matrix’ focuses on the relationships between pairs of stakeholders.
685 Therefore, these two outcomes can both be used as references for the project
686 management team. It should be noted that no method for identification and
687 prioritization is perfect and that the use of the results of the ‘priority index’ and
688 ‘relationship matrix’ is deemed to help the project team to see anomalies and make
689 the necessary corrections.

690

691 Management activity 7 ‘Assessing stakeholder behaviour’: This serves to analyse the
692 willingness of stakeholders to threaten or cooperate with the project management
693 team (Savage et al., 1991). The stakeholder behaviour can either be classified by the
694 levels of support and receptiveness, or be classified into ‘cooperative potential,
695 competitive threat, and opposite position’. The outcome is a classification of attitudes.

696

697 **Decision making**

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

704

705 Management activity 8 ‘Deciding engagement levels and methods’: Engagement
706 levels include ‘inform (to provide the stakeholders with balanced and objective

707 information to assist them in understanding the problems, alternatives and/or
708 solutions), ‘consult (to obtain stakeholders’ feedback on analysis, alternatives and/or
709 decisions)’, ‘involve (to work directly with the stakeholders throughout the process to
710 ensure that stakeholder concerns and aspirations are consistently understood and
711 considered)’, ‘collaborate (to partner with stakeholders in each aspect of the
712 decision)’, and ‘empower (to place final decision-making in the hands of
713 stakeholders)’ (Victorian Government Department of Sustainability and Environment,
714 2005). The project management team should decide the levels and corresponding
715 methods for engaging stakeholders according to the project objectives, the stakeholder
716 information, their priorities and attitudes. The outcome is a profile for stakeholder
717 engagement.

718

719 Management activity 9 ‘Formulating appropriate strategies to deal with the issues
720 raised by stakeholders’: This serves to decide what strategies the project management
721 teams use to address stakeholder conflicts with the consideration of their reactions to
722 the strategies. The strategy types comprise ‘holding, defence, compromise, and
723 concession’. The choice of strategy types should be made in accordance with the
724 information profile, the stakeholder’ priority, attitudes and the engagement methods.

725

726 **Action & evaluation**

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

730

731 Management activity 10 ‘Implementing the strategies’: This activity is self-
732 explanatory. The formulated strategies should be implemented accordingly. The
733 outcome of this activity is to keep the project moving forward.

734

735 Management activity 11 ‘Evaluating the effects of stakeholder management’: This
736 serves to answer the question “have the management objectives been achieved?” This
737 activity is carried out after the strategies have been implemented, and the results of
738 the evaluation should be used to improve the objectives in the succeeding process.

739

740 Management activity 12 ‘Evaluating stakeholder satisfaction with the engagement
741 activities’: The engagement activities with stakeholders are based on the stakeholder
742 engagement profile. To obtain the stakeholder opinion about the engagement
743 activities, surveys and meetings should be conducted to evaluate the stakeholder
744 satisfaction level. The results can be used in order to better understand the stakeholder
745 interests, needs and project constraints.

746

747 **Continuous support**

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

756

757 ‘Communicating with and engaging stakeholders properly and frequently’:
758 Communication is essential for maintaining the support and commitment of all
759 stakeholders (Briner et al., 1996). Effective, regular, and planned engagement with all
760 members of the project community is necessary for project success (Briner et al.,
761 1996). Project managers should be highly skilled negotiators and communicators who
762 are capable of managing individual stakeholder expectations and creating a positive
763 culture change within the overall project (Weaver, 2007).

764

765 ‘Realizing changes of stakeholder information, influence, relationships and behaviour
766 during the project process’: The concepts of the change and dynamics of stakeholders
767 were acknowledged by Freeman (1984). According to him, in reality, stakeholders,
768 their influence, relationships, and behaviour change over time, and depend on the
769 strategic issue under consideration. Therefore, the processing method should be
770 compared with historical records to indicate the changes.

771

772 ‘Keeping and promoting an ongoing relationship with stakeholders’: Successful
773 relationships between the project management team and its stakeholders are vital for

774 successful delivery of projects and meeting stakeholder expectations (Savage et al.,
775 1991; Jergeas et al., 2000). Trust and commitment among stakeholders can be built
776 and maintained by efficient relationship management (Pinto, 1998; Karlsen et al.,
777 2008).

778

779 ‘Obtaining support and assistance from higher authorities’: As one of the findings
780 from the interviews in Australia, top-level support is important for management
781 activities. In an organisation with a mature stakeholder management environment, the
782 higher authorities always monitor the management process, facilitate problems
783 solving activities and use the effects of stakeholder management as an indicator for
784 performance measurement of the management team.

785

786 ‘Establishing an approach profile for stakeholder management’: Various approaches
787 for stakeholder management exist both in literature and in practice. A typology of
788 approaches for stakeholder management, and their descriptions, strengths, and
789 considerations should be synthesised as a reference for the project management team.

790

791 The systematic framework illustrated in Figure 1 shows the generic activities and
792 their interdependency during the process of stakeholder management in construction.
793 It should be noted that when considering the overall project management process, the
794 activities in the framework should be carried out iteratively, on a multitude of issues,
795 at varying levels of detail. Most stakeholder identification activities are based, to
796 some degree, on historical information, coming from the culmination of the outputs of
797 previous cycles of stakeholder management activities. To validate and test the
798 systematic framework in the field, five real projects are used for action research, and
799 are described in the following section.

800

801 **Research findings from the action research**

802 **Overview of the projects**

803 Five real-life projects were selected for action research:

- 804 ○ The T College project is to construct a new building to provide new
805 classrooms and facilities for the college’s theological school. The project is
806 relatively small with a contract price of AU\$2 million.

- 807 ○ The CI project is an urban renewal project in a district of M city with a
808 contract price of AU\$1 Billion in new investments. The study area for the CI
809 project was approximately 35 hectares, of which Council 1 controlled 12
810 hectares. The CI project evolved from a government plan, itself the product of
811 five years' consultation with associated communities, traders, landowners,
812 state government agencies and other stakeholders.
- 813 ○ The NSP project is an AU\$650 million essential infrastructure project
814 involving the construction of approximately 12.5km of new sewer pipes in the
815 north of the city. The project will increase the sewerage system capacity for
816 the city's growing northern suburbs and help to protect the two creeks from
817 the damaging impact of sewage overflows that can occur after heavy rain. It
818 will also help to improve the health of waterways flowing into the main river.
- 819 ○ The PU project dealt with the new Hong Kong 3+3+4 education
820 reform policy. In order to accommodate the expanding academic structure and
821 increasingly diversified educational training and practice, the University
822 submitted an application for the rezoning of government land, located to the
823 north of the existing main campus to cope with the proposed reform policy.
- 824 ○ The ST project is in B University and likewise has to cater for the new
825 3+3+4 education reform policy in Hong Kong. However, unlike the A
826 University in the PU project, B University is located in the suburb of Hong
827 Kong, where there is much open space. Therefore, although this project is
828 composed of a group of three buildings with a total site area of up to 72,000m²,
829 the complexity of this project is relatively low compared to the PU project.

830

831 The project characteristics are summarised in Table 3.

832

833

(Insert Table 3 here)

834

835 As shown in Table 3, the selected projects are drawn from two countries: Australia
836 and Hong Kong, both of which have different cultures. The project types all relate to
837 the construction industry and include a building project, urban renewal project and
838 infrastructure project. Although there are three school building projects, they are
839 either at different locations, or at different phases in the project life cycle. These
840 differences provide interesting comparative material. Medium and high project

841 complexities make the management of stakeholders more meaningful, as there are
842 relatively complex stakeholder relationships in these projects, and project managers
843 normally have difficulties to manage the complex stakeholder relationships. These
844 projects are mainly analysed from the client and contractor perspectives, as they are
845 key bodies to successful communication with other project stakeholders.

846

847 Since the aim of this stage is to validate the proposed framework, the researcher
848 should apply the outcomes in practice and be involved in projects to help project
849 teams manage their stakeholders. The action research, which focuses on research in
850 action, rather than research about action (Coughlan and Coughlan, 2002), is chosen as
851 suitable in this phase of the study. In each project, the activities in the systematic
852 framework were followed, the stakeholders were identified and assessed, and
853 strategies were formed based on the project environment and characteristics. The
854 researcher not only engaged in the management processes, but also stood back from it,
855 summarised the outcomes, and reflected the outcomes to the systematic framework.
856 At the end of stakeholder management process in each project, the project
857 management team were asked to complete a feedback questionnaire for evaluating the
858 usefulness of the framework. Due to limited space, the detailed stakeholder
859 information is not presented in this paper; however, the inter-case analysis regarding
860 the application of the systematic framework is discussed in the next section.

861

862 **Inter-case analysis of the systematic framework**

863 The systematic framework includes six activity groups as shown in Figure 1. The
864 analysis in this section conducted based on these six activity groups.

865

866 Analysis 1 – precondition

867 In Figure 1, the precondition group is ‘managing stakeholders with economic, legal,
868 environmental, cultural and ethical responsibilities’. Throughout the five project
869 studies, all of the management teams considered the economic (e.g. cost, job

870 opportunity), legal (in terms of the governments' approval), and environmental (e.g.
871 flora/fauna, noise, water quality, and dust) issues. Cultural and ethical responsibilities
872 were selectively taken in to consideration, in accordance with the nature of each
873 project. For example, in the CI project, the residents affected by the project were from
874 at least nine non-English speaking countries including, but not limited to, China, Italy,
875 Turkey, Vietnam, Spain and Arab-speaking countries; therefore, the differences in
876 culture and tradition should be fully considered. For example, in the T College project,
877 the stakeholder 'Family and representatives of the ashes in the landscape' was an
878 ethical consideration by the project management team. The stakeholder wanted the
879 relatives' ashes to remain in the college grounds and the original placement to be
880 uninterrupted. In respect of this the project manager decided that instead of moving
881 the ashes, the landscape of the project structure was laid on an alternative place near
882 the ashes.

883

884 Analysis 2 – stakeholder identification

885 The project management teams in the five projects knew their project objectives
886 clearly. Based on their experience or historical records, the teams identified
887 stakeholders and their interests. A new group 'Leaser' was proposed by the project
888 manager in the ST project.

889

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

896

897 The complexity of projects can be identified by the number of differing views of
898 stakeholders. An increase in the number of stakeholder perspectives, increases the
899 project complexity. In the CI project, there were more than 400 stakeholders, who
900 presented numerous interests; but in the ST project, only 12 stakeholders were
901 identified and their views are relatively simple and compatible.

902

903 Analysis 3 – stakeholder assessment

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

910

911 An additional stakeholder behaviour was identified by the management team in the
912 PU project: ‘neutral attitude’. Although there were no stakeholders in the five projects
913 who represented a competitive threat, all the management teams agreed to keep this
914 type in the framework in the interest of completeness.

915

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

923

924 Analysis 4 – decision making

925 The engagement levels (inform, consult, involve, collaborate, and empower), were
926 seen to increase along with the priority placed on stakeholders’ in the five projects. A
927 wider variety of engagement methods were applied in the highly complex projects.

928

929 Regarding the strategy types, (namely - holding, defence, compromise, and
930 concession), as shown in Figure 1, holding was not used in any of the five projects
931 when responding to stakeholder requests. One reason may be that the identified
932 stakeholders were all major stakeholders and the management teams could not ignore
933 their interests. The team members indicated that compromise was the best way to
934 solve problems.

935

936 Analysis 5 – action & evaluation

937 It should be noted that not all the case projects presented implemented the
938 management activities in the actions & evaluation group. The main reason was time
939 limitation: In the NSP project, although the project management team requested the
940 researchers to develop a survey to evaluate stakeholder satisfaction, time did not
941 allow for sending out the survey and collection and analysis of the data; In the CI
942 project, the design stage will continue for another two or three years (as from 2011).
943 To date, within one or two months of the study completion, there has been no
944 response from the stakeholders. In contrast, in the PU project, which the researcher
945 tracked for a further one year, the actions and the stakeholder responses were
946 analysed in detail.

947

948 Another reason for the absence of action & evaluation is the stage of the project at the
949 research time. The T College project, NSP project and ST project were in the
950 construction stage, and the works on site were comparatively regular and routine
951 without big issues to solve. However, according to the ninth characteristic of action
952 research proposed by Gummesson (2000), while action research is a 'live' case study
953 being written as it unfolds, it can also take the form of a traditional case study written
954 in retrospect, when the written case is used as an intervention into the organisation in
955 the present (Coughlan and Coughlan, 2002). In such a situation the case study performs
956 the function of a 'learning history' and is used as an intervention to promote reflection
957 and learning in the organisation (Kleiner and Roth, 1997). The project management
958 teams in this research further confirmed Gummesson's opinion (2000). They
959 indicated that they learnt how to manage stakeholders systematically during the action
960 research, discovering relevant approaches to stakeholder analysis and engagement,
961 and a propensity to use the proposed framework (Figure 1) as a reference for their
962 following works.

963

964 Analysis 6 – continuous support

965 The issues of continuous support were considered to be important by the management
966 teams during the action research. Increasing the project managers' knowledge and
967 experience was also raised as an important consideration in contributing to the
968 success of stakeholder management.

969

970 Summary of analyses 1 - 6 and the results of the feedback questionnaire survey

971 The results of the feedback questionnaire survey are shown in Table 4. The results
972 indicate that the five project management teams were satisfied with the framework in
973 general. The management teams have taken on the framework as a systematic
974 reference for future work. The project management teams in the five cases confirmed
975 and highly rated the systematic framework given in Figure 1. They felt the framework
976 systematically illustrated the activities and outcomes during the stakeholder
977 management process. The framework subsequently will provide a reference for them,
978 to enable the efficient conduct of stakeholder management during their daily work.

979
980
981

(Insert Table 4)

982 The action research confirmed the opinion that the purpose of the framework was as a
983 reference for the project management team. Thus, depending on the characteristics of
984 the project, the stage of the project, and the resources in the organisation, some
985 identified activities can be omitted. For example, the activity ‘formulating appropriate
986 strategies to deal with the issues raised by the stakeholders’ was not implemented
987 during action research due to the lack of special issues raised at that stage. Similarly,
988 the stakeholder categories in Figure 1 are not an exhaustive list of all stakeholders in
989 construction; the categories can be selected and revised depending on the project.

990

991 **The changes on the systematic framework**

992 Based on the findings of the action research, the systematic framework (Figure 1) was
993 finalised with minor changes:

- 994 ○ the stakeholder type ‘end user’ is specified to include leaser, owner, operator,
995 and facility management;
- 996 ○ one type of stakeholder behaviour, neutral attitude, was added;
- 997 ○ one action in the ‘continuous support’ group was added, that is ‘increasing the
998 project managers’ knowledge and experience on stakeholder management’.

999

1000 **Conclusions**

1001 The aim of this paper is to develop a systematic framework for stakeholder
1002 management in construction. To achieve this objective, empirical studies, comprising
1003 six interviews, a pilot study, and a questionnaire survey in Hong Kong, and fifteen
1004 interviews in Australia, were conducted. The comments from the industry

1005 practitioners were synthesized with the outcomes from previous studies, and a
1006 systematic framework for stakeholder management in construction projects is
1007 proposed. Six activity groups, i.e. precondition, project data identification,
1008 stakeholder estimation, decision making, action & evaluation, and sustainable support,
1009 formulate the main body of the framework. A total of 18 activities within these groups
1010 and their interrelations are illustrated by using different symbols and colours in the
1011 framework. Five projects were used to validate the proposed framework. The action
1012 research findings reported in this paper confirmed the applicability of the framework.

1013

1014 The significance of the framework is that it serves as a reference for project
1015 management teams as a systematic consideration for stakeholder management in
1016 construction. In practice, project teams should first get familiar with the framework
1017 structure, activity groups, outcomes and interrelationship of each group, as well as the
1018 definitions of each term. This can be achieved by reading the explanation information
1019 of the framework as indicated in this paper, or engaging a professional consultant to
1020 help them understand the underlying concepts of the whole process. The project teams
1021 need to be clear about their economic, legal, environmental, cultural and ethical
1022 responsibilities as a social entity. Then, they should follow the sequence of the twelve
1023 management activities and make sure the corresponding outcomes are produced in
1024 each step. Experiences from the action research show that the activities in the
1025 framework can be selected depending on the nature of the project and the project
1026 management team's decision. However, the management activities in the 'stakeholder
1027 identification' group are essential for the inputs of the following steps; thereby,
1028 should not be omitted. It is also crucial to develop the 'priority list' and 'attitude
1029 classification', but the stakeholder relationship analysis step in the 'stakeholder
1030 assessment' group can be optional if the project environment is simple and the
1031 management team does not have appropriate knowledge or resources. For projects
1032 with high complexity, this step is highly recommended and can be implemented by
1033 involving external consultants who know how to decipher complex relationships (for
1034 example, consultants with social network analysis skills). The activities in the
1035 'decision making' and 'action & evaluation' groups produce the main outcomes of
1036 stakeholder management process, and push the project to move forward. The
1037 management activities in the framework form a loop, which indicates that for best
1038 results the activities should be carried out iteratively during the overall project process.

1039 The activities in the 'continuous support' group should be initiated at the beginning of
1040 stakeholder management process, and encouraged during the whole course. Ideally,
1041 construction organisations need to provide stakeholder management support to their
1042 project teams by developing stakeholder engagement method profile, maintaining
1043 long-term stakeholder relationships, and organising trainings to the core team
1044 members.

1045

1046 Limitations of the research are acknowledged as follows:

- 1047 ○ Owing to time and resource shortages, the development and refinement of the
1048 framework and practical approaches for stakeholder management are based on
1049 only twenty-one interviews and a questionnaire survey in Hong Kong and
1050 Australia. Since the interviewees and respondents were only from two regions,
1051 the findings are limited to Hong Kong and Australian construction projects.
- 1052 ○ In order to develop a more generic framework which can be used in both
1053 oriental and western culture environments, two locations (Hong Kong and
1054 Australia) were chosen for data collection. However, the interpretation of
1055 interview questions may be nuances from one culture to another. Although the
1056 same researcher, who is familiar with both cultures, was responsible for data
1057 collection in the two regions to keep the explanation and data analysis process
1058 as consistent and accurate as possible, a potential cultural related risk should
1059 still be noted in this research.
- 1060 ○ Owing to time limitations, the findings in this research are based on project
1061 managers' experience and did not engage the various construction
1062 stakeholders in the empirical studies. Future studies, which incorporate
1063 different stakeholders' perspectives in the framework, should be conducted.
- 1064 ○ Time limitations confined the use of the framework in the action research to
1065 one example, hence feedback from several attempts could not be obtained and
1066 therefore there was no basis on which to build improvements, either for
1067 stakeholder management use or to the framework itself.
- 1068 ○ Changes in stakeholder influence, relationships and attitudes could not be
1069 analysed in the action research due to time limitations, although according to
1070 the project management teams' statements the changes were evident at
1071 different stages of the projects. However, the project managers thought the use
1072 of this framework provided them with a clear summary of the stakeholder

1073 management tasks and outcomes in their projects and would be suitable for
1074 future use.

1075 For actual application, project teams should compare each activity in the proposed
1076 framework with the current practices and experiences in the organizations and
1077 projects. Although ideally potential users should conduct all activities in the
1078 management process, in practice, due to project resources and constrains, practitioners
1079 can make decisions on the actual use of the proposed framework.

1080

1081 **Acknowledgement:**

1082 The work described in this paper was supported by the Research Grants Council of
1083 Hong Kong_ (Grant number: PolyU 5246/12E), and the National Natural Science
1084 Foundation of China (Project number: 51378160). Special gratitude is also extended
1085 to those industrial practitioners who have responded to and contributed their valuable
1086 input in the research process.

1087

1088

1089 **References:**

1090 AlWaer, H., Sibley, M. and Lewis, J. (2008). "Different stakeholder perceptions of
1091 sustainability assessment", *Architectural Science Review* 57(1): 48-59.

1092 Akintoye, A. (2000) Analysis of factors influencing project cost estimating practice,
1093 *Construction Management and Economics*, 18, 77-89.

1094 Aksorn, T. and Hadikusumo, B.H.W. (2008) Critical success factors influencing
1095 safety program performance in Thai construction projects, *Safety Science*, 46,
1096 709-727.

1097 Bartlett, M.S. (1954) A note on the multiplying factors for various chi square
1098 approximations, *Journal of the Royal Statistical Society*, 16(Series B), 396-398.

1099 Briner, W., Hastings, C., and Geddes, M. (1996). *Project Leadership*, Aldershot,
1100 Gower.

1101 Bourne, L. (2005). *Project relationship management and the Stakeholder CircleTM*.,
1102 PhD Thesis, RMIT University. Australia.

1103 Bourne, L. (2008). "Stakeholder relationship management maturity", *PMI Global*
1104 *Congress Proceedings*, St. Julians, Malta.

1105 Bourne, L. (2009) *Stakeholder Relationship Management: A Maturity Model for*
1106 *Organisational Implementation*, Gower Publishing Limited, UK.

1107 Bourne, L. and Walker, D.H.T. (2005), “Visualising and mapping stakeholder
1108 influence”, *Management Decision*, 43 (5), 649-660.

1109 Carroll, A.B. (1979) A three-dimensional conceptual model of corporate social
1110 performance, *Academy of Management Review*, 4(4), 497-506.

1111 Carroll, A.B. (1991), “The pyramid of corporate social responsibility: Toward the
1112 moral management of organizational stakeholders”, *Business Horizons*, Vol.7, pp.
1113 39-48.

1114 Chinyio, E.A. and Akintoye, A. (2008) “Practical approaches for engaging
1115 stakeholders: findings from the UK”, *Construction Management and Economics*,
1116 26(6), 591-599.

1117 Cleland, D.I. (1999). *Project Management Strategic Design and Implementation*,
1118 McGraw-Hill, New York.

1119 Coughlan, P. and Coghlan, D. (2002) Action research for operations management,
1120 *International Journal of Operations & Production Management*, 22(2), 220-240.

1121 Cross, R. and Parker, A. (2004). *The Hidden Power of Social Networks*, Harvard
1122 Business School Press. Boston, Massachusetts.

1123 Coughlan, P. and Coghlan, D. (2002) Action research for operations management,
1124 *International Journal of Operations & Production Management*, 22(2), 220-240.

1125 Donaldson, T. and Preston, L.E. (1995). “The stakeholder theory of the corporation:
1126 concepts, evidence, and implications”, *The Academy of Management Review*, 20
1127 (1), 65-88.

1128 Elias, A.A., Cavana, R.Y. and Jackson, L.S. (2002). “Stakeholder analysis for R&D
1129 project management”, *R&D Management*, 34(2), 301-310.

1130 Eschenbach, R. C., & Eschenbach, T. G. (1996). “Understanding why stakeholders
1131 matter”. *Journal of Management in Engineering*, 12(6), 59-64.

1132 Information Processing Standards 183. (1993). *Integration definition for function*
1133 *modelling (IDEF0)*, National Institute of Standards and Technology (NIST),
1134 Computer Systems Laboratory, Gaithersburg, Md.

1135 Freeman, E. (1984). *Strategic management: a stakeholder approach*, Pitman Inc,
1136 Boston.

- 1137 Freeman, R. E., Harrison, J. S. and Wicks, A. C. (2007). *Managing for Stakeholders –*
1138 *Survival, Reputation, and Success*, Louis Stern Memorial Fund, US.
- 1139 Frooman, J. (1999). “Stakeholder influence strategies”, *Academy of Management*
1140 *Review* 24(2): 191-205.
- 1141 Gummesson, E. (2000) *Qualitative Methods in Management Research*, 2nd Ed, Sage,
1142 Thousand Oaks, CA.
- 1143 Jergeas, G.F., Williamson, E., Skulmoski, G.J. and Thomas, J.L. (2000). “Stakeholder
1144 management on construction projects”, *AACE International Transactions*, 12, 1-5.
- 1145 Kaiser, H. (1970) *A Second Generation Little Jiffy*, *Psychometrika*, 35, 401-415.
- 1146 Karlson, J.T. (2002). “Project stakeholder management.” *Engineering Management*
1147 *Journal*, 14(4), 19-24.
- 1148 Karlson, J.T., Græe, K., Massaoud, M.J. (2008). “Building trust in project-stakeholder
1149 relationships”, *Baltic Journal of Management*, 3(1): 7.
- 1150 Kleiner, A. and Roth, G. (1997) How to make experience your company’s best
1151 teacher, *Harvard Business Review*, September – October, 172-177.
- 1152 Li, B., Akintoye, A., Edwards, P.J., Hardcastle, C. (2005). “Critical success factors
1153 for PPP/PFI projects in the UK construction industry”, *Construction Management*
1154 *and Economics*, 23: 459-471.
- 1155 Loosemore, M. (2006). Managing project risks. *The Management of Complex*
1156 *Projects: A relationship Approach*, Pryke S. and Smyth, H., Blackwell, UK.
- 1157 Mitchell, R. K., Agle, B. R. and Wood, D. J. (1997). “Toward a theory of stakeholder
1158 identification and salience: defining the principle of who and what really counts.”
1159 *Academy of Management Review*, 22(4), 853-887.
- 1160 Newcombe, R. (2003). “From client to project stakeholders: a stakeholder mapping
1161 approach”, *Construction Management and Economics*, Vol. 22 No. 9/10, pp. 762-
1162 784.
- 1163 Norusis, M.J. (1992) *SPSS for Windows, Professional Statistics*, Release 5, SPSS Inc.,
1164 Chicago.
- 1165 Nunnally, J.O. (1978) *Psychometric Theory*, New York, McGraw-Hill.
- 1166 Olander, S. (2006). *External Stakeholder Management*, PhD Thesis, Lund University,
1167 UK.
- 1168 Olander, S. (2007). “Stakeholder impact analysis in construction project management.”
1169 *Construction Management and Economics*, 25(3), 277-287.

1170 Olander, S. and Landin, A. (2005). "Evaluation of stakeholder influence in the
1171 implementation of construction projects", *International Journal of Project*
1172 *Management*, Vol. 23 No. 4, pp. 321.

1173 Pallant, J. (2001) *SPSS Survival Manual*, Open University Press, Buckingham and
1174 Philadelphia.

1175 Pinto, J.K. (1998). *Project Management Handbook*, The Project Management
1176 Institute, Jossey-bass Inc., San Francisco, California, U.S.A.

1177 Prager, K. and Freese, J. (2009). Stakeholder involvement in agri-environmental
1178 policy making – Learning from a local- and a state-level approach in Germany,
1179 *Journal of Environmental Management*, 90(2): 1154-1167.

1180 Reed, M.S. (2008). "Stakeholder participation for environmental management: A
1181 literature review." *Biological Conservation*, 141, 2417-2431.

1182 Rowley, T.J. (1997). "Moving beyond dyadic ties: a network theory of stakeholder
1183 influences", *Academy of Management Review*, 22 (4), 887-910.

1184 Rowlinson, S., Koh, T.Y. and Tuuli, M.M. (2010) Stakeholder management in the
1185 Hong Kong construction industry, in Chinyio, E. and Olomolaiye, P. (Eds.),
1186 *Construction Stakeholder Management*, Wiley-Blackwell, Oxford, pp. 216-239.

1187 Savage, G. T., Nix, T. W., Whitehead, C. J. and Blair, J. D. (1991). "Strategies for
1188 assessing and managing organizational stakeholders." *Academy of Management*
1189 *Executive*, 5(2), 61-75.

1190 Shenhar, A.J. and Dvir, D. (2004) How projects differ and what to do about it, in
1191 Pinto, J. and Morris, P. (Eds.), *Handbook of Managing projects*, Wiley, New
1192 York, NY.

1193 Smith, J. and Love, P.E.D. (2004). "Stakeholder management during project inception:
1194 Strategic needs analysis", *Journal of Architectural Engineering*, 10 (1), 22-33.

1195 Victorian Government Department of Sustainability and Environment (2005).
1196 *Effective Engagement: Building Relationships with Community and Other*
1197 *Stakeholders*, The Community Engagement Network, Resource and Regional
1198 Services Division, Melbourne.

1199 Weaver, P. (2007). *Getting the "soft stuff" right – Effective communication is the key*
1200 *to successful project outcomes!*. PMI Global Congress (North America). October
1201 6-9, 2007.

1202 Widén, K., Olander, S., and Atkin, B. (2013). "Links between Successful Innovation
1203 Diffusion and Stakeholder Engagement". *Journal of Management in Engineering*.

- 1204 Winch, G. (2000). "Construction business systems in the European Union", *Building*
1205 *Research and Information*, 28(2): 88.
- 1206 Winch, G. and Bonke, S. (2002). "Project Stakeholder Mapping: Analysing the
1207 Interests of Project Stakeholders (Chapter 23)" In Project Management Institute
1208 (PMI) (Ed.), *The Frontiers of Project Management Research*, Pennsylvania, 385-
1209 402.
- 1210 Yang, J., Shen, Q.P., Ho, M.F., Drew, S.D. and Chan, A.P.C. (2009). "Exploring
1211 critical success factors for stakeholder management in construction projects",
1212 *Journal of Civil Engineering and Management*, 15(4).
- 1213 Young, T.L. (2006). *Successful Project Management*, Second Edition, Kogan Page,
1214 UK.
- 1215 Yuan, J., Skibniewski, M. J., Li, Q., and Zheng, L. (2009). "Performance objectives
1216 selection model in public-private partnership projects based on the perspective of
1217 stakeholders". *Journal of Management in Engineering*, 26(2), 89-104.