



Libraries and Learning Services

University of Auckland Research Repository, ResearchSpace

Copyright Statement

The digital copy of this thesis is protected by the Copyright Act 1994 (New Zealand).

This thesis may be consulted by you, provided you comply with the provisions of the Act and the following conditions of use:

- Any use you make of these documents or images must be for research or private study purposes only, and you may not make them available to any other person.
- Authors control the copyright of their thesis. You will recognize the author's right to be identified as the author of this thesis, and due acknowledgement will be made to the author where appropriate.
- You will obtain the author's permission before publishing any material from their thesis.

General copyright and disclaimer

In addition to the above conditions, authors give their consent for the digital copy of their work to be used subject to the conditions specified on the [Library Thesis Consent Form](#) and [Deposit Licence](#).

Best Practices in Stakeholder Engagement through a Collaborative Procurement System for Infrastructure Projects

Har Einur Azrin Baharuddin

*A thesis submitted in complete fulfilment of the requirements for the degree of Doctor of
Philosophy in Civil Engineering, The University of Auckland, 2018.*

Abstract

Infrastructure construction projects engage multiple stakeholders directly and indirectly during the pre-construction stages. Stakeholder engagement is an essential part of the management process, particularly for megaprojects. In large projects, stakeholders have varying information needs and interests, and projects that actively engage with their stakeholders are more likely to succeed. One of the reasons for engaging stakeholders is to promote equity and fairness to both external and internal stakeholders. Individuals and groups who are excluded from the decision-making processes do not have their needs and preferences reflected in the final project. Moreover, engagement of stakeholders maximises the ability to address shared challenges and better manage risks. The collaborative procurement approach has been acknowledged as an approach that can provide a way to manage stakeholder complexity. This research aims to investigate the influence of stakeholders during the engagement process and stakeholders' effects on project outcomes. This thesis applies a qualitative research methodology based on interviews and observations from two case studies in New Zealand and two case studies in Malaysia. The research draws information from stakeholder engagement reports, project documentation, public engagement reports, transportation agency reports and interviews. The comparative findings show the values of stakeholder engagement obtained during the pre-construction process for large infrastructure projects. The engagement process involves internal preparation and alignment, consulting, monitoring and planning. The engagement process is difficult to manage because it requires public and community consultation. Comparison of these case studies enables lessons to be learnt that could improve stakeholder engagement. The findings provide insight into how the features of a project (project governance and a commercial model) formulate an effective approach (building a culture of care, communicating beyond compliance and

responsiveness) to managing multiple stakeholders during the planning and consenting phase. The thesis provides a reference for construction organisations to help them develop best practices for successfully managing stakeholder complexity in future construction infrastructure projects.

Keyword: *Stakeholder engagement, collaborative procurement, infrastructure projects, stakeholder engagement process, best practice guideline*

Dedication

*Dedicated to my dearest parents, Abah and Mama for their unconditional love, to my
endlessly supportive siblings, my whole family and my husband **

I love you guys

Acknowledgements

The writing of this PhD thesis was a journey that provided a valuable learning experience with many challenges. The past few years have nurtured my personal growth in many ways.

First and foremost, thanks to God, the Al-Mighty of the universe for providing me this opportunity and granting me the capability to proceed successfully. This thesis appears in its current form due to the assistance and guidance of various parties. I would therefore like to offer my sincere thanks to all of them.

My sincere gratitude extends to my supervisors, firstly to my main supervisor Professor Suzanne Wilkinson, who has been most patient in teaching and guiding me throughout these years. I could have not completed this thesis without her support and continuous encouragement. She has always been the light at the end of the tunnel when facing difficulties in this research. Working with her has been very inspirational and has always motivated me to continue despite the occasional mental fatigue and demoting fortitude. I would also like to extend my gratitude to my co-supervisor, Associate Professor Seosamh Costello who has provided thorough reviews of my chapters, journal and conference papers without fail, which make this thesis into a real academic work. I have learned a lot from both supervisors, especially in academic writing, and would like to express my sincere gratitude for their patience and tolerance in reading my work. Indeed, I am fortunate to have had the opportunity to work with both supervisors until the completion of this thesis.

I would also like to express my appreciation to Associate Professor Rohana Mahbub, advisor during my study in Malaysia. She provided me with the advice for me to start off doing data collection for the Malaysia case studies. Not forgetting thanks to all the interviewees and respondents who participated in this research for the invaluable time.

I am grateful to have an awesome circle of friends and colleagues at the research office of Old Choral Hall. My gratitude especially Dr. Nurul Sakina Mokhtar Azizi, Dr. Che Khairil Izam, Dr. Sheila Belayutham, Zulkifli Sapeciey, Imelda Saran Piri, Masoud Sajoudi, Sadegh Aliakbour, Johnson Adafin, Tinu Francis Rose, Dr. Phanida Phukoetphim, Dr. Alice Yan

Chang, Dr. Tingting Liu and Dr. Sandekha Manakkara, with whom I have shared many discussions on the research, and for their continuous encouragement. This PhD journey has been such an emotional roller coaster, you guys at the office made the learning environment exciting and fun. Not forgetting all my friends in Auckland and outside the office, Hemyza Budin, Nurulaini Abu Shamsi, Agkillah Maniam, Norliza Julmohammad, Nur Anis Affifah Arzami, Nurul Hidayah Razak, Marlyana Azyyati Marzuki, Alifdalino Sulaiman, Sharidah Azuar, Soumeya, Dr.Neo Jan, Nurul Izza Ismail, Khairulliza Saleh, Shafienaz Ismail, Intan Shafika Saiful, Awanis Azizan, Siti Idayu, Farah Syazwani, Fatin Nabilah, Dr.Fazliyana Mohtar, Kak Asma, Nur Azfahani Ahmad, Huzeima Hussein, Ahmad Haqqi, Nadira and to all the MAPSA family; thank you for being there with me through ups and downs. I also show my gratitude to my good friends in Malaysia who helped me to be mentally ready for a PhD journey. A special thanks to my husband Airul Faizal Othman who always reminded me to think positively in my PhD journey and daily tasks. Also, to my cats back home, they are my therapy and my ‘chill pills’ when I am in misery and breakdown.

I am also thankful to the Ministry of Higher Education Malaysia and Universiti Teknologi MARA Malaysia who have sponsored my academic studies. I could not have studied so far from home without the financial support from the Government of Malaysia. Special thanks to The University of Auckland for having me as their Doctoral student and providing me with the press account funding and facilities for the study duration.

I am mostly indebted to my family for their unconditional love; prayers and constant support that made me excel to finish my education up to PhD level. I cannot be more grateful to have such loving parents, father, Baharuddin Abu Kassim, mother, Rosnah Shamsuddin, and siblings, the “Har’s siblings”, sisters-in-law and extended family who never fail to be with me in any situation. I never thought I could reach until this level in my entire life. Indeed, this is a journey that I will remember for entire life.

Table of Contents

Abstract.....	ii
Dedication	iv
Acknowledgements	v
Table of Contents	vii
List of Figures.....	xix
List of Figures.....	xx
List of Tables	xxi
List of Tables	xxii
List of Abbreviations	xxiii
List of Abbreviations	xxiv
List of Publications	xxv
CHAPTER 1	
Introduction.....	1
1.1 Introduction	1
1.2 Background to the Research.....	6
1.2.1 Stakeholder engagement.....	6
1.2.2 Project collaboration and stakeholders involved	7
1.3 Problem Statement	8
1.4 Research Aim and Objectives	10
1.5 Overall Thesis Stages	11

1.5.1	Phase 1: Stakeholder engagement and its relation to collaborative procurement in assisting project innovation.....	13
1.5.2	Phase 2A: Investigating the implementation of stakeholder engagement approaches in collaborative procurement system—preliminary case	14
1.5.3	Phase 2B: Investigating the stakeholder engagement process in infrastructure projects across countries.....	14
1.5.4	Phase 3: Understanding the key implications of the engagement process resulting from the case studies	15
1.5.5	Phase 4: Developing best practices approach for stakeholder engagement practices for infrastructure projects.....	15
1.6	Research Scope	16
1.7	Research Innovation and Significance	17
1.8	Overview of Research Methods	19
1.9	Thesis Structure	21

CHAPTER 2

	Evaluating Stakeholder Engagement as a Process for Assisting Innovation in Infrastructure Projects.....	25
2.1	Introduction	25
2.2	Overview of Stakeholder Issue in Construction.....	26
2.3	Innovation in Construction Procurement.....	28

2.4	Influence of Stakeholders on the Procurement System.....	33
2.4.1	Alliance procurement and the stakeholders involved.....	35
2.5	Stakeholder Engagement Process in Construction.....	36
2.6	Stakeholder Engagement Process.....	38
2.6.1	Various practices of stakeholder engagement process.....	38
2.6.2	Methods of engagement in infrastructure projects.....	40
2.7	Stakeholders' Level of Participation.....	41
2.8	Importance of Stakeholder Engagement to Project Success.....	43
2.9	Effect of Early Stakeholder Engagement on Time, Cost and Quality.....	45
2.10	Summary.....	46
 CHAPTER 3		
	Research Methodology.....	48
3.1	Introduction.....	48
3.2	Research Process.....	49
3.3	Research Phases.....	51
3.3.1	Phase 1: Extensive literature review and document analysis.....	51
3.3.1.1	Literature review and exploratory study.....	51
3.3.1.2	Developing conceptual model in stakeholder engagement process.....	52

3.3.2	Phase 2: Qualitative Phase.....	52
3.3.2.1	Case Studies.....	52
3.3.3	Phase 3: Multiple case study databases and report.....	55
3.3.3.1	Interviews	60
3.3.4	Phase 4: Best practices validation and report writing.....	61
3.4	Consideration of Research Questions and Objectives.....	61
3.5	Choice of Research Methodology	62
3.6	Research Design	63
3.6.1	Cross-sectional research design.....	65
3.6.2	Document analysis.....	66
3.6.3	Semi-structured interviews.....	67
3.6.3.1	Selection of participants.....	68
3.6.3.1	Acknowledgement of the Treaty of Waitangi and the Māori.....	72
3.6.3.2	Interview protocols.....	74
3.7	Ethical Issues	75
3.8	Summary	76

CHAPTER 4

Case Study 1: Implementation of Stakeholder Engagement Practice through Alliancing in New Zealand: A Case Study of Mackays to Peka Peka Expressway (M2PP)..... 77

4.1	Introduction	78
4.2	Stakeholder Management	80
4.2.1	The nature of engaging stakeholders in infrastructure projects.....	82
4.3	Alliance Management.....	84
4.4	Methodology	85
4.5	Background of the Case Study: M2PP Expressway.....	88
	Figure 4.1. Formation of alliance team, from January 2010 to 2017	90
4.6.	M2PP Alliance Model	91
4.6.2	Commercial Model during IPAA	94
4.7	Engagement Process during IPAA Phase.....	97
4.8	Engagement Process and Relevance with the IAP2 Spectrum	101
4.8.1	Stakeholder involvement	104
4.8.2	Process of engagement (initial stage)	105
4.9	Practical Implication for Managing Stakeholder Complexity.....	106
4.9.1	Building a culture of care	106
4.9.2	Communicating beyond the compliance	107

4.9.3 Responsiveness.....	109
4.10 Summary	110
 CHAPTER 5	
Case Study 2: Internal Early Preparation of Stakeholder Engagement Process: A Case Study of Ara Tūhono–Pūhoi Expressway (Further North Alliance).....	
5.1 Introduction	113
5.2 Internal Early Preparation and Planning Phase	114
5.2.1 Managing stakeholders at the initial stage.....	115
5.2.2 Consideration of initial planning process issues.....	117
5.2.3 Planning alliance	118
5.3 Methodology	120
5.4 Background of the Case Study: Ara Tūhono—Pūhoi to Wellsford Expressway (Further North Alliance)	121
5.5 Planning Alliance for the Ara Tūhono—Pūhoi to Wellsford Expressway.....	124
5.5.1 Governance during the project investigation and development phase	128
5.5.2 Internal early preparation and planning of Case Study 2	129
5.5.3 Professional Engagement Process	133
5.6 Keys Implications of Planning Alliance Model for Managing Stakeholder Complexity ..	
.....	134

5.6.1	Emerging factors from stakeholder engagement and planning alliance practices.	134
5.6.2	Keys implications of engaging stakeholders in the case study.....	135
5.6.2.1	No-blame culture	135
5.6.2.2	Best value for stakeholders.....	136
5.6.2.3	Innovative delivery practices.....	136
5.7	Summary	136

CHAPTER 6

Case Study 3: Investigating Stakeholder Engagement Process in Malaysia: A Case Study of KVMRT Project Line 1 Railways (Sungai Buloh – Kajang Line).....138

6.1	Introduction	139
6.2	Methodology	140
6.3	Background of Case Study: KVMRT Line 1 (Sungai Buloh–Kajang Line).....	142
6.3.1	Case study approaches.....	142
6.3.2	Background of KVMRT Line 1 (Sungai Buloh-Kajang) case study.....	142
6.3.3	KVMRT Line 1 project structure.	143
6.4	Project Governance	145
6.4.1	Project delivery partner (PDP) in KVMRT line 1 project.....	146
6.5	Internal Early Preparation and Planning of Case Study 3	148

6.5.1	Process of stakeholder engagement (initial and planning stage).....	150
6.5.2	Stakeholder involvement and engagement.....	154
6.6	Keys Implications from KVMRT.....	155
6.6.1	PDP team and project governance of case study 3.....	155
6.6.2	Coordination of stakeholders.....	156
6.7	Summary.....	156
 CHAPTER 7		
Case Study 4: Investigating the Stakeholder Engagement Process in Malaysian: A Case Study of KVMRT Project Line 2 (Sungai Buloh – Serdang – Putrajaya).....		
7.1	Introduction.....	158
7.2	How Stakeholder Engagement Practices Can Sustain an Active Relationship?.....	160
7.3	Methodology.....	162
7.4	Background of KVMRT Line 2 Case Study.....	163
7.4.1	KVMRT Line 2 project structure.....	165
7.5	Internal Early Preparation of Stakeholder Engagement during Planning Phase of Case Study 4.....	167
7.5.1	Stakeholders' perceptions of engagement process for KVMRT Line 2.....	170
7.5.2	Stakeholders' perspective on the new railways.....	171
7.6	Stakeholders and Governance Engagement.....	171

7.7	Practical Implication of Case Study 4	172
7.7.1.	Continuous engagement and internal early preparation	172
7.7.2	More rapidly resolved issues on land acquisition.....	173
7.7.3	Effective communication tools.....	174
7.8	Summary	175

CHAPTER 8

General Discussion and Research Synthesis.....176

8.1	Introduction	176
8.2	Cross-case Synthesis	177
8.2.1	The stakeholders: which stakeholders are involved, and how to identify stakeholders.....	178
8.2.2	Internal early preparation and planning (method for stakeholder engagement and planning).....	181
8.2.3	Procurement: the procurement delivery system and the relationship with stakeholders.....	183
8.2.4	Project governance and stakeholders.....	185
8.2.5	Delivering values in the engagement process.....	186
8.2.6	Social effects on stakeholders.....	1898.3
	Practical Implication of Stakeholder’s Engagement Process in Infrastructure Projects in New Zealand and Malaysia	190

8.3.1	Implication of engagement process for project success.	190
8.3.2	Managing uncertainty during the planning stage	191
8.3.3	Strategies from the management perspective to minimise issues with key stakeholders	192
8.3.4	Understanding the design concept	193
8.3.5	Implication for future studies on infrastructure projects.	193
8.4	Validation result	195
8.5	Summary	197

CHAPTER 9

Best practice for Stakeholder Engagement Process as a Guideline for Infrastructure Projects.....198

9.1	Introduction	198
9.2	Best Practice Guidelines for Stakeholder Engagement for Infrastructure Project.	199
9.2.1	Best practice guidelines for process of stakeholder engagement	199
9.2.2	Best practice for internal early preparation and planning.....	200
9.2.3	Best practice for procurement delivery system and the relationship with stakeholders	201
9.2.4	Best practice for project governance and stakeholders or (governance approaches in managing the infrastructure projects).....	202
9.2.5	Best practice for delivering value in the engagement process	202

9.2.6	Best Practices for social effects on stakeholders.....	203
-------	--	-----

CHAPTER 10

Conclusions and Recommendations.....	204
---	------------

10.1 Introduction	204
-------------------------	-----

10.2 Review of Research Objectives.....	207
---	-----

10.3 Phase 1: Stakeholder Engagement and its Relation to Project Collaboration in Assisting Innovation in Infrastructure Projects	208
---	-----

10.3.1 Objective 1: To investigate the relationship between stakeholder engagement and collaboration in infrastructure projects.....	208
--	-----

10.3.2 Major findings	209
-----------------------------	-----

10.4 Phase 2A Investigating Implementation of Stakeholder Engagement Approaches through Collaborative Procurement System - Preliminary case study.....	210
--	-----

10.4.1 Objective 2: To investigate the engagement processes for stakeholders used during a New Zealand infrastructure project.....	211
--	-----

10.4.2 Major findings	211
-----------------------------	-----

10.5 Phase 2B Investigating the Stakeholder Engagement Process in Infrastructure Project across Countries	214
---	-----

10.5.1 Objective 3: To investigate the ways in which New Zealand and Malaysia differ across infrastructure projects.....	214
--	-----

10.5.2 Major findings	215
-----------------------------	-----

10.6	Phase 3: Understanding Keys Implication of Engagement Process Resulting from the Case Studies	216
10.6.1	Objective 4: To identifying the practical implications of the stakeholder engagement process resulting from the case studies	216
10.6.2	Major findings	217
10.7	Phase 4 Developing Best Practices Approach for Stakeholder Engagement for Infrastructure Projects	218
10.7.1	Objective 5: To establish a best practices guideline for stakeholder engagement in construction infrastructure projects.	218
10.7.2	Major findings	219
10.8	Main Thesis Aim	219
10.9	Concluding Remarks	220
10.10	Contribution to Body of Knowledge.....	221
10.11	Research Limitations.....	222
10.12	Recommendations for Future Research	222
	References.....	224
	Appendices.....	247

List of Figures

<i>Figure 1.2. Research process.....</i>	<i>20</i>
<i>Figure 2.1. Procurement Choices.....</i>	<i>29</i>
<i>Figure 2.2. Motivation to potential for innovation through various procurement methods. 31</i>	
<i>Figure 2.3. Stakeholder mapping.....</i>	<i>37</i>
<i>Figure 2.4. IAP2 public participation spectrum.....</i>	<i>42</i>
<i>Figure 3.1. Research process.....</i>	<i>50</i>
<i>Figure 4.1. Formation of alliance team, from January 2010 to 2017</i>	<i>90</i>
<i>Figure 4.2. Project structure of the alliance.....</i>	<i>91</i>
<i>Figure 4.3. M2PP governance framework during IPAA phase.....</i>	<i>92</i>
<i>Figure 4.4. Progressive process of engagement of the M2PP during IPAA phase.</i>	<i>100</i>
<i>Figure 4.5. Process of initial preparation and planning of M2PP Expressway project. ...</i>	<i>105</i>
<i>Figure 5.1. PPP contractual framework.....</i>	<i>122</i>
<i>Figure 5.2. Northern Express Group PPP consortium of Ara Tūhono—Pūhoi Expressway.</i>	<i>123</i>
<i>Figure 5.3. Agencies collaborating in planning alliance.</i>	<i>125</i>

List of Figures

<i>Figure 5.4. Governance of project structure during investigation and development phase.</i>	128
<i>Figure 5.5. The consultation phases Final Report and Decision of the Board of Inquiry.</i>	129
<i>Figure 6.1. KVMRT project structure.</i>	144
<i>Figure 6.2. KVMRT project governance.</i>	145
<i>Figure 6.3. PDP roles and flow of information in KVMRT Line 1.</i>	148
<i>Figure 6.4. Process of initial preparation and alignment of KVMRT project.</i>	151
<i>Figure 7.1. Stakeholder mapping.</i>	161
<i>Figure 7.2. Timeline for KVMRT Line 2.</i>	164
<i>Figure 7.3. KVMRT project structure.</i>	165
<i>Figure 8.1. The process of engagement awareness program</i>	192
<i>Figure 10.1. Research phases.</i>	206

List of Tables

<i>Table 1.1</i>	Research Question, Research Objectives and Related Chapters	11
<i>Table 1.2</i>	Phase of the Project during Interviews and Case Studies Involved	17
<i>Table 3.1</i>	Case study selection according to criteria	58
<i>Table 3.2.</i>	Relationship between Research Questions and Objectives	61
<i>Table 3.3</i>	Strengths and Weaknesses of Research Methods	63
<i>Table 3.4</i>	Overview of Research Objectives and Corresponding Methods	64
<i>Table 3.5</i>	Profiles of Interviewees for Case Study 1 in New Zealand	70
<i>Table 3.6</i>	Profiles of Interviewees for Case Study 2 in New Zealand	70
<i>Table 3.7</i>	Profiles of Interviewees for Case Study 3 in Malaysia	71
<i>Table 3.8</i>	Profiles of Interviewees for Case Study 4 in Malaysia	71
<i>Table 3.9</i>	Number of Stakeholders Selected	72
<i>Table 4.1</i>	Profile of the Interviewees	87
<i>Table 4.2</i>	KRAs in the IPAA Phase	96
<i>Table 4.3</i>	Result from the Engagement Method of the External Stakeholders	103
<i>Table 5.1</i>	List of Interviewees	121
<i>Table 5.2</i>	Actions Taken, Feedback Methods and Stakeholders Involved in Further North Alliance Expressway	131

List of Tables

Table 6.1 Profile of the Interviewees 141

Table 6.2 Roles and Relationships of Key Stakeholders of KVMRT Line 1 Governance 154

Table 7.1 Research Interviewees for Case Study 4 163

Table 7.2 Stakeholders Involved with the Engagement Session 169

Table 7.3 Engagement Session during Pre-construction Planning for KVMRT Lines 1 and 2
..... 172

Table 8.1 Themes Obtained from Cross-case Synthesis 177

List of Abbreviations

AMT	Alliance Management Team
BOI	Board of Inquiry
CEO	Chief Executive Officer
CMS	Complaint Management System
CRG	Community Reference Group
DBKL	Dewan Bandaraya Kuala Lumpur
EPA	Environmental Protection Authority
IAP2	International Association of Public Participation
ICT	Information and Communication Technology
IPAA	Interim Project Alliance Agreement
KPI	Key Performance Indicator
KRA	Key Result Area
KVMRT	Klang Valley Mass Rapid Transit
M2PP	Mackays to Peka Peka
MRT	Mass Rapid Transit
NGO	Non-government Organisation
NOP	Non-owner Participant
NoR	Notice of Requirement
NZTA	New Zealand Transport Agency
OECD	Organisation for Economic Co-operation and Development
PAA	Project Alliance Agreement

List of Abbreviations

PAB	Project Alliance Board
PDP	Project Delivery Partner
PMI	Project Management Institute
PPP	Public–Private Partnership
RoNS	Road of National Significance
SPAD	Suruhanjaya Pengangkutan Awam Darat
TOC	Target Outturn Cost
WPC	Work Package Contractor

List of Publications

Published Papers

1. Baharuddin, H. E. A., Ibrahim, C. K., Costello, S. B., & Wilkinson, S. (2017). Managing stakeholders through alliances: a case study of a megaproject in New Zealand. *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, 170(4), 151-160.
2. Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2016). Improving early stakeholder engagement process for infrastructure projects. *Proceeding of World Building Congress (WBC) 2016: Volume 1: Creating Built Environments of New opportunities*, Kalle Kähkönen and Marko Keinänen (Eds.), Tampere University, Finland.
3. Baharuddin, H.E.A, Wilkinson, S., & Costello, S.B., (2013). *Early stakeholder engagement as a process for innovation*. Paper published and presented at the CIB World Building Congress (WBC) 2013 Construction Society, Brisbane, Australia, 5-9 May 2013.
4. Baharuddin, H.E.A, Wilkinson, S., & Costello, S.B., (2013). Factors that influence effective engagement with stakeholders in the construction projects. Paper published and presented at the The 38th Australasian Universities Building Education Association Conference (AUBEA) 2013, Auckland, New Zealand, 20-22 November 2013.
5. Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2018). Enhancing stakeholder engagement features through project collaboration in infrastructure projects. To be submitted to *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, ICE Publishing.
6. Baharuddin, H.E.A, Wilkinson, S., & Costello, S.B., (2018). Investigating the keys implications on stakeholder engagement processes through collaborative procurement delivery system: a comparative study on infrastructure in New Zealand and Malaysia.

To be submitted to *Australasian Journal of Construction Economics and Building (AJCEB)*, UTS Press.

Co-Authorship Forms

1. Co-Authorship Form A: Baharuddin, H. E. A., Ibrahim, C. K., Costello, S. B., & Wilkinson, S. (2017). Managing stakeholders through alliances: a case study of a megaproject in New Zealand. Published *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, 170(4), 151-160.
2. Co-Authorship Form B: Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2016). *Improving the early stakeholder engagement process for infrastructure project*. Paper published in Proceeding of World Building Congress (WBC) 2016, Finland.
3. Co-Authorship Form C: Baharuddin, H.E.A, Wilkinson, S., & Costello, S.B., (2013). *Early stakeholder engagement as a process for innovation*. Paper presented at the CIB World Building Congress Construction Society, Brisbane, Australia, 5-9 May 2013.
4. Co-Authorship Form D: Baharuddin, H.E.A, Wilkinson, S., & Costello, S.B., (2013). Factors that influence effective engagement with stakeholders in the construction projects. Paper presented at the *The 38th Australasian Universities Building Education Association Conference (AUBEA)*, Auckland, New Zealand, 20-22 November 2013.
5. Co-Authorship Form E: Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2018). Enhancing stakeholder engagement features through project collaboration in infrastructure projects. To be submitted to *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, ICE Publishing.
6. Co-Authorship Form F: Baharuddin, H.E.A, Wilkinson, S., & Costello, S.B., (2018). Investigating the keys implications on stakeholder engagement through collaborative procurement delivery system: a comparative study on infrastructure in New Zealand and Malaysia. To be submitted to *Australasian Journal of Construction Economics and Building (AJCEB)*, UTS Press.

Co-Authorship Form

This form is to accompany the submission of any PhD that contains published or unpublished co-authored work. **Please include one copy of this form for each co-authored work.** Completed forms should be included in all copies of your thesis submitted for examination and library deposit (including digital deposit), following your thesis Acknowledgements. Co-authored works may be included in a thesis if the candidate has written all or the majority of the text and had their contribution confirmed by all co-authors as not less than 65%.

Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Co-authorship Form A:

Part of Chapter 4 "Managing stakeholders through alliances; a case study of a mega project in New Zealand" were extracted from this co-authored work:

Baharuddin, H.E.A., Che Ibrahim, C.K.I., Costello, S.B., & Wilkinson, S. (2017) Managing stakeholders through alliances: a case study of a megaproject in New Zealand. Proceedings of the Institution of Civil Engineers-Management, Procurement and Law, 170(4), 151-160.

Nature of contribution by PhD candidate	Data collection, data analysis and paper writing
Extent of contribution by PhD candidate (%)	65%

CO-AUTHORS

Name	Nature of Contribution
Dr. Che Khairil Izam Che Ibrahim	Co-author
Assoc. Prof. Seosamh Costello	Supervision and proof-reading
Professor Suzanne Wilkinson	Supervision and proof-reading

Certification by Co-Authors

The undersigned hereby certify that:

- ❖ the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- ❖ that the candidate wrote all or the majority of the text.

Name	Signature	Date
Dr. Che Khairil Izam Che Ibrahim		7/08/2018
Assoc. Prof. Seosamh Costello		10/8/18
Professor Suzanne Wilkinson		10/8/18

Co-Authorship Form

This form is to accompany the submission of any PhD that contains published or unpublished co-authored work. **Please include one copy of this form for each co-authored work.** Completed forms should be included in all copies of your thesis submitted for examination and library deposit (including digital deposit), following your thesis Acknowledgements. Co-authored works may be included in a thesis if the candidate has written all or the majority of the text and had their contribution confirmed by all co-authors as not less than 65%.

Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Co-authorship Form B:

Part of Section 5.2, 5.2.1, 5.2.2, 5.6,6.3,6.5,6.5.1,6.5.2., in Chapter 5 and Chapter 6 "Improving early stakeholder engagement process for infrastructure projects" were extracted from this co-authored work:

Baharuddin, H.E.A., Wilkinson, S., Costello, S. B., (2017) Managing stakeholders through alliances: a case study of a megaproject in New Zealand. Proceeding of World Building Congress (WBC) 2016: Volume 1: Creating Built Environments of New opportunities, Kalle Kahkonen and Marko Keinanen (Eds.), Tempere University, Finland

Nature of contribution by PhD candidate	Data collection, data analysis and paper writing
Extent of contribution by PhD candidate (%)	90%

CO-AUTHORS

Name	Nature of Contribution
Professor Suzanne Wilkinson	Supervision, advice for paper structure and proof reading
Assoc. Prof. Seosamh Costello	Supervision, advice for paper structure and proof-reading

Certification by Co-Authors

The undersigned hereby certify that:

- ❖ the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- ❖ that the candidate wrote all or the majority of the text.

Name	Signature	Date
Professor Suzanne Wilkinson		10/8/18
Assoc. Prof. Seosamh Costello		10/8/18

Co-Authorship Form

This form is to accompany the submission of any PhD that contains published or unpublished co-authored work. **Please include one copy of this form for each co-authored work.** Completed forms should be included in all copies of your thesis submitted for examination and library deposit (including digital deposit), following your thesis Acknowledgements. Co-authored works may be included in a thesis if the candidate has written all or the majority of the text and had their contribution confirmed by all co-authors as not less than 65%.

Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Co-authorship Form C:

Part of Section 2.3, 2.4, 2.4.1, 2.6, 2.9,2.10 in Chapter 2 "Early stakeholder engagement as a process for innovation" were extracted from this co-authored work:

Baharuddin, H.E.A., Wilkinson, S., Costello, S. B., (2013). Early stakeholder engagement as a process for innovation. Proceeding of World Building Congress (WBC) 2013 Construction Society, Brisbane, Australia, 5-9 May 2013

Nature of contribution by PhD candidate	Data collection, data analysis and paper writing
Extent of contribution by PhD candidate (%)	90%

CO-AUTHORS

Name	Nature of Contribution
Professor Suzanne Wilkinson	Supervision, advice for paper structure and proof reading
Assoc. Prof. Seosamh Costello	Supervision, advice for paper structure and proof-reading

Certification by Co-Authors

The undersigned hereby certify that:

- ❖ the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- ❖ that the candidate wrote all or the majority of the text.

Name	Signature	Date
Professor Suzanne Wilkinson		10/8/18
Assoc. Prof. Seosamh Costello		10/8/18



Co-Authorship Form

This form is to accompany the submission of any PhD that contains published or unpublished co-authored work. **Please include one copy of this form for each co-authored work.** Completed forms should be included in all copies of your thesis submitted for examination and library deposit (including digital deposit), following your thesis Acknowledgements. Co-authored works may be included in a thesis if the candidate has written all or the majority of the text and had their contribution confirmed by all co-authors as not less than 65%.

Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Co-authorship Form D:

Parts of Sections 2.2, 2.5, 4.8, 4.8.1 "Factors that influence effective engagement with stakeholders in the construction projects" were extracted from this co-authored work:

Baharuddin, H.E.A., Wilkinson, S., Costello, S. B., (2013). Factors that influence effective engagement with stakeholders in construction projects. In Proceedings of the 38th Australasia Universities Building Education Association Conference (AUBEA) 2013, Auckland, New Zealand, on 22-20 November 2013.

Nature of contribution by PhD candidate	Data collection, data analysis and paper writing
Extent of contribution by PhD candidate (%)	90%

CO-AUTHORS

Name	Nature of Contribution
Professor Suzanne Wilkinson	Supervision and advice for paper structure and proof-reading
Assoc. Prof. Seosamh Costello	Supervision and advice for paper structure and proof reading

Certification by Co-Authors

The undersigned hereby certify that:

- ❖ the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- ❖ that the candidate wrote all or the majority of the text.

Name	Signature	Date
Professor Suzanne Wilkinson		10/8/18
Assoc. Prof. Seosamh Costello		10/8/18

Co-Authorship Form

This form is to accompany the submission of any PhD that contains published or unpublished co-authored work. **Please include one copy of this form for each co-authored work.** Completed forms should be included in all copies of your thesis submitted for examination and library deposit (including digital deposit), following your thesis Acknowledgements. Co-authored works may be included in a thesis if the candidate has written all or the majority of the text and had their contribution confirmed by all co-authors as not less than 65%.

Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Co-authorship Form E:

Part of Chapter 5, Chapter 6 and Chapter 7 "Enhancing stakeholder engagement features through project collaboration in infrastructure projects" were extracted from this co-authored work:

Baharuddin, H.E.A., Wilkinson, S., & Costello, S.B., (2018) Enhancing stakeholder engagement features through project collaboration in infrastructure projects. To be submitted to Proceedings of the Institution of Civil Engineers- Management, Procurement and Law, ICE Publishing.

Nature of contribution by PhD candidate	Data collection, data analysis and paper writing
---	--

Extent of contribution by PhD candidate (%)	90%
---	-----

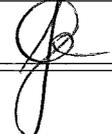
CO-AUTHORS

Name	Nature of Contribution
Professor Suzanne Wilkinson	Supervision, advice for paper structure and proof-reading
Assoc. Prof. Seosamh Costello	Supervision, advice for paper structure and proof-reading

Certification by Co-Authors

The undersigned hereby certify that:

- ❖ the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- ❖ that the candidate wrote all or the majority of the text.

Name	Signature	Date
Professor Suzanne Wilkinson		10/8/18
Assoc. Prof. Seosamh Costello		10/8/18

Co-Authorship Form

This form is to accompany the submission of any PhD that contains published or unpublished co-authored work. **Please include one copy of this form for each co-authored work.** Completed forms should be included in all copies of your thesis submitted for examination and library deposit (including digital deposit), following your thesis Acknowledgements. Co-authored works may be included in a thesis if the candidate has written all or the majority of the text and had their contribution confirmed by all co-authors as not less than 65%.

Please indicate the chapter/section/pages of this thesis that are extracted from a co-authored work and give the title and publication details or details of submission of the co-authored work.

Co-authorship Form F:

Part of Chapter 8 "Investigating the keys implication on stakeholder engagement through collaborative procurement delivery system: a comparative study on infrastructure in New Zealand and Malaysia" were extracted from this co-authored work:

Baharuddin, H.E.A., Wilkinson, S., & Costello, S.B. (2018) Investigating the keys implication on stakeholder engagement through collaborative procurement delivery system: a comparative study on infrastructure in New Zealand and Malaysia. To be submitted to Australasian Journal of Construction Economics and Building (AJCEB), UTS Press

Nature of contribution by PhD candidate	Data collection, data analysis and paper writing
Extent of contribution by PhD candidate (%)	90%

CO-AUTHORS

Name	Nature of Contribution
Professor Suzanne Wilkinson	Supervision, advice on paper structure and proof-reading
Assoc. Prof. Seosamh Costello	Supervision, advice on paper structure and proof-reading

Certification by Co-Authors

The undersigned hereby certify that:

- ❖ the above statement correctly reflects the nature and extent of the PhD candidate's contribution to this work, and the nature of the contribution of each of the co-authors; and
- ❖ that the candidate wrote all or the majority of the text.

Name	Signature	Date
Professor Suzanne Wilkinson		10/8/18
Assoc. Prof. Seosamh Costello		10/8/18

CHAPTER 1

Introduction

1.1 Introduction

The purpose of this research is to investigate stakeholder engagement processes and their implementation in project collaboration, specifically in infrastructure projects. The thesis aims to provide evidence on how future stakeholders could be successfully managed. There are various stakeholders involved in construction project, with diverse occupational and professional backgrounds (Mok, Shen, & Yang, 2015), and engaged at different levels and with different interests (Yang et al., 2011). Large infrastructure projects that involve complex relationships between a varieties of stakeholders are a managerial challenge (Flyvbjerg, 2014; Mok et al., 2015). Bal et al., (2013) showed that in order to deliver and achieve excellent project outcomes, stakeholder engagement is an important part of successful construction practice. For example, before an engagement plan is formulated and consultation begins, stakeholder identification is a critical component that should occur in the initial scoping phase (Bal et al., 2013). Stakeholders have their own interests and priorities that may cause conflicts and increase the complexity and risk of the project practice (Bal et al., 2013; Manowong & Ogunlana, 2010; Mok et al., 2015). Chinyio and Akintoye (2008) stated that, to achieve project objectives, it is essential to formulate a process for stakeholder management and to identify effective approaches for stakeholder analysis and engagement. Effective engagement requires communicating with stakeholders and involving and

developing relationships with them (Greenwood, 2007; Chinyio & Akintoye, 2008; Bal et al., 2013; Mok et al., 2015).

Previous studies suggested that stakeholders should be engaged as early as possible, and early engagement is considered essential for stakeholder analysis and decision making (Chess & Purcell, 1999; Reed et al., 2009; Tammer, 2009). Such an approach in engaging stakeholders—through workshops, meetings and interviews—should be applied (Reed, 2008), especially in the context of complicated environments, such as construction projects. Mitchell (2013) stated that effective engagement with the individuals, regulatory agencies, organisations and communities affected by, and interested in, a project is essential for project success. Through early engagement, stakeholders and communities can identify the scope of what is to be done and ensure that all appropriate issues are addressed. Stakeholder engagement also helps ensure respect among parties by working in partnership rather than in opposition. Successful engagement of stakeholders involves actively giving and gaining support, and working together to devise, plan and develop new project solutions (Persson & Olander, 2004).

Project delivery systems have an effect on stakeholder engagement. Different project delivery systems involve project collaboration with different players and key stakeholders. From an innovation perspective, Walker and Hampson (2003) stated that the most important aspect of a procurement system is the presence of a well-integrated team, which they considered vital for driving innovation. Communication, learning and innovation are believed to be improved across the supply chain through management by a single entity (Walker & Hampson, 2003). However, if the stakeholders' goals include contractor collaboration in the design process and higher client involvement, the traditional procurement method is weak in dealing with these issues (Rwelamila, 2010). Collaborative procurement has been seen to reduce costs, reduce project times, improve quality and improve client satisfaction.

Collaborative procurement can also mean that all stakeholders across the project supply chain can be more easily identified as the project team works more closely together. Rwelamila (2010) stated that, during the preparation of project documentation, irrespective of procurement type, the project manager should identify project stakeholders.

Mega infrastructure projects encompass construction projects that demand a large amount of financing and staffing, and are often part of politically charged processes. Gellert and Lynch (2003) defined mega infrastructure projects as technologically complex, detailed in planning and highly sensitive to political influences. Mega projects usually cause visible change to the living environment. In most countries, mega infrastructure projects take a special position in public policy (Giezen, 2012). In any infrastructure project, dealing with various stakeholders, wider communities and the public can be a challenging task for project developers. As a result of the complexity, Flyvbjerg, Bruzelius, and Rothengatter (2003) and Altshuler and Luberoff (2003) showed that mega projects have a bad track record of keeping to budget and time schedules. Mega projects for infrastructure often involve various stakeholders of diverse occupational and professional backgrounds, who have different levels and types of interest in the project. The complex and volatile nature of mega projects requires systematic approaches and appropriate skills by project managers to accommodate multiple stakeholder interests and achieve the best value project outcomes (Mok et al., 2015).

Sutterfield, Friday-Stroud, and Shivers-Blackwell (2006) stated that, to achieve a successful project outcome, the project manager must be adept at managing the interests of multiple stakeholders throughout the entire project management process. According to Bourne and Walker (2005), many projects fail because the project manager is unable to effectively manage the sometimes hidden and conflicting agendas of the various project stakeholders. Successful stakeholder engagement can be achieved by ensuring a close relationship between the project team and the stakeholders involved, including the public.

Innes and Booher (2004) claimed that one of the purposes of public participation is to promote equity and fairness because individuals and groups who are excluded from the decision-making processes are unlikely to have their needs and preferences reflected in the outcomes. Effective stakeholder engagement can be achieved by implementing project stakeholder management processes during the preplanning stage of the project and actively managing stakeholders throughout the life-cycle of the project. However, projects, especially mega projects, find it difficult to coordinate, communicate and manage stakeholders effectively, and this can reflect poorly on project outcomes. Discovering methods of managing mega project stakeholders is at the heart of this thesis, with a view to producing best practices for industry to use when managing stakeholders.

This thesis addresses the stakeholder management problem. The thesis aims to answer the following questions:

- How does stakeholder engagement in infrastructure projects affect project collaboration?
- What are the processes used for stakeholder engagement for a large infrastructure project in New Zealand?
- How do the stakeholder engagement processes in New Zealand and Malaysia differ across infrastructure projects?
- What are the key implications of using stakeholder engagement methods in infrastructure projects?
- What are the best practices that could be derived from the stakeholder engagement processes?

Thus far, only a few studies have examined in depth how stakeholder engagement, particularly in the early construction stages, can lead towards successful projects. However, these studies did not highlight guidelines on how to achieve best practices for engaging

stakeholders in infrastructure projects. An understanding of effective stakeholder engagement processes in mega infrastructure project is still poor. This study focussed on stakeholder engagement practices from mega infrastructure projects in two countries, in order to provide a wider view of how stakeholders are managed. This thesis particularly focused on understanding the process of stakeholder engagement in the earlier phase of infrastructure projects. In order to provide a focus for data collection, this research examined stakeholder engagement in infrastructure projects where collaborative procurement systems were in use in New Zealand and Malaysia. The case studies selected from New Zealand and Malaysia showed the process of stakeholder engagement and compared approaches in a developed and developing country. The thesis examined two different stakeholder management cultures, where different approaches were used, but where the intent was to effectively engage with stakeholders. The research examines the concept of stakeholder engagement, the process and method of engaging stakeholders, the need for stakeholder engagement during the early stage of projects (such as inception, planning and pre-construction), the key implications of early stakeholder engagement and the application of stakeholder engagement in infrastructure projects. The research provides valuable knowledge and useful guidelines for project owners, stakeholder managers and project personnel regarding the importance of engaging stakeholders early. The thesis presents a theoretical and general model of the process of analysing stakeholders' satisfaction. A discussion of the universality of the findings of the research is presented.

1.2 Background to the Research

1.2.1 Stakeholder engagement

Stakeholder engagement embraces the willingness of project clients and managers to listen and discuss issues of interest to stakeholders. Critically, organisations must be prepared to consider changing what it aims to achieve and how it operates as a result of stakeholder engagement (Jeffery, 2009). Stakeholder engagement identified by Rodriguez-Melo and Mansouri (2011) as the defining factor increasing managers' awareness, helping legislation be effectively implemented and making sustainability highly appealing to clients. Greenwood (2007) defined stakeholder engagement as practices that the organisation undertakes to involve stakeholders in a positive manner in organisational activities. Stakeholder engagement in construction projects is important for project teams, as the nature of construction projects is uncertain and complex and requires multiple views and inputs (Yang et al., 2011). Stakeholder engagement is increasingly becoming part of construction project practice to deliver better project outcomes. Atkin and Skitmore (2008) observed that enhanced stakeholder involvement can help manage stakeholder needs, decrease unanticipated risk and reduce unconstructive actions or reactions that may affect project success.

Heravitorbati, et al., (2011) stressed that effective stakeholder involvement is regarded a key success factors in construction projects. Stakeholder concerns can be integrated into the design of a project to achieve collaborative integrated project development (El-Gohary, Osman, & El-Diraby, 2006). It is important to determine different stakeholder concerns, opinions and interests to better facilitate the development of a project and resolve conflicts by reaching consensus at an early stage of the project (Li, Ng, & Skitmore, 2012). Consequently, Chinyio and Akintoye (2008) showed that it is essential to formulate a process

for stakeholder management and to identify effective approaches for stakeholder engagement to achieve project objectives. Understanding the concepts that underlie stakeholder engagement is an essential step towards creating a strong project.

1.2.2 Project collaboration and stakeholders involved

The Project Management Institute (PMI) (2008) defined project stakeholders as individuals and organisations who are actively involved in a project or whose interests may be affected by the project execution or completion. Newcombe (2003) claimed that project stakeholders are groups or individuals who have a stake in or expectation of the project's performance, including clients, project managers, designers, subcontractors, suppliers, funding bodies, users and the community at large. Gibson (2000) described a stakeholder as any individual or group with the power to be a threat or benefit. According to El-Gohary et al. (2006), stakeholders are individuals or organisations who are either affected by or affect the development of a project. Capturing stakeholder input is a crucial component of the project development process. It is important to gauge stakeholder opinion and concerns to better facilitate the development of a project that will meet stakeholder needs. Olander (2007) categorised stakeholders as either internal (who are actively involved in project execution) or external (who are affected by the project). The process involved in stakeholder management includes identifying, negotiating and achieving objectives—such as social, environmental or economic objectives—through active stakeholder participation during the project phase (Brammer & Millington, 2004; Pajunen, 2006).

Ozorhon (2012) stated that long-term procurement relationships, collaborative work and early engagement in projects are effective ways of developing trust among parties. Robichaud and Anantatmula (2011) suggested that integration should be achieved through early involvement

of all stakeholders to ensure that project objectives are understood and met during every phase of the project lifecycle. Involvement of the stakeholder should ideally be identified during the early stages of investigation, inception and project commencement. The construction procurement system determines the overall framework of responsibilities for participants in the construction process and is a key factor contributing to stakeholder satisfaction (Rwelamila, 2010). Engaging stakeholders at an early stage of the project can enable constructive discussion and a sense of ownership that may lead to positive interest, increasing credibility, greater transparency and the early identification of constraints (Tammer, 2009). In any type of procurement method, by engaging stakeholders at an early stage of the project, opportunities may arise to enhance innovation and boost construction productivity (Ozorhon, 2012).

1.3 Problem Statement

Reworks, disputes, cost overruns, poor communication and failure of the supply chain are just some of the common problems that arise from stakeholder conflict during the construction phase. Conflicting interests arise because project participants have differing goals and priorities (Barlow, 2000; Yang et al., 2011). Such conflicts are often linked with failure to meet stakeholder expectations (McManus, 2002; Mok et al., 2015), which may affect project success (Li et al., 2012) and result in a knock-on effect on the project management process (Olander, 2007). Li et al. (2012) emphasised that stakeholders have positive and negative effects, and can cause direct benefits and losses during project implementation. There is little in the construction literature on the how stakeholders actually

affect project outcomes, particularly in complex construction projects. Stakeholders can have a negative impact including:

1. stakeholders working against the project
2. stakeholders who do not know what they want, and their ideas need to be developed.

Stakeholders can also be useful, including in assisting with:

3. the need to find new solutions for unknown situations
4. the need to form a coalition to complete the project (Storvang & Clarke, 2014).

Project personnel, clients, client's representatives or project managers must manage the influence of the various stakeholders in relation to the project requirements. A crucial skill for managers of construction projects is to understand, modify and manage stakeholders' expectations. Cleland, Lim, and Lee (2011) claimed that failure to address stakeholder expectations can result in project failure primarily because construction stakeholders tend to have the resources and capability to stop construction projects.

Neglecting to engage key stakeholders early in the process is a common point of failure during projects. This is because different project stakeholders have differing goals and priorities, and it is subsequently unlikely that all stakeholder expectations can be met. The early involvement of stakeholders can identify any potential problems and conflicts early on and stakeholders can provide input and advice (Chinyio & Akintoye, 2008; Lerbinger, 2012). There is a need to engage stakeholders in the project as early as possible to determine their needs and capture their input into the project, but little research exists on how this happens in practice, and what creates stakeholder engagement success. There has been relatively few studies undertaken on the subject of stakeholder engagement in the infrastructure sector. Fewer studies have empirically examined the stakeholder engagement process in terms of the of participation and effective engagement processes. There are currently no studies which

examine stakeholder engagement in the countries covered in this thesis, namely, New Zealand and Malaysian, even though both countries have large infrastructure programmes of work. Therefore, this study focusses on investigating and improving stakeholder engagement processes in infrastructure projects.

1.4 Research Aim and Objectives

The aim of this research is to establish best practices of the stakeholder engagement process approach that are suited to the complexity and uncertainty that characterise mega infrastructure projects. This study examines improving the stakeholder engagement process during the early stage of construction projects. Case studies of infrastructure projects in New Zealand and Malaysia are used to obtain findings of the improvement strategies. Table 1.1 presents the five objectives and research questions relating to the thesis. The research objective for Phase 1 of this thesis aimed to understand early stakeholder engagement. The research objectives in Phases 2A and 2B were used to identify the process of stakeholder engagement in relation to project collaboration. Phase 3 described the key implications of the stakeholder engagement process derived from the case studies. Finally, Phase 4 creates the best practices for stakeholder engagement that may be used as a guide for infrastructure projects.

Table 1.1
Research Question, Research Objectives and Related Chapters

Phase	Research Questions	Research Objectives	Chapters
Phase 1	How does stakeholder engagement in infrastructure projects affect project collaboration?	To investigate the relationship between stakeholder engagement and collaboration in infrastructure projects	Chapter 2: Evaluating stakeholder engagement as a process assisting innovation in infrastructure projects
Phase 2	2A What are the processes used for stakeholder engagement for a large infrastructure project in New Zealand?	To investigate the engagement processes for stakeholders used during a New Zealand infrastructure project	Chapter 4: Implementation of stakeholder engagement practices through alliancing in New Zealand
	2B How do the stakeholder engagement processes in New Zealand and Malaysia differ across infrastructure projects?	To investigate the ways in which New Zealand and Malaysian infrastructure projects differ in their use of stakeholder engagement.	Chapter 5: Case Study 2 (New Zealand) Chapter 6: Case Study 3 (Malaysia) Chapter 7: Case Study 4 (Malaysia)
Phase 3	What are the key implications of using stakeholder engagement methods in infrastructure projects?	To identify the practical implications of the stakeholder engagement process resulting from the case studies	Chapter 8: Cross-case synthesis
Phase 4	What are the best practices that could be derived from the stakeholder engagement processes?	To establish best practice guidelines for stakeholder engagement in construction infrastructure projects	Chapter 9: Best practices for managing stakeholders in infrastructure projects

1.5 Overall Thesis Stages

This thesis is based on published and unpublished research papers. The thesis follows the *University of Auckland PhD Guidelines* (UoA, 2014) in which the PhD candidate is the lead or sole author of the publications, and the introductory and concluding chapters of the thesis are included in addition to the research papers. The study includes four main phases throughout the research. Figure 1.1 diagrammatically maps the process of this thesis. The detailed process is described in each of the following sections.

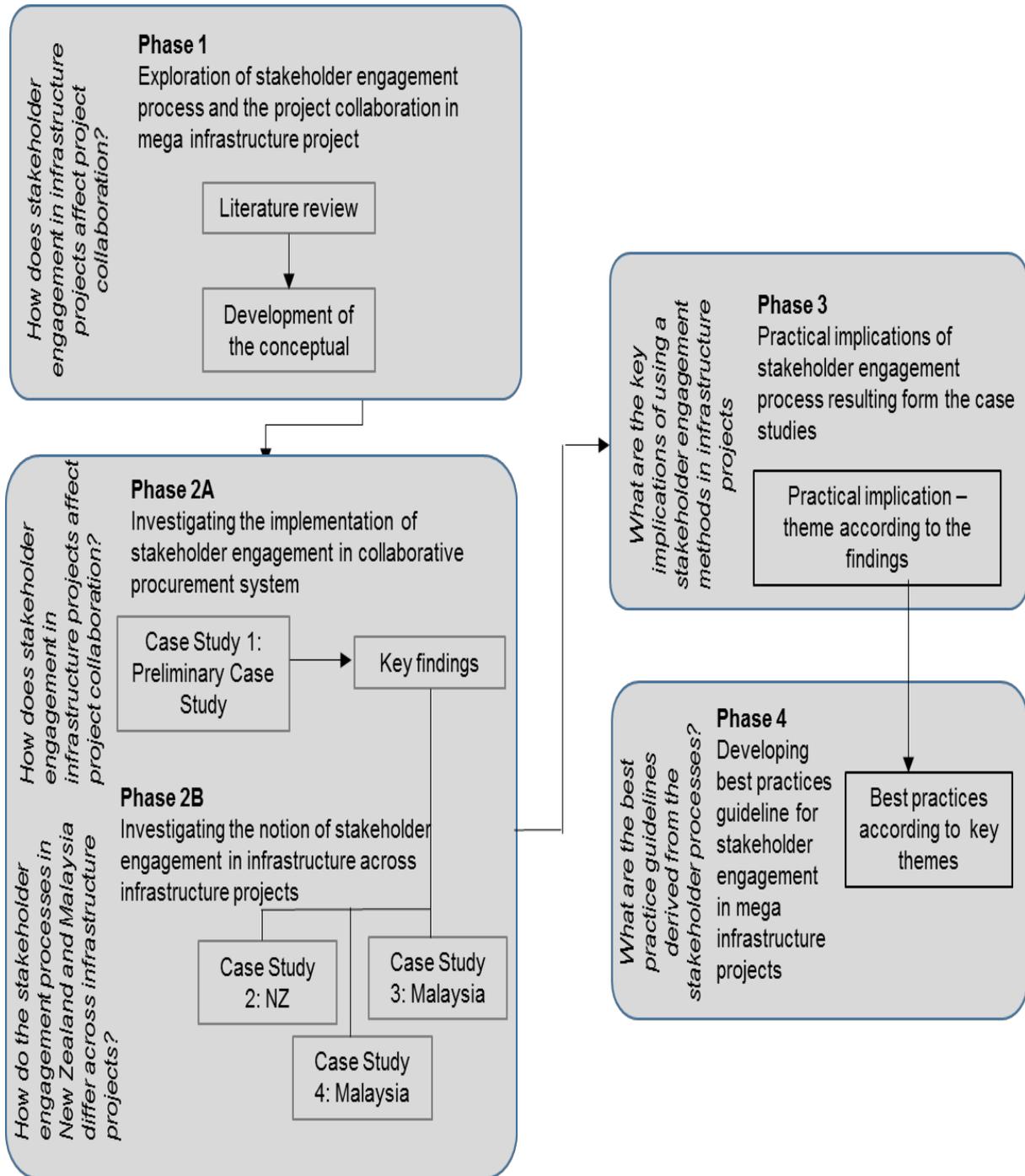


Figure 1.1. Thesis phases.

1.5.1 Phase 1: Stakeholder engagement and its relation to collaborative procurement in assisting project innovation.

Phase 1 of the thesis began by exploring stakeholder engagement and how the early engagement process facilitates project innovation. During this phase, this study related the stakeholder engagement process with the procurement methods of construction. The stakeholder matters were investigated according to each different contractual procurement system. The related chapter, Chapter 2, highlights the relationship between innovation processes in stakeholder management with types of construction procurement processes. It also discusses the importance of early stakeholder engagement.

Rwelamila (2010) stated that there is sufficient time to identify internal and external stakeholders in the procurement method by running the identification process in parallel with the process of preparing project documentation. Long-term procurement relationships, collaborative work and early engagement in projects are effective ways of developing trust among parties and thereby facilitating innovation (Ozorhon, 2012). Ultimately, it is believed that, with any type of procurement method, engaging stakeholders in an early stage of the project can enhance innovation and boost project productivity.

The preliminary findings from the literature suggest that, regardless of the procurement system, promoting early stakeholder engagement is vital to avoid rework and unnecessary costs, enhance quality, overcome disputes throughout the construction process and overcome the problem of low productivity. Further, long-term procurement relationships, especially in collaborative procurement, require early stakeholder engagement as an effective way of developing trust among stakeholders, thereby facilitating innovation. These approaches seem to lead to project success.

1.5.2 Phase 2A: Investigating the implementation of stakeholder engagement approaches in collaborative procurement system—preliminary case

Phase 2 is divided into two stages—2A and 2B. Phase 2A provided results for the stakeholder engagement process, procurement method and internal early preparation, which was an outcome of the preliminary case study, in which the stakeholder engagement process achieved successful implementation. Understanding the spectrum of stakeholder participation and stakeholder engagement indicated a difference in how engagement is managed in infrastructure projects. This phase investigated the approach of alliance procurement as a platform to provide a collaborative way to manage stakeholder complexity. Phase 1 focused on the process of engagement during the interim project alliance agreement phase (planning phase). This phase then investigated the engagement processes based on the international spectrum of public participation, and their implementation in infrastructure projects. This phase shows the sequential aspect, what to achieve and what is important in stakeholder engagement. A preliminary case study was examined to determine how the early stakeholder engagement approach was implemented in a mega infrastructure project.

1.5.3 Phase 2B: Investigating the stakeholder engagement process in infrastructure projects across countries.

Phase 2B observed and investigated the implementation of the stakeholder engagement process in three other case studies of infrastructure projects. The infrastructure projects selected were in New Zealand and Malaysia. The case studies were identified by the unique features they possessed, including being mega infrastructure projects. The outcomes of the process from the case studies are identified and discussed in Chapters 5, 6 and 7. The salient views from each case study are discussed as a cross-case synthesis in Chapter 8. The

preliminary findings from the case studies show that the process of engagement has limited standard specific procedures and fewer strategies outlined in the beginning of a construction project. The case studies highlight improvements that could be made and the key implications of better stakeholder management that project owners should consider during the stakeholder engagement process.

1.5.4 Phase 3: Understanding the key implications of the engagement process resulting from the case studies

Phase 3 discusses how the engagement process facilitates strategies that could be implemented to reduce conflicts among the key stakeholders, wider community and public. The project findings highlight that early involvement from stakeholders can help reduce conflict and project cost. To better analyse the key implications, the scope of early stakeholder engagement specifically focused on infrastructure projects, given that infrastructure projects have many levels of stakeholders involved. The complexity of construction and the risks that the project management team face during the planning stage influence the key features.

1.5.5 Phase 4: Developing best practices approach for stakeholder engagement practices for infrastructure projects.

Phase 4 led to the conclusion that significant improvements can be made in stakeholder engagement during the early stage of projects to lead to better project success. The best practices result from examining the case studies, as highlighted in the key implications in Chapter 8. These improvements can add value to stakeholder engagement

processes in construction. The study in this phase highlighted the strategies that project owners and management teams can implement, and the improvements that can be made to incorporate early stakeholder engagement.

1.6 Research Scope

This research is limited to the study of key affected internal and external stakeholders in the context of infrastructure projects. The focus of this research is on internal and external stakeholders and the engagement process during the early stage of a project. The research is also limited to New Zealand and Malaysia. The case studies of infrastructure projects were selected within two different geographical, political, environmental and social contexts. The selected infrastructure projects were chosen because of the complexity and nature of the construction and because, in large-scale projects, many stakeholders are affected, especially landowners, the local community, environmental and sustainability groups, financiers, non-government organisations (NGOs), local and regional councils and other relevant stakeholders. Ranjarajan et al. (2013) agreed that infrastructure systems, especially in transportation, are complex to plan, design, build and operate because this infrastructure is a ‘paradigmatic complex system’.

This research examined four case studies—two in New Zealand and two in Malaysia. The New Zealand case studies were selected from the New Zealand Transport Agency (NZTA). The Malaysian case studies were based on a current infrastructure project that is the first infrastructure project in Malaysia to include a stakeholder engagement team. Table 1.2 summarises the case studies selected and the phase of the project during the interview sessions conducted.

Table 1.2
Phase of the Project during Interviews and Case Studies Involved

Case Study	Phase of Project During Interview
Case Study 1: Mackays to Peka Peka, Wellington Project, New Zealand	Interim project alliance agreement (IPAA) and construction phase
Case Study 2: Ara Tūhono–Pūhoi to Wellsford in the northern Auckland region, New Zealand (also known as Further North Alliance)	Planning phase
Case Study 3: Klang Valley Mass Rapid Transit Line 1 Project, Malaysia (also known as Sungai Buloh–Kajang line)	Construction phase
Case Study 4: Klang Valley Mass Rapid Transit Line 2 Project, Malaysia (also known as Sungai Buloh–Serdang–Putrajaya line)	Design phase

This research was conducted from the multi-perspectives of project owners, key stakeholders, internal and external stakeholders and the community. The stakeholders identified for the research included key stakeholders, such as contractors, clients and design teams, and council members, local authorities, state councils, environmental organisations, financiers and the local community.

1.7 Research Innovation and Significance

Development projects generally require significant levels of consultation with stakeholders at several points during the project development cycle. The process is designed to include key companies, government agencies, NGOs, the media and other stakeholders, and works to facilitate understanding and agreement towards a collective end result.

This research will provide a practical contribution to increase understanding of the influence of stakeholders on construction projects, and the way construction project owners/developers can analyse stakeholders and the engagement process in a systematic manner. The research will also provide valuable knowledge and guidelines for project

managers, based on the best practices highlighted. Stakeholder managers and project personnel will be offered guidelines on the importance of engaging stakeholder from the beginning of the project. This research also offers a conceptual model of the process of analysing stakeholders' satisfaction with and effects on a project. Moreover, it offers insight on how external and internal stakeholders gain mutual understanding during the planning process.

As part of future knowledge about the research area of stakeholder engagement, the originality of the research can be generalised as follows:

1. The proposed best practice guidelines can be the basis of guidelines for project owners/developers to identify early effective measures to address external and internal stakeholders in construction infrastructure projects.
2. The research finds the key implications of the stakeholder engagement process, which can provide a basis for a stakeholder engagement model.
3. The establishment of a best practice guidelines is believed to minimise the risk and uncertainty of early stakeholder engagement, which can assist in the decision-making process, specifically for construction infrastructure projects.
4. This research increases understanding of the exact systematic practice in stakeholder engagement of construction projects
5. This research aids project managers with stakeholder engagement decision-making processes.
6. The case studies in New Zealand and Malaysia help produce a conceptual framework to improve early stakeholder engagement specifically for infrastructure projects. This help the project manager and the key stakeholders to

identify stakeholder earlier, engaging in proper way by using proper engagement method, thus, achieve better construction project quality.

1.8 Overview of Research Methods

As discussed earlier, this thesis consists of four main phases of research, as summarised in Figure 1.2. A systematic methodological framework was designed to complete this research and achieve the research objectives.

At the beginning of the study, a comprehensive literature review was conducted to gain a thorough understanding of the fundamental concepts and theoretical framework of the study. The literature review covered academic studies, government documents, annual reports and newsletters, in which the research gap was identified. The literature review served to partially achieve Objectives 1 and 2 in Chapters 1 and 2.

Semi-structured interviews with practitioners were used as the data collection method to achieve Objectives 3, 4 and 5, which are covered in Chapters 4, 5, 6, 7 and 8. In-depth, face-to-face interview techniques and semi-structured questions were adopted for the interviews.

Comparative case studies between the case studies were undertaken to achieve Objectives 3 and 4. The findings derived, coupled with the results from the semi-structured interviews, were synthesised to develop best practices for the stakeholder engagement process when undertaking collaborative procurement in New Zealand and Malaysia, with specific recommendations regarding the themes obtained.

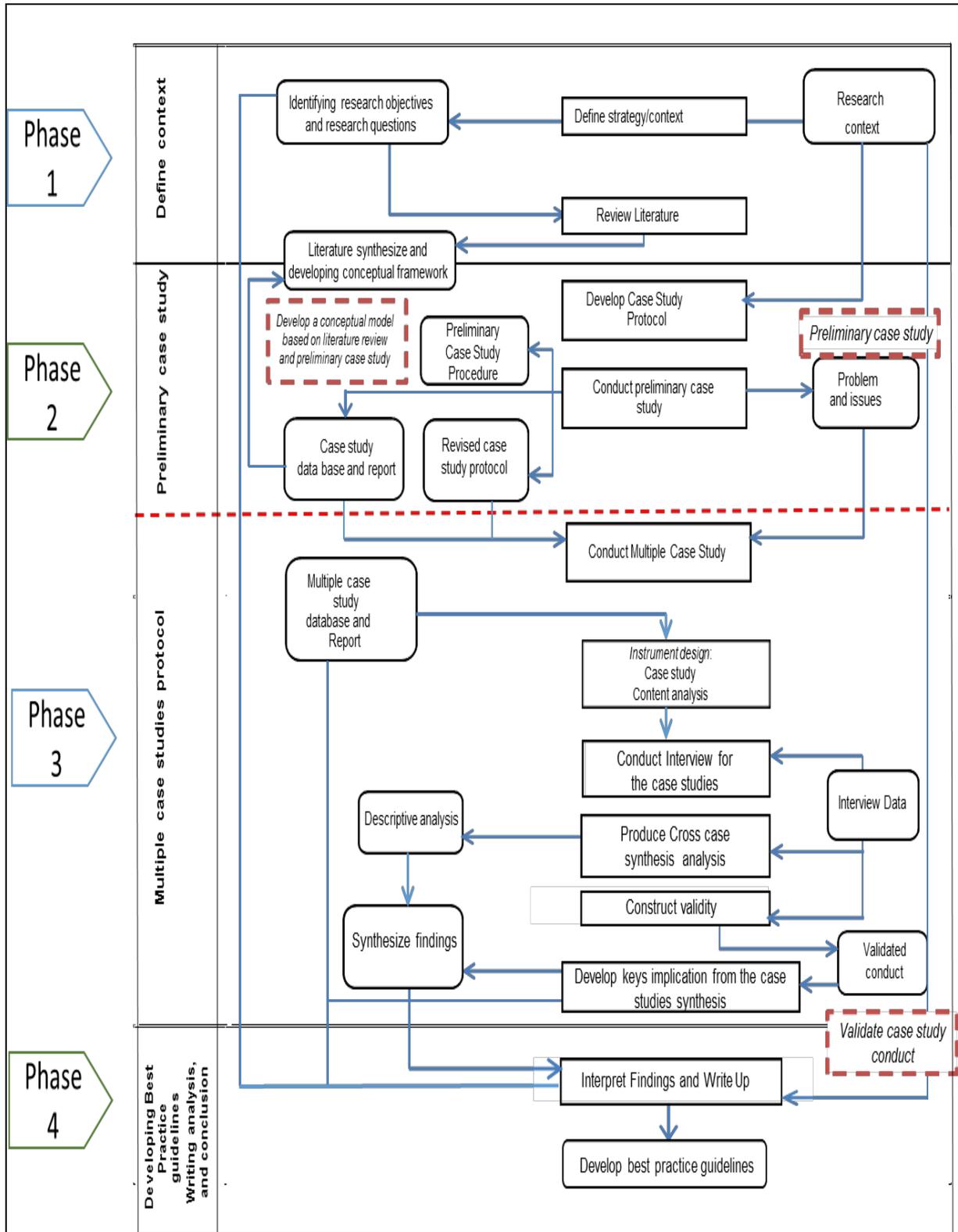


Figure 1.2. Research process.

1.9 Thesis Structure

This doctoral thesis has been produced in the style of a conventional thesis with publications. This thesis is formed by a series of journal papers and conference papers that have been published, accepted or submitted for publication in international journals or conference proceedings at the time of writing. Each chapter has been directly or partially extracted from the relevant papers. The thesis is structured into 10 chapters. The early part consists of an introduction to the thesis, the overarching discussion from the literature review and the research methodology. The middle part of the thesis consists of the preliminary case study and three other case studies obtained from infrastructure projects in New Zealand and Malaysia. The final part of the thesis presents the cross-case synthesis and the discussion section, and then explores the best practices emerging from the case study investigation.

Chapter 1 provides the background for this study and identifies the research aim, problems and objectives. It also presents an overview of the methodology, research scope and research significance.

Chapter 2 commences by introducing and explaining stakeholder engagement, the public participation spectrum and the effective engagement features that form the basis of this thesis. The chapter continues by exploring the significance of stakeholder engagement in collaborative procurement for driving innovation. This chapter draws from previously published literature on the subject.

Paper published from this chapter: Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2013). Evaluating early stakeholder engagement (ESE) as a process for innovation. In *Proceedings of World Building Congress (WBC) 2013*. Brisbane, QLD.

Chapter 3 describes the research methodology and design employed for the data collection and analysis to meet the research objectives of this study. A qualitative method was used to investigate the subject.

Chapter 4 focuses on demonstrating the ability of project demand approaches supported by changes in need of effective delivery, due to, complex engagement process. The chapter describes the ability of specific features within the alliance model to influence the stakeholder management process. The tools and methods of engagement are thoroughly discussed, alongside the effectiveness of the spectrum for effective engagement. The case study of an expressway in New Zealand is analysed and the findings discussed.

Paper published from this chapter: Baharuddin, H. E. A., Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2017). Managing stakeholders through alliances: A case study of a megaproject in New Zealand. *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, 170(4), 151–160.

Paper published from this chapter: Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2016). Improving early stakeholder engagement process for infrastructure projects. In K. Kähkönen & M. Keinänen (Eds.), *Proceedings of World Building Congress 2016: Volume 1—Creating built environments of new opportunities*. Finland: Tampere University.

Paper published from this chapter: Baharuddin, H. E. A., Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2013). Early stakeholder engagement (ESE): Factors that influence effective engagement with stakeholders in construction projects. Paper presented at the *38th Australasian Universities Building Education Association Conference (AUBEA) 2013*, Auckland, New Zealand.

Chapter 5 explains Case Study 2 of a New Zealand expressway in terms of the process of internal preparation and planning of stakeholder and community engagement. The planning alliance is used as an approach to engage and manage stakeholders during the planning stage. The different methods of engagement practice are explained and analysed to highlight the differences and similarities with the preliminary case study in Chapter 4. Suggested improvements to stakeholder engagement in the case studies are used to give insight to a mutual practice that can be used in any infrastructure project.

Paper published from this chapter: Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2016). Improving early stakeholder engagement process for infrastructure projects. In K. Kähkönen & M. Keinänen (Eds.), *Proceedings of World Building Congress 2016: Volume 1—Creating built environments of new opportunities*. Finland: Tampere University.

Chapter 6 focuses on Case Study 3 of a railway project in terms of enhancing the preparation and process of stakeholder engagement in Malaysia's infrastructure. A different case from a different geographical area was chosen to observe how the concept of stakeholder engagement applied in another country. The thorough stakeholder engagement practices are discussed with regard to the railway infrastructure project that is currently under construction.

Paper to be submitted from part of this chapter: Enhancing stakeholder engagement features through project collaboration in infrastructure projects. To be submitted to *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, ICE Publishing.

Chapter 7 investigates Case Study 4 in Malaysia of the second line of the Klang Valley Mass Rapid Transit (KVMRT) railway infrastructure project. This chapter examines the whole process of engagement practices and the project delivery adopted from the lessons

learnt from KVMRT Line 1. The chapter engages with the experiences of stakeholders and project personnel in Malaysia. The engagement process took less time than the first project discussed in Chapter 6. The implications of the engagement process in Malaysian infrastructure projects are also presented in this chapter.

Paper to be submitted from part of this chapter: Enhancing stakeholder engagement features through project collaboration in infrastructure projects. To be submitted to Proceedings of the Institution of Civil Engineers-Management, Procurement and Law, ICE Publishing.

Chapter 8 narrates the cross-case synthesis of Chapters 4 to 7 for the case studies. The discussion touches on project implementation, the whole process of engagement in New Zealand and Malaysia, the project delivery that was employed, and the key implications arising from the case studies and series of interviews.

Paper to be submitted from this chapter : Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2018). Investigating the key implications of stakeholder engagement processes through collaborative procurement delivery system: A comparative study on infrastructure in New Zealand and Malaysia. To be submitted to Australasian Journal of Construction Economics and Building (AJCEB), UTS Press.

Chapter 9 examines the best practices derived from the four case studies and the improvements that could be made for stakeholder engagement. The best practices were highlighted and given in themes according to the findings from the case studies.

Chapter 10 concludes and offers recommendations and lessons learnt from the study. It also highlights the significance of the study and relates back to the objectives.

CHAPTER 2

Evaluating Stakeholder Engagement as a Process for Assisting Innovation in Infrastructure Projects

This chapter has been partially published as a paper for:

Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2013). Evaluating early stakeholder engagement (ESE) as a process for innovation. In *Proceedings of World Building Congress (WBC) 2013*. Brisbane, QLD.

and

Baharuddin, H. E. A., Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2013). Early stakeholder engagement (ESE): Factors that influence effective engagement with stakeholders in construction projects. Paper presented at the *38th Australasian Universities Building Education Association Conference (AUBEA) 2013*, Auckland, New Zealand.

2.1 Introduction

This chapter presents the relevant literature review to develop and substantiate the research questions proposed in Chapter 1. It investigates the concept of stakeholders and the stakeholder engagement process. The chapter also discusses procurement systems, including collaborative procurement systems. In this chapter, the study relates stakeholder engagement

to different types of project delivery systems. The chapter looks at how stakeholder engagement can influence procurement success. The chapter provides understanding of the stakeholders involved in construction projects, the innovation of project delivery systems, the importance of engaging stakeholders in the early stages of projects, and the level of stakeholder participation in projects. A later section of the chapter discusses the influences of stakeholders

2.2 Overview of Stakeholder Issue in Construction

Stakeholders in construction are affected in both positive and negative ways at different stages of construction projects—from initiation to handover of the completed construction (Olander, 2007). Mathur, Price, and Austin (2008) suggested that the construction industry should engage with stakeholders to determine what they need, and El-Gohary et al. (2006) stated that capturing stakeholder inputs in projects is crucial. Research by Lee and Chan (2008) presented evidence from the recent Guangzhou–Shenzhen–Hong Kong Express Rail Link project, where stakeholders failed to reach consensus during the participation process in the early stages of the project (the planning stage). They suggested that this occurrence could increase the chance of failure, or even lead to confrontation between decision makers and local citizens as the project progresses.

Tammer (2009) supported the presence of key clients and stakeholders during project briefing meetings, as then the owner can make the project more tangible and accessible by illustrating problems and objectives, and answering questions from the parties involved. Sharma (2008) added that engaging stakeholders early can help offset any potential misunderstandings. Yang et al. (2009a) stated that different stakeholders have different levels

and types of investment and interest in the project in which they are involved. An evaluation based on case studies by Olander and Landin (2005) showed that stakeholder demands and influence should be considered a necessary and important step in the planning, implementation and completion of any construction project. Many of the industry's performance problems occur from inadequate inter-organisational cooperation (Barlow, 2000), which adversely affects productivity, creates an adversarial environment and results in limited take-up of technological and business process innovations.

Stakeholder analysis and engagement in construction projects is extremely important for project teams, as the nature of construction projects is uncertain and complex (Yang et al., 2011). Stakeholder engagement is increasingly becoming part of construction project practice to deliver the desired project outcomes. Bal et al. (2013) highlighted that stakeholders have their own interest in the project practice, which may result in different priorities, thereby causing conflicts and dramatically increasing the complexity of the situation. Consequently, Chinyio and Akintoye (2008) stated that it is essential to formulate a process for stakeholder management and to identify effective approaches for stakeholder engagement and analysis to achieve the project objectives.

The term 'stakeholder engagement' describes the action of communicating with others, as well as involving and developing relationships with stakeholders (Chinyio & Akintoye, 2008; Greenwood, 2007). A feature of stakeholder engagement is a willingness to listen and discuss issues of interest to stakeholders. Critically, the organisation must be prepared to consider changing what it aims to achieve and how it operates as a result of stakeholder engagement (Jeffery, 2009). Engaging stakeholders at an early stage of the project can enable constructive discussions and generate a sense of ownership that may lead

to positive interest, increasing credibility, greater transparency and the early identification of constraints (Tammer, 2009).

It is essential that stakeholders be engaged as early as possible in the decision making (Reed et al., 2009; Tammer, 2009). Sutterfield et al. (2006) stated that, to achieve a successful project outcome, the project manager must be adept at managing the interest of multiple stakeholders throughout the entire project management process. This will minimise the risk of failure in the project, given that, according to Sutterfield et al., (2005) and Bourne and Walker (2005), inefficient project management in managing hidden and conflicting agendas of various stakeholders lead to many projects failure. Innes and Booher (2004) believe that one of the purposes of public participation is to promote equity and fairness because individuals and groups who are excluded from the decision-making processes are unlikely to have their needs and preferences reflected in the outcomes.

2.3 Innovation in Construction Procurement

Innovation is co-created in a multiparty environment and shaped by the project requirements (Ozorhon, 2012). Innovation can not only be implemented in the process and product, but also in the organisation (Ozorhon, 2012). Procurement is about the acquisition of project resources for the realisation of a constructed facility (Walker & Rowlinson, 2008). Earlier study by Ausen and Neale (1995) cited in Walker & Rowlinson (2008), modelled the procurement choices which is needed for the acquisition of resources in order to realise the project and turn it into a facility as illustrated in Figure 2.1.

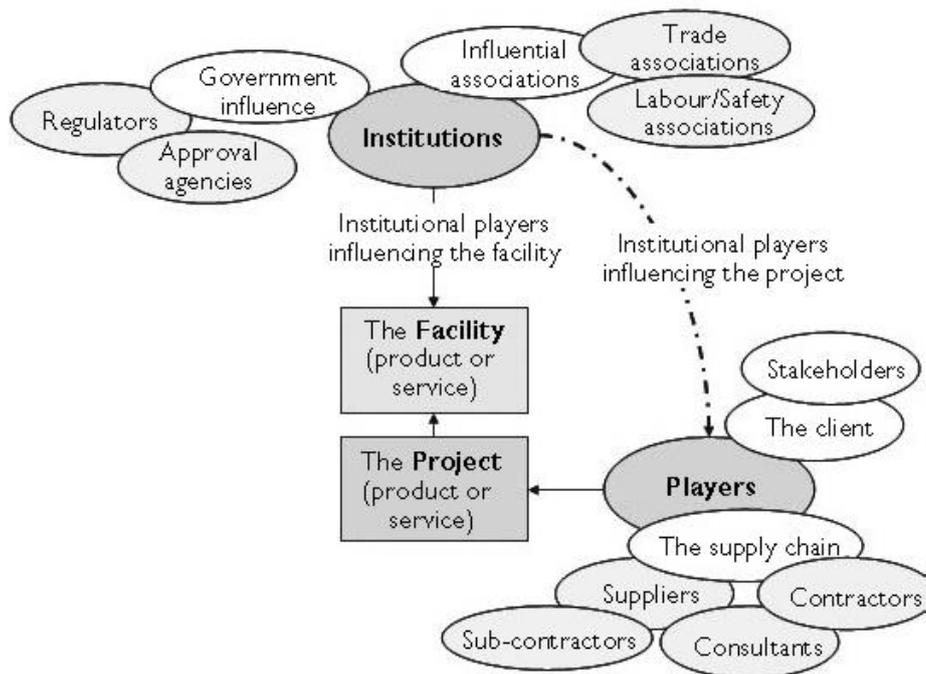


Figure 2.1. Procurement Choices (Walker and Rowlinson, 2008)

According to Walker & Rowlinson (2008), the institutions, stakeholders and players and all of these entities interact in order to both develop the delivered facility and also to constrain the decision-making process within bounds set by each element of the system.

Early stakeholder engagement has been seen to increase innovation in construction projects. The Organisation for Economic Co-operation and Development (OECD) (2005) describes innovation as being either technical or non-technical, the latter of which includes organisational and marketing innovation. Technical innovation can be either product or process innovation, while organisational innovation includes changes to organisational structure, introduction of advanced management techniques and implementation of new corporate strategic orientation. Organisations adopt innovation in response to changes in technological and managerial knowledge, industry competition, constituents' expectations or

top executives' aspiration to gain distinctive competencies and improve the level of performance (Damanpour, Walker, & Avellaneda, 2009). Blayse and Manley (2004) added that construction innovation encompasses a wide range of participants within the product system. Considering the multiparty environment of construction, innovation analysis should be undertaken at the project level and should take into account the role of project stakeholders and their interrelationships (Ozorhon, 2012). Engagement of stakeholders at an early stage is likely to foster innovation throughout the supply chain and procurement process.

Innovation can be categorised into product innovation, process innovation, marketing innovation and organisational innovation (Armbruster et al., 2008; Damanpour et al., 2009). Slaughter (1998) describes innovation as the actual use of a non-trivial change that results in an improvement in a process, product or system that is novel to the institution developing the change. Steiner (2008) explained innovation as a means of coping with change and future development, and not an end in itself. Innovation is a means of providing for an improvement of a certain system by making available new system-related solutions that lead to an improvement of the previous situation. New approaches of new system-related are required in the form of innovations at the product, process, organisational and social level (Steiner, 2008). Innovation in construction increases when moving from traditional procurement methods to more collaborative procurement methods. This is because the nature of the system becomes more complicated, and key members and stakeholder involvement influences more at an organisational level. Dickmen et al. (2005) defined construction innovation as a system in which the elements of the model are objectives, strategies, environmental barriers/drivers and organisational factors. Figure 2.2 highlighted the **motivation to** potential for innovation against the various types of construction procurement process.

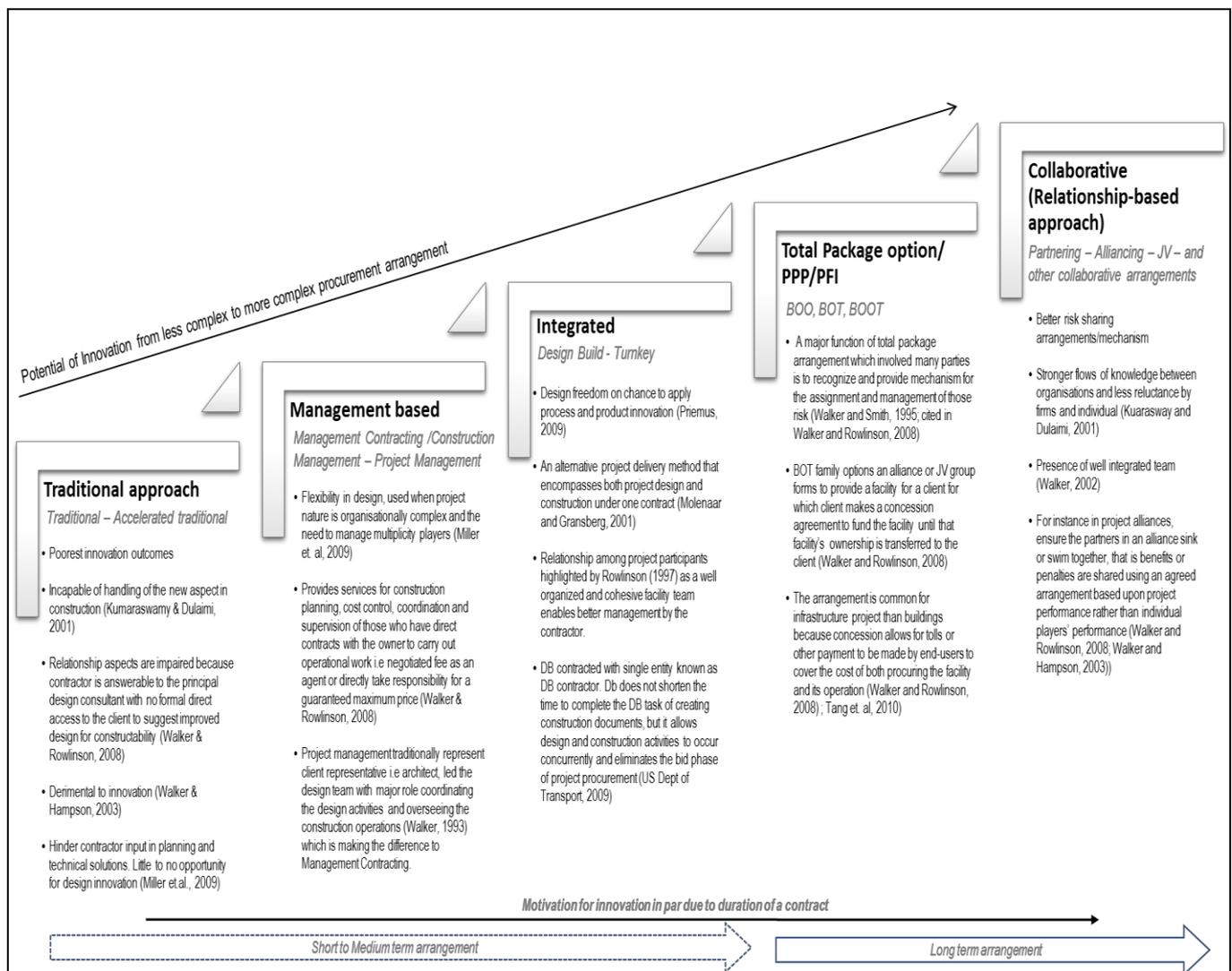


Figure 2.2. Motivation to potential for innovation through various procurement methods. (Author's own)

Traditional procurement (design–bid–build) methods impede contractors' input into innovation planning, technical solutions and the buildability of the projects, thereby resulting in little or no opportunity for design innovation (Miller et al., 2009). The traditional procurement approach is unsuitable for contemporary needs, as projects are becoming more complex and demand greater emphasis on management techniques and engineering skills (Ng

& Yusof, 2006). Kumaraswamy and Dulaimi (2001) described traditional procurement as the most conservative and detrimental to innovation, resulting in the poorest innovation outcomes (Walker & Hampson, 2003). This method of procurement results in a process that is rapid and project focused, yet leaves little room for innovative behaviour (Widen & Olander, 2010).

In contrast, the main contractor in design and build contracts (sometimes referred to as design and construct) frequently works closely with a design team, subcontractors and suppliers. Priemus (2009) claimed that design and construct contracts can give the contractor plenty of design freedom, and the contractor often has the chance to apply process and product innovations. Moving further along the innovation procurement spectrum, Miller et al. (2009) highlighted that management contracting and construction management are suited to large, fast-moving projects where early completion is desirable. Such contracts allow room for innovation, as the management contractor is appointed at an early stage and the client has a considerable degree of flexibility regarding design matters (Love, Davis, Baccarini, Wilson & Lopez, 2009).

Moving yet further along the spectrum, from an innovation perspective, Walker and Hampson (2003) stated that the most important aspect of a procurement system is the presence of a well-integrated team, which they considered vital in driving innovation. From an integrated team perspective, innovation might involve partnering together within a fixed-cost contract to improve design constructability and economy. Communication, learning and innovation are also improved across the supply chain through management by a single entity (Walker & Hampson, 2003). Further, collaborative procurement reduces costs, reduces project times, improves quality and improves client satisfaction. These benefits also apply to the alliance procurement model especially given the existence of commercial drivers to

ensure cooperative behaviour under alliances (Bresnen & Marshall, 2000). These approaches integrate design and construction functions, thereby leading to improved design constructability and economy through innovations (Blayse & Manley, 2004).

Ozorhon (2012) claimed that much innovation is co-developed with other project participants, such as clients, contractors, subcontractors, suppliers, consultants, and designers, all of which have a different role in the innovation process. A review of the literature shows that the more innovative the procurement system, the more stakeholders will engage with the process (Baharuddin et al., 2013). Collaborative procurement engages various types of external and internal stakeholders throughout the project phase.

2.4 Influence of Stakeholders on the Procurement System

Rwelamila (2010) ascertained that there is sufficient time to identify internal and external stakeholders in traditional procurement methods by running the identification process in parallel with the process of preparing project documentation. During the preparation of project documentation, prior to the tendering process, the project manager, will have a chance to manage the process of identifying project stakeholders. Rwelamila (2010) suggested adjusting the traditional procurement, or selecting a different procurement system to enable the negative effects on stakeholder management to be accommodated.

In contrast, in the design and build procurement system, identifying stakeholders is easy because the two central tasks of the project are implemented through a single point of responsibility. Two of the key stakeholders, the designer and contractor, operate together. In addition, client responsibility is made easy because the client is not communicating with isolated project members. In its typical form, design and build does not have an appropriate

mechanism to deal with stakeholders (other than the construction team) (Rwelamila, 2010). This type of procurement is likely to be favourable if project stakeholders expect appropriate risk sharing, client involvement, time management and close control expenditure for their project.

In package deal contracts, the majority of contractors employ their own in-house designers. As such, they are expected to perform well in terms of cost and time criteria. If these two requirements are central to project stakeholder requirements, then smooth stakeholder management could be achieved (Rwelamila, 2010). However, some products of package deal contract systems lack aesthetic appeal, yet this can be avoided because the potential stakeholders are able to see actual examples of the contractor's product before reaching a decision.

Management contracting is based on the appointment of a professional project manager with construction expertise as an equal member of the design team, while the actual construction is undertaken by contractors who are employed, coordinated and administered by the management contractor. This system has an inbuilt framework of flexibility, which has a positive influence on stakeholder management. This type of system promotes teamwork and efficient use of resources through improved planning; however, it is important to limit the overlap in terms of supervision and monitoring between the management contractor and designer (Bower, 2003).

Alliance contracting is based on collaboration. In the alliance model, there is a joint, rather than shared, commitment between partners (Walker & Hampson, 2003). Alliance contracts fall under the general umbrella of collaborative contracting, and can be described as multiparty contracts that are developed and executed by key project participants.

2.4.1 Alliance procurement and the stakeholders involved

As stated by Kwok and Hampson (1996), alliance contracting is a cooperative arrangement between two or more organisations that forms part of their overall strategy and contributes to achieving their major goals and objectives for a particular project. According to Manley and Blayse (2003), alliance contracting is partially selected by project owners in recognition of the need to deal with poor stakeholder/community relationships. Alliance procurement is part of collaborative procurement and is more suited to facilitating high levels of stakeholder engagement, along with community and environmental outcomes (Moorwood et al., 2008). The alliance model creates a sense of risk ownership across project stakeholders (Guo, Chang-Richards, Wilkinson, & Li, 2014). Alliancing involves the collaboration of owner and non-owner participants to deliver the capital phase of a project, with all participants sharing the responsibility for project risks and achieving project objectives. Project alliances rely more on developing trust and strong relationships to drive performance than on the legal and contractual relationship between participants. One of the generic principles of project alliancing is that the participants are committed to developing a culture that promotes and drives innovation and outstanding performance. A project alliance can operate as a 'virtual organisation', performing all the functions required to deliver a project. In these alliances, the commercial interest of each alliance participant is best served by meeting or exceeding the agreed alliance objectives and integrating alliance needs with stakeholder requirements.

2.5 Stakeholder Engagement Process in Construction

Stakeholders affect successful completion of construction projects (Cleland, 1995). Stakeholders in a project are individuals or organisations/groups with the power of threat or benefit. Project stakeholders either affect or are affected by the development, as groups or individuals who have a stake in or expectation of the project's performance. Examples of project stakeholders include clients, project managers, designers, subcontractors, suppliers, funding bodies, users and local community (El-Gohary et al., 2006; Gibson, 2000; Newcombe, 2003). Bourne and Walker (2005) stressed that, the project management team who failed to address the concern of project stakeholders has resulted in countless project failures. According to Lim et al., (2005), construction stakeholders can have the resources and capability to stop construction projects. In construction infrastructure project, Gibson (2000) defined internal stakeholders as being those directly involved in an organisation's decision-making process (e.g. project owners, customers, suppliers, employees) and external stakeholders as being those affected by the organisation's activities in a significant way (e.g. neighbours, local community, general public, local authorities). Atkin and Skitmore (2008), stated that in construction, internal stakeholder relationships have traditionally been strong, but, external stakeholders, according to Atkin and Skitmore (2008), have been considered a management task for public officials via the rules and legislation that concern facility development. Capturing stakeholder input is a crucial component of the project development process. It is important to gauge stakeholder opinion and concerns to better facilitate the development of a project and decision making. The spectrum of methods for engaging with stakeholders varies with different stakeholders, such as the community, special interest groups or others who may be concerned about or affected by the project. Freeman (1984), Olander (2007) and Olander and Landin (2007, 2008) also categorised stakeholders as either

internal or external. Internal stakeholders as actively involved in project execution, such as on the client and contractor sides, including project managers, designers, suppliers, employees, subcontractors and end users, and external stakeholders as neighbours, the local community, the general public, the authorities, interested organisations, businesses, tourist organisations and research and knowledge organisations—all of whom can be affected by the project. The PMI (2008) defined project stakeholders as individuals and organisations who are actively involved in a project or whose interests may be affected by project execution or completion. Aaltonen and Kujala (2010) classified stakeholders as primary and secondary stakeholders.

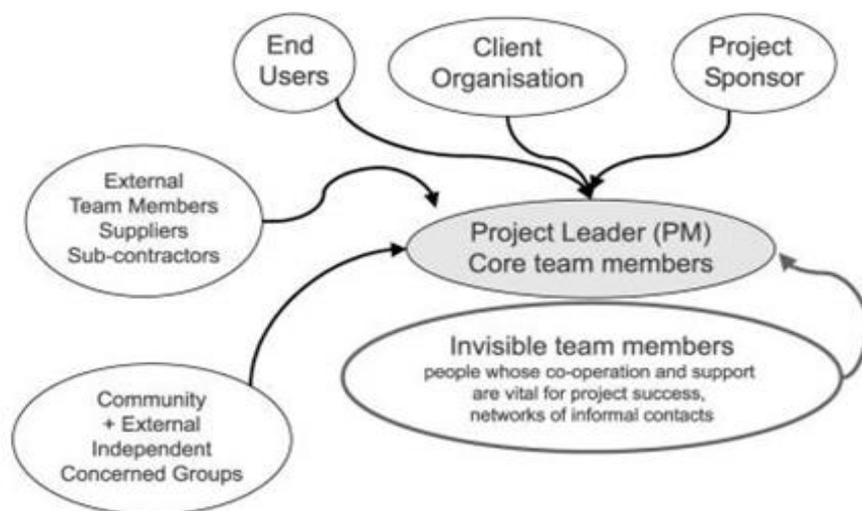


Figure 2.3. Stakeholder mapping. Source: A. Walker (2003).

Figure 2.3 shows Walker's stakeholder mapping, where stakeholders are grouped to help visualise the sources from which they emerge (A. Walker, 2003). The mapping shows the groups of stakeholders directly involved with the construction projects. According to Bourne and Walker (2005), as well as the stakeholder groups identified, there may also be outside service and invisible members.

A stakeholder involvement program determines stakeholder concerns and integrates them into the design of a project to achieve collaborative integrated project development (EI-

Gohary et al., 2006). The methods or tools used to engage stakeholders (workshops, meetings and interviews) can be applied to involve stakeholders in identifying or performing analysis of stakeholder concerns (Reed, 2008), especially in the context of complicated environments, such as construction projects. The spectrum of methods for engaging with stakeholders deals not only with a specific community or local citizens, but also with others who may be concerned about and engaged in the decision process. Through early engagement, stakeholders and communities can identify the scope of what is to be reviewed and ensure that all ‘appropriate’ issues are studied—that is, appropriate to stakeholders and communities. It will also help ensure respect among all parties by working in partnership with interested parties.

2.6 Stakeholder Engagement Process

2.6.1 Various practices of stakeholder engagement process.

Most mega infrastructure projects are constructed in highly demanding and complex environments and involve alliances of multiple stakeholders with various interests, objectives, powers and backgrounds (Aaltonen, 2010; Cornick & Mather, 1999). This may result in different processes of stakeholder engagement depending on the size, type and complexity of the construction project. Methods of engagement will also be different depending on the level of stakeholder participation. Engagement methods for infrastructure projects include individual meetings, which can involve one-to-one meetings or group meetings with a wider group of participants. The process of stakeholder engagement has been discussed by previous scholars from different sectors, such as healthcare, education, agriculture and banking. Compared with the healthcare and education sectors, the

development of public participation and stakeholder engagement in the construction industry is still very rudimentary. According to Mok et al. (2015), many difficulties are encountered in the construction project stakeholder engagement process. As indicated by Rose and Manley (2010), the late involvement of major stakeholders and discrepancy related to project information are major negative drivers in aligning the work motivation of the key stakeholders, especially for consultants and the contractors with the project. The decision-making process of contemporary mega infrastructure projects is increasingly complicated, as highlighted by Li (2013), especially with the growing number of stakeholders involved and their developing tendency to defend their own interests.

Karlsen (2002) described the engagement process in six steps: initial planning, identification of stakeholders, analysis of the involved stakeholders, frequent communication, action taken and following up. Young (2006) identified three stages: identifying stakeholders, gathering information and analysing the influence of stakeholders. Whereas, Walker (2008) discussed the initial processes as identifying stakeholders and prioritising stakeholders, visualising and mapping stakeholders, engaging stakeholders, and finally monitoring the effectiveness of communications. Jeffery (2009) suggested that the process involves internal preparation and alignment; building trust; consulting, responding and implementing; monitoring; planning; and understanding the stakeholder in the later stages as the process of stakeholder engagement are doing concurrently during the construction stage.

Kaatz, Root, and Bowen (2005) also discussed engagement with wider stakeholders when evaluating the role of stakeholder participation in building sustainability assessment. They made a case for broadening this participation to provide legitimacy to any compromises that may need to be made because of the involvement of multiple stakeholders, through increasing transparency regarding equity considerations. The concerns included in the

assessment process are adverse reactions from stakeholders, time delays in receiving feedback, stakeholder fatigue, stakeholders requiring more information and stakeholders refusing to provide written approval (Woodward & Purdy, 2013).

What is clear is that stakeholder engagement can be part of the decision-making process. Engaging stakeholders externally improves the decision-making process and can make it easier for the project to succeed. A systematic engagement process can improve stakeholders' understanding and decisions. Engaging stakeholders through public engagement is one of the most direct approaches to resolve potential conflicts and improve stakeholder satisfaction (Rowe & Frewer, 2005). Leach et al. (2005) suggested that quality should be distinguished in terms of engagement process and satisfaction with outcomes. The quality of outcomes is concerned with whether stakeholders' views or inputs from engagement are considered.

2.6.2 Methods of engagement in infrastructure projects.

Ng et al. (2012) highlighted the selection and application technique to achieve participatory goals in the engagement process. The methods or tools used (e.g workshops, meetings and interviews) are applied to engage stakeholders (Reed, 2008). Thus far, there is no optimal technique that suits all types of stakeholders in all types of projects; thus, a combination of techniques is required for public participation (IFC, 1998, as cited in Ng et al., 2012). According to El-Gohary et al. (2006), the selection of participatory techniques depends on the principal direction of information flow involved in public participation programs. The programs are categorised as:

1. information-dispersing techniques (e.g., leaflets, publications, exhibitions or media releases)

2. information-gathering techniques (e.g., surveys or questionnaires)
3. interaction techniques (e.g., community meetings and workshops).

Different method will suit different stakeholders, so it is important to thoroughly map stakeholders, their needs and know their preferred method of communicating.

2.7 Stakeholders' Level of Participation

The International Association of Public Participation (IAP2) (2007) spectrum of consultation is used as a generic framework, and recognises five levels of engagement. This spectrum (shown in Figure 2.4) is widely applied by organisations in many sectors—such as environment, healthcare, construction, pharmaceuticals and education—to help guide the stakeholder engagement process. The spectrum of public participation portrays the intensity of public participation and effect on projects. The five levels of engagement used by the IAP2 are ‘inform’, ‘consult’, ‘involve’, ‘collaborate’ and ‘empower’, representing a continuum of ‘increasing levels of public impact or influence’(IAP2,2007). The IAP2 spectrum is designed to help organisations select the appropriate level of participation required for different stakeholders. The spectrum has a flexible range of approaches and tools depending on the goals, timeframes and resources available, and the interests of the parties. Stakeholders may also need to be engaged in different ways, depending on the issues identified. Another spectrum of participation developed by the IAP2 categorised levels of public participation based on decisions made by government or private organisations. An alternative method of managing stakeholders was introduced by Arnstein in 1969 (Arnstein’s model) which focused mainly on public engagement in decisions made by government agencies, particularly in situations in which the government retains final authority, yet may inform,

consult, involve or collaborate with others in the process of making decisions. Arnstein's model appears to be a pre-cursor of the IAP2.

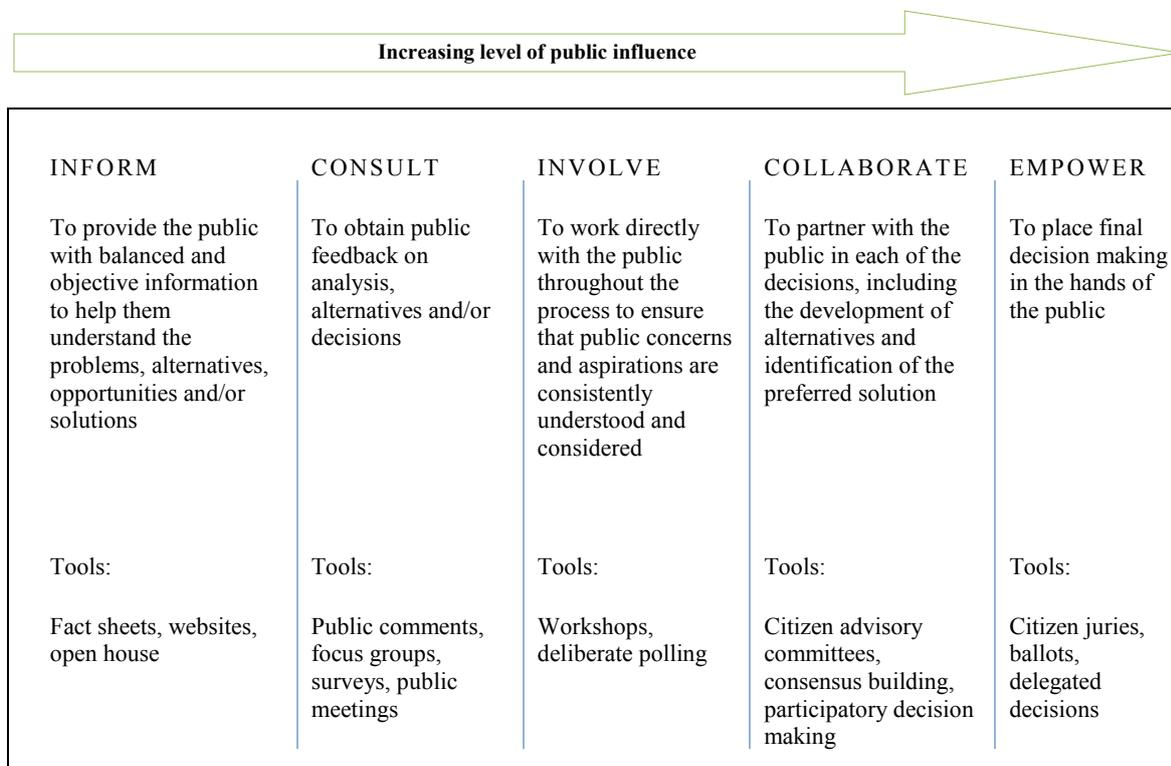


Figure 2.4. IAP2 public participation spectrum. Source: IAP2 (2007).

Figure 2.4 displays the tools to engage with stakeholders and the community. Ascertaining the level at which the engagement occurs is an important aspect of planning activities. The community can understand information about the level of participation they are being offered, to help avoid confusion, misunderstanding and even anger later in the process. It is important to ensure that the engagement process allocates the correct level of engagement to each stakeholder, and communicates this appropriately. It is likely that stakeholders will each require a different level of engagement; thus, it is important to thoroughly assess their stake in the project to choose the correct level.

The IAP2 spectrum of participation deals not only with a specific community or local citizens, but also with others who may be concerned about and engaged in the decision process, as special interest groups, other specific stakeholders or the general public (Bruns, 2003). The consultations, involvement and collaboration levels all include two-way interaction with stakeholders, yet differ in terms of how closely the stakeholders are engaged and able to influence the process. Since the scope of the framework relates to the early stage of the project, the 'collaborate' and 'empower' levels are not generally appropriate, as this level of engagement has limitations for delegating or sharing decision making for the project mission (University of Victoria, 2012). The collaboration process should be managed by neutral professionals who know how to help groups work towards consensus, rather than by the agency or unit of the government convening the process (Consensus Building Institute, 2008).

2.8 Importance of Stakeholder Engagement to Project Success

In construction projects, stakeholders play an important part in project success. Construction projects involve producing unique projects onsite through a variety of teams brought together temporarily, and stakeholders form part of these teams. Ozorhon (2012) stated that much construction innovation is co-developed at the project level, including stakeholder participation increases the chances of innovation. This was confirmed by Blayse and Manley (2004) claimed that the innovation process is impeded by difficulties in monitoring the different activities performed by different parties during each stage of the construction project. Alliance procurement is a method of introducing innovation in organisational activity through early stakeholder engagement in the project. Jointly made decisions are at the core of alliancing and increase commitment to the no-dispute rule and to

mutual liability waivers among the key participants. In general, there is a requirement for consensus but this may not always be reached, and the parties may have to submit to the results of a majority vote (Lahdenpera, 2012). Essentially, this leads to collaborative, joint decision making in projects by various management bodies, including representatives of each collaborating party. If stakeholder needs are taken into account at an early stage of the project, then expectations can be managed, hidden agendas can be brought to the surface and project priorities can be established (Yang et al., 2009b). Many problems can be overcome—such as a lack of effective early stakeholder dialogue, misunderstanding of project objectives, conflicts, cost issues and so forth—if stakeholders are actively included at the early stage of front-end planning and integrated into the project team (Tammer, 2009).

Brian and Martin (2008) and other scholars researching the construction sector have stressed that stakeholder involvement has undeniable effects on project outcomes. Lahdenpera (2012) encouraged the idea of continuous workshopping throughout the project process, which was derived from project partnering, where it was initially needed to create and maintain trustful relationships between independent organisations. Early involvement of the key parties and early planning make all parties members of the same team, thereby eliminating the need to place emphasis on ad hoc activities (Baharuddin, Wilkinson and Costello, 2013). Similarly, the early, non-price-based involvement of a wide range of sources of expertise for planning improves project delivery. Tools such as a partnering charter and decision ladder are important elements of the early project approach, improving cooperation and minimising the possibility of misunderstanding (Mossey, 2009). Project alliance practice evolved from the need to improve the implementation of demanding and risky investment projects. With alliances, the risk premiums and/or adversarial behaviour characteristics of traditional contracting would lead to uneconomical results (Morwood, Scott, & Pitcher,

2008). It is believed that the alignment of the parties' objectives by joint organisation and joint decision making improves performance. In project alliances, most organisations also engage a coach to help them through the team development process (Morwood, Scott, & Pitcher, 2008).

Early involvement of key stakeholders is intensified by exploiting the means offered by advanced information and communication technology (ICT) tools (Khemlani, 2009). Among clients, project teams and contractors, the building information model is an example of an ICT solution that multiple parties can employ and one that can be used for stakeholder interaction. Such models are important for increasing the smoothness and productivity of the process, such as fluency of information flow and information availability in general (Khemlani, 2009; Tiwari et al., 2009). Heravitorbati et al. (2011) stated that, to meet the differing demands of various stakeholders, project managers must involve these stakeholders, including using visual methods, to increase the effectiveness and efficiency of decisions in the construction project lifecycle (Heravitorbati et al, 2011).

2.9 Effect of Early Stakeholder Engagement on Time, Cost and Quality

Understanding what quality means to stakeholders is key for project success. Quality management is an important aspect of construction and building projects. To increase the quality of the project and reduce rework, revision, waste and failure costs, the importance of quality must be understood by the key project team members (Heravitorbati et al., 2011). Construction project management involves meeting or exceeding stakeholder requirements and expectations, including in quality. Thus, the project team must develop high-quality relationships with key stakeholders, particularly the main customers for the project, to understand their perception of quality (Tam & Le, 2007). Effective relationships among key

stakeholders (Wang & Huang, 2006) and stakeholder involvement in the quality decisions of the project (Heravitorbati et al., 2011) are helpful in improving the final quality of the construction project.

Lahdenpera (2012) added that early involvement of stakeholders affects price and various qualitative selection criteria. The identification of the cost-related risks, underlying drivers and impediments for effective management must be assessed in the context of three key stakeholders: clients, contractors and consultants. It has been emphasised, by Heravitorbati et al., (2011), that, if a project's stakeholders are not satisfied with the quality of the project management or the final project, the project team could be required to adjust scope, time and cost to meet stakeholder requirements and expectations on quality issues, thus causing delays. Doloï (2012) added, that project planning and control measures portray clearly that, the cost performance are reliant on the competency of contracting parties. By implementing appropriate early stakeholder engagement techniques, a common standard can be established for managing and reducing the occurrence of mistakes and errors in the downstream construction phase.

2.10 Summary

This chapter has developed the meaning of stakeholder engagement and the project delivery systems. The review shows that collaboration between project team and other stakeholders involved could produce a positive project outcome. This chapter drew the relationship between stakeholders, early stakeholder engagement, levels of participation, innovation in project delivery systems and stakeholders in infrastructure projects. The insights of the chapter highlighted the need for early stakeholder involvement. To avoid rework, reduce unnecessary costs and increase the productivity of a project to meet the

expected time, cost and quality goals, stakeholders should be involved. Stakeholder involvement in different procurement systems can be understood through the IAP2 process, so that clients and stakeholders know their roles and responsibilities in the project. Stakeholder concerns, opinions and interests need to be considered, to help resolve conflicts and produce consensus. This chapter has offered insight to the influence of these parties during project collaboration. From Chapter 4 onwards, this topic will be evaluated through real case studies in New Zealand and Malaysia to understand how the stakeholder collaboration and the processes that were implemented.

CHAPTER 3

Research Methodology

3.1 Introduction

This chapter describes the research methodology used by this study to achieve the research objectives. It begins with an overview of the research process, and then examines the dominant research methodologies used in construction management research, focusing on the benefits and drawbacks of each methodology. The chapter then elaborates on the rationale for selecting a qualitative research methodology, with an emphasis on its epistemological underpinnings. Discussion of the research methodology is followed by a detailed description of the research design.

This research methodology chapter first reviews qualitative research methods (document analysis, semi-structured interviews and multiple case studies) and then examines qualitative validation by an experienced stakeholder manager and project manager personnel following best practices. With regard to the semi-structured interviews and multiple case studies, the respective rationale and data collection protocols are discussed. This chapter then discusses the concerns for validity and reliability involved in this research, and explains how the relevant issues are addressed in the research design. It then discusses the ethical considerations and means implemented to tackle the ethical issues.

This chapter discusses research methodology and research design as the means to achieve the aim and objectives of the study. A fully qualitative approach is used to achieve the objectives.

3.2 Research Process

The research implemented four phases of research process. The research methodology in this chapter is divided into four phases, designed to address the objectives of this study, as follows:

1. a synthesised literature review capturing the potential of the stakeholder engagement process in construction procurement delivery systems
2. an in-depth exploratory real-life case study conducted to understand stakeholder engagement activities and the governance of a project in the early planning stage, based on a New Zealand expressway. The primary outcome of this phase was a conceptual model of early stakeholder engagement and project collaboration
3. a cross-case synthesis of case studies across New Zealand and Malaysia to explore the differences and similarities in the project engagement process implementation. The advantage of the cross-case synthesis is that the researcher can input their own judgements of particular studies and compare them and which allowed best practice guidelines to be produced.
4. The overall results (of the interviews, multiple case analysis and literature review) were analysed, interpreted and reported in the form of journal publications and publication.

Figure 3.1 shows the flow of the research process undertaken for the completion of the thesis.

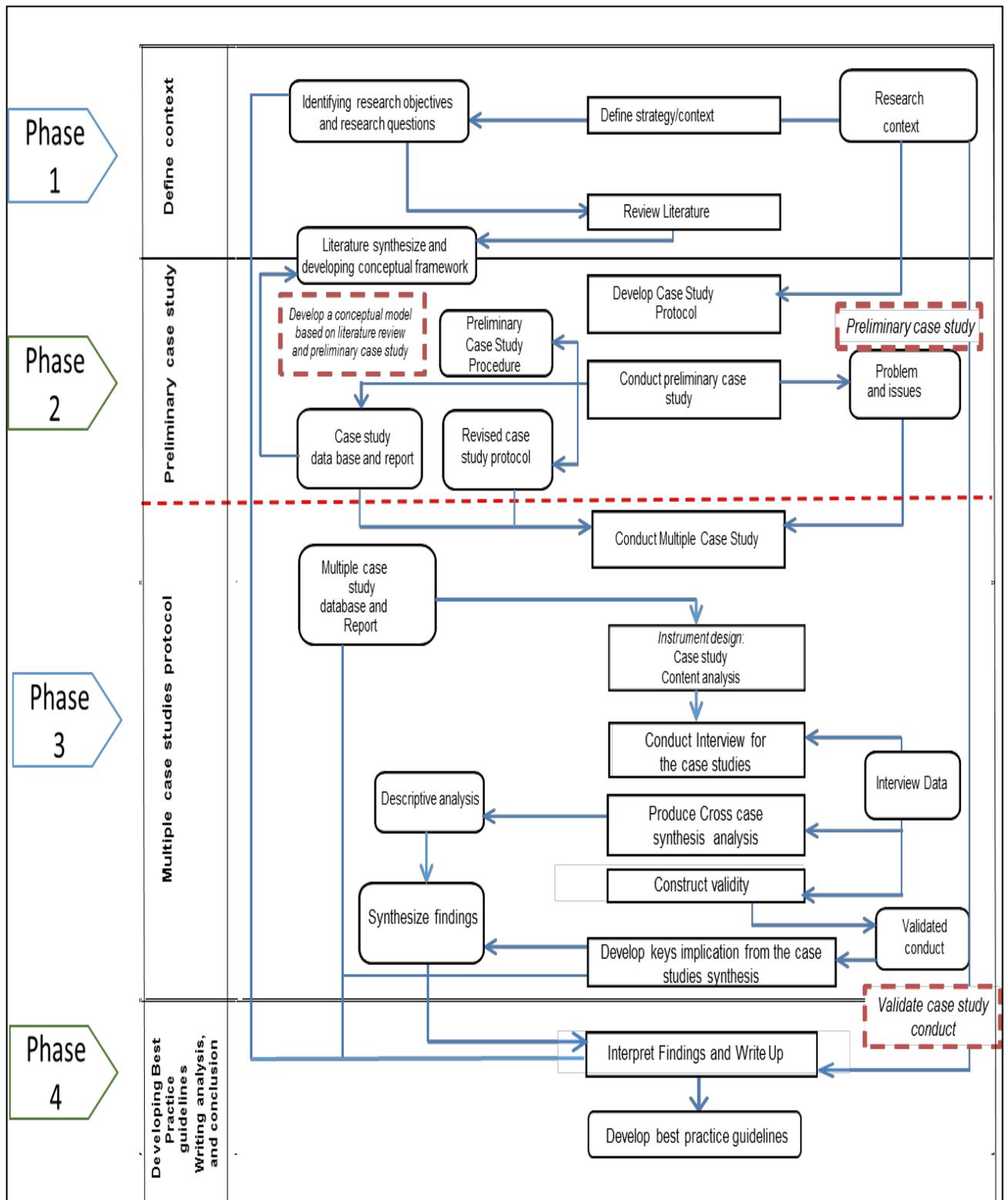


Figure 3.1. Research process.

3.3 Research Phases

3.3.1 Phase 1: Extensive literature review and document analysis

At the preliminary stage of the study, focus was placed on a literature review and exploratory survey. A literature review was undertaken, covering issues of stakeholders, stakeholder management, stakeholder engagement, early stakeholder engagement and procurement methods. This review was used primarily to identify the research gap showing the extent of early stakeholder engagement research in construction. Further, the aim of the review was to attain a better understanding of the concepts of stakeholder engagement, early stakeholder engagement and factors of effective engagement and effective measures. The literature review included international journals, research articles, stakeholder and stakeholder engagement manuals, project reports, other countries' and companies' reports, books, scholarly journal articles and other documentation, websites and scholarly theses. The literature review focused on themes of stakeholder management, stakeholder engagement, project collaboration, project delivery systems, innovation in project delivery systems, stakeholder approach and identification, public participation spectrum, effective engagement and large infrastructure projects.

3.3.1.1 Literature review and exploratory study.

A review was conducted of relevant literature in the stakeholder engagement area. A research gap was identified—that there was little information on establishing the best practices for stakeholder engagement processes for complex infrastructure projects. The review considered the need to improve the stakeholder engagement process during the early

stage of construction projects as a process to facilitate better productivity and innovation in construction infrastructure projects.

3.3.1.2 Developing conceptual model in stakeholder engagement process.

Qualitative data was derived from the semi-structured interviews and analysed using content analysis to determine the main facets of the data. The conceptual framework model is factor based and measurement oriented, and identifies the implications of stakeholder engagement processes at the early stage in a construction project.

3.3.2 Phase 2: Qualitative Phase

The research was conducted based on full qualitative research methodology. Phases 2 and 3 highlighted the process of how the research was conducted, as well as the outcomes from the collected data, based on the case studies, interviews and documents analysis. Phase 2 investigated how stakeholder engagement processes in a large infrastructure project are conducted during the planning phase of the development.

Later, Phase 3 highlighted the multiple case studies used to enhance the objectives of this research.

3.3.2.1 Case Studies

The case studies encompassed four different types of infrastructure projects using different types of collaborative procurement systems. A case study method was adopted for

this research due to its theory-building nature (Eisenhart, 1989; Yin 2009). Applying a case study method is also a response to the research needs proposed by Soderlund (2004). In examining the state of project management research, Soderlund (2004) suggested that the field lacks in-depth case studies, studies of processes, and studies in real-time that would be beneficial in building theories for understanding fundamental issues of projects and project organisations. It is important to investigate stakeholder engagement process in large infrastructure projects to achieve a better understanding about how different of the engagement processes across countries influence the projects.

A single pilot case study and multiple case studies were employed in this research. A single case study is appropriate when the researcher wishes to identify new, previously un-researched issues (Yin, 2009), while a multiple case design is desirable when the intent is to build and test theory (Yin, 2009). A pilot study was conducted to obtain an overview from project personnel experienced in managing stakeholders in large infrastructure projects. This identified and highlighted the important issues regarding early stakeholder engagement that arise from a project. The primary goal was to substantiate effective engagement factors and dimensions identified through the literature review, and to further develop the performance measure model. Several outputs generated in the case study phase's initial stages included:

1. pilot case study protocol
2. the revised interview questions (based on the results of the pilot case study)
3. the pilot case study database and report, which were used in later stages as part of the multiple case studies.

Semi-structured interview questions were conducted with internal stakeholders to identify, in-depth, the issues associated with early stakeholder engagement. This identified

the potential key implications of early stakeholder engagement and operated as a validating process throughout the case studies. This helped establish the best practices for early stakeholder engagement.

The data were maintained in a database in NVivo—a qualitative data analysis tool. The tool was used to conduct descriptive, interpretive and pattern coding, as specified by Miles and Huberman (1994), and to interrogate the data and report findings, as a means of maintaining a sound base of evidence that could be retrieved for the later phases of the study. The output of the multiple case study phase was a detailed multiple case database and case reports. The case database and reports supplied rich contextual information regarding how the stakeholder engagement approach is used in practical projects. Moreover, they supported the interpretation of results from the statistical analysis of survey data and served as a resource for triangulation, thereby enabling comparison of survey and case study data. The case study phase also enabled the researcher to develop close relationships with organisations that provided contacts, which further supported the study in the pilot testing of the survey (a sub-phase of the survey design stage).

Identifying detailed contextual elements through rich case studies equipped the researcher with subjective understanding (Gable, 1994). This understanding gave light to context-specific contingencies, which were accounted for in either the study outcomes (identification of new variables) or study design (identifying an appropriate survey sample frame based on case field experience), hence drawing on an ‘interpretive effort to account for these subjective phenomenon’ (Gable, 1994).

3.3.3 Phase 3: Multiple case study databases and report

The case studies selected for the current research were limited to infrastructure projects, such as expressway and railway projects. The case study selection was not restricted to a preferable project size. These case studies were identified where they involved a special stakeholder engagement team in the projects.

Case study interviews with key personnel were sought to analyse the project delivery method, process of stakeholder engagement, internal early preparation of the stakeholder process, and practical implications of stakeholder engagement for collaborative procurement. Cross-case synthesis was used to obtain results about the phenomena of stakeholder engagement practices, methods and project collaboration practices (Cruzes, Dybå, Runeson, & Höst, 2015). The technique of cross-case synthesis has been employed in many diverse studies. The majority of data collected in these case studies were interviews and content analysis that are analysed qualitatively. The advantage of cross-case synthesis is that the researcher can input their own judgements of particular studies, and compare them in a flexible manner (Cruzes et al., 2015). The outcome of cross-case synthesis will lead to the best practices for stakeholder engagement in infrastructure projects. The individuals from the case studies include top-level personnel, the community, the public, affected stakeholders and authorities involved with the projects. These individuals selected from the case studies also had experience being involved with the stakeholder engagement process. The case study sample consisted of two New Zealand expressway projects based in the Auckland region, and two Malaysian railway projects in the Klang Valley. Klang Valley is an area in Malaysia that is centred in Kuala Lumpur (capital) and includes its adjoining cities and towns in the state of Selangor (neighbour to Kuala Lumpur). A recent alternative name for this area is Greater Kuala Lumpur. As a result of time constraints and project information constraints, the sample

was limited to four case studies. According to Hine and Carson (2007, p. 142) the widely accepted range of case study samples falls between two and four, which is considered a sufficient size to attain informative findings. These case studies involved varying procurement methods, engagement processes and demographics. Additionally, the case studies possessed varied expertise and different stakeholder groups. Multiple sources of evidence were collected for the case study research, which included semi-structured interviews and secondary data collection.

The comparative analysis was conducted for this research. Conducting the comparative analysis as mentioned by Stake (2006), by means of examining how the program or phenomenon performs in different environments. The logic of using the multiple case studies requires each case be carefully selected and investigate in order to foresee the result either similar or contradict (Yin, 2003).

In selecting cases, George and Bennet (2005) proposed three criteria as a general rule. First, the case should be relevant to the research objectives and research questions; second, the case should diversity across contexts. Thirdly, the cases should provide opportunity to study the complexity of the contexts. Access to data in relation to large infrastructure projects in different contexts is also critical in initiating comparison. In line with this criteria four abovementioned projects provided the researchers with opportunities to study the topic of interest across two different countries. Being able to access project information and collect in-depth interview data had made a cross-country comparison possible. Variations in stakeholder's engagement processes, project governance, different set of stakeholder involved and the systems always provide dissimilar variability between these four cases.

International comparisons require articulate conceptual framework (Yin, 2009). The selected projects differ in various aspects such as their political, social, economic and cultural

dimensions. However, according to Dogan and Pelassy (1990), for a comparative study, it is matter of how we compare rather than what we compare. Table 3.1 shows the selection according to the three criteria as proposed by George and Bennet (2005).

Table 3.1

Case study selection according to criteria

Case Study	Criteria 1: Data accessibility	Criteria 2: Research objective relevance	Criteria 3: Case diversity across context
Case Study 1 Mackays to Peka Peka Expressway, Wellington	<ul style="list-style-type: none"> • The involvement of the researches with the NZTA studies provides access for first-hand data collection. This project appears to be a pilot case study • Having access to the database of effected stakeholders involved to the project provided by the project team with approval from NZTA 	<ul style="list-style-type: none"> • Initiatives adopted by relevant stakeholders to address issues regarding the stakeholder engagement process • Sharing the practical implication and improvement that could be made to the stakeholder engagement process • Involved collaborative procurement such as alliance management 	<ul style="list-style-type: none"> • Roadway project • Marked as a Roads of National Significance (RoNS) project. • Operating in specific context in New Zealand • Involved various stakeholders as the expressway stretch along 18km along Kapiti Coast in Wellington.
Case Study 2 Ara Tūhono–Pūhoi to Wellsford expressway (Further North Alliance)	<ul style="list-style-type: none"> • Having access through the project’s project manager to access the database of the stakeholders involved. • Apparently, joined the board of inquiry proceeding several times and had opportunity to meet with the stakeholders who joined the BoI proceedings. 	<ul style="list-style-type: none"> • First in New Zealand adopted a planning alliance at the pre-planning phase. The planning alliance was unique because it is the first in New Zealand involved a legal agency in the alliance. • During the interview, the alliance team had not yet decided whether to use strategic alliance (as in M2PP) or PPP delivery model. • The PPP model decision was made later. 	<ul style="list-style-type: none"> • Roadway project • Marked as a Roads of National Significance (RoNS) project. • Operating in specific context in New Zealand • First in New Zealand introducing Planning Alliance to the project pre-planning phase

<p>Case Study 3</p> <p>KVMRT Line 1 Sungai Buloh– Kajang (SBK) Line 1</p>	<ul style="list-style-type: none"> • Participated in a number of industry seminars regarding the project • Having an opportunity to interview the Stakeholder Strategic communication and public relations Director who is the head of public relation of the project as the representative to the project owner. • Through the connection, the researchers then had the opportunities to meet and access to the stakeholder databases and procurement system. • Interview with the project participants arranged by the MRT Corp. personnel. 	<ul style="list-style-type: none"> • First mass rapid transit (MRT) project to reduce congestion in Malaysia. • The project was the first to include a project delivery partner (PDP) in Malaysia. • First project in Malaysia to introduce a stakeholder engagement team. 	<ul style="list-style-type: none"> • Railways project • Operating in specific context in Malaysia • First in Malaysia introduce a systematic stakeholder management and engagement plan/process in a project. • Involved a various stakeholder across affected area as the railways run across 51km line.
<p>Case Study 4:</p> <p>Project: KVMRT Line 2 Sungai Buloh-Serdang - Putrajaya (SSP) Line</p>	<ul style="list-style-type: none"> • Continuously, from the networking with KVMRT Line 1 project personnel, snowball method arranged by the KVMRT project personnel to getting access to the stakeholders involved with KVMRT Line 2. • Participated in a number of industry seminars regarding the project • Interview with the project participants arranged by the MRT Corp. personnel. 	<ul style="list-style-type: none"> • Pre-requisite of the KVMRT Line 1 • KVMRT Line 2 run across sub-urban area. 	<ul style="list-style-type: none"> • Railways project • Operating in specific context in Malaysia • Secondly in Malaysia introduce a systematic stakeholder management and engagement plan/process in a project. Pre-requisite to the first KVMRT.

3.3.3.1 Interviews

In any qualitative research, data collection and analysis is an ongoing process; thus, the researcher must make thoughtful, informed decisions throughout the data collection procedure (Bryman & Bell, 2015). According to Bryman and Bell (2015), interviews allow an in-depth exploration of the knowledge and experience held by individuals on a particular research topic. Since this research concerned a contemporary issue that affects real-life projects, the interview helps fill the gap in the academic literature on the current practice of enhancing stakeholder engagement process the infrastructure projects. All the questions asked during the interviews were carefully selected in the attempt to prevent any preconceived bias. Nachmias and Nachmias (1996) proposed that interviewees should have a sufficiently common vocabulary, so that the constructed questions have the same meaning for each of them and it is possible to phrase the questions in a format that is meaningful to each participant. Sampling was undertaken by purposefully identifying and selecting key practitioners involved in the delivery of mega infrastructure projects.

A funnel technique (Ochieng, Price, Ruan, Egbu, & Moore, 2013) was adopted for the structure of the interviews, which meant that more general questions were asked at the start of the interview to 'break the ice' and facilitate engagement. This was followed by more specific questions that required a deeper understanding of the stakeholder and project collaboration. The use of semi-structured interview questions encouraged the interviewees to express their own views and elaborate on their answers in a setting in which their contributions were not judged as accurate or inaccurate.

3.3.4 Phase 4: Best practices validation and report writing

Best practice validation was achieved using case studies and interviews. The refined idea was validated using case studies and in-depth interviews with selected internal and external project stakeholders. The themes for best practice were derived from the findings in Chapters 4 to 8. The best practice guidelines are provided in Chapter 9.

3.4 Consideration of Research Questions and Objectives

Another facet to consider when choosing appropriate research methods is the nature of the research questions and objectives of the study (Bryman, 2008). Yin (2009) classified research questions based on whether they are ‘why’, ‘how’ or ‘what’ questions to decide on the use of quantitative or qualitative methods. ‘Why’ and ‘how’ questions are best answered through qualitative approaches, while ‘what’ questions are best answered through quantitative approaches. Table 3.2 displays the relationship between the research questions and research objectives for this study.

Table 3.2.

Relationship between Research Questions and Objectives

Research Questions	Research Objectives
How does stakeholder engagement in infrastructure projects affect project collaboration?	To investigate the relationship between stakeholder engagement and collaboration in infrastructure projects.
What are the processes used for stakeholder engagement for a large infrastructure project in New Zealand?	To investigate the engagement processes for stakeholders used during a New Zealand infrastructure project.
How do the stakeholder engagement processes in New Zealand and Malaysia differ across infrastructure projects?	To investigate the ways in which New Zealand and Malaysian infrastructure projects differ in their use of stakeholder engagement.

What are the key implications of using stakeholder engagement methods in infrastructure projects?	To identify the practical implications of the stakeholder engagement process resulting from the case studies.
What are the best practices that could be derived from the stakeholder engagement processes?	To establish best practice guidelines for stakeholder engagement in construction infrastructure projects.

3.5 Choice of Research Methodology

Some researchers (Babbie, 2005; Bloomberg & Volpe, 2008) have suggested that the choice of research methodology is largely determined by the research problem and purpose. Given the lack of previous stakeholder management research and practices, this research aimed to develop best practice guidelines for practitioners to engage with stakeholders in infrastructure projects. This precluded the use of a quantitative approach that required large-scale data collection for statistical analysis and establishing causal relationships among relevant variables. In addition, the knowledge and experience of stakeholder engagement are comparatively limited in infrastructure projects. A qualitative approach is particularly suitable for investigating a subject matter about which little is known (Kalof, Dan, & Dietz, 2008). Table 3.3 demonstrates the strengths and weaknesses of the methods that can be selected for research.

Table 3.3
Strengths and Weaknesses of Research Methods

Method	Strengths	Weaknesses
Quantitative methodology	<p>Provides wide coverage of a range of situations</p> <p>Fast and economical</p> <p>Where statistics are aggregated from large samples, they may be of considerable relevance to policy decisions</p>	<p>Methods tend to be inflexible and artificial</p> <p>Not very helpful in generating theories</p> <p>Difficult for decision makers to infer which changes and actions should occur in future</p> <p>Not effective in understanding processes or the meanings that individuals attach to actions</p>
Qualitative methodology	<p>Data collection methods seem to be more natural than artificial</p> <p>Able to observe changes processes over time</p> <p>Able to understand individuals' meaning</p> <p>Able to generate theory</p>	<p>Data collection can be tedious, requiring more resources</p> <p>Analysis and interpretation of data may be more difficult</p> <p>Harder to control the pace, progress and end-points of research process</p> <p>Policymakers may give low credibility to results from qualitative research</p>
	<p>Enables confirmation of results</p> <p>Elaborates or develops analysis with more detail</p> <p>Obtains the relevant strengths and avoids the weaknesses of both methodologies</p>	<p>Possible constraints imposed by available resources (Silverman, 2016)</p>

3.6 Research Design

A research design is seen as a 'blueprint' for the research details (Yin, 2003). It generally encompasses the following:

1. which questions to study
2. which data are relevant
3. which data to collect
4. how to analyse the results.

The overall aim of this research was to establish best practice in stakeholder engagement suited to a complex infrastructure projects. This main aim was further divided

into five objectives, which were accomplished by using multiple research methods following a logical sequence. Table 3.4 presents an overview of the objectives and process used to achieve the research objectives through primary and secondary sources.

Table 3.4
Overview of Research Objectives and Corresponding Methods

	Research Objectives	Research Methods	Data Sources	Chapters
Phase 1	To investigate the relationship between stakeholder engagement and collaboration in infrastructure projects	Literature review Participation in stakeholder engagement Content and document analysis Preliminary discussions and observations from site visit to New Zealand case study	Literature review process Books News articles Conferences Fieldtrips Government reports	Chapter 2
Phase 2A	To investigate the engagement processes for stakeholders used during a New Zealand infrastructure project	Literature review Semi-structured interviews with project managers, stakeholder managers, project personnel and the stakeholders involved Observations News articles	Reports NGO reports NZTA reports Fieldtrips to pilot case study project in Wellington	Chapter 4
Phase 2B	To investigate the ways in which New Zealand and Malaysian infrastructure projects differ in their use of stakeholder engagement	Multiple case studies Government publication reports Books Official documents	Case study interviews Transcription of case studies Qualitative data analysis Comparative method	Chapter 5 Chapter 6 Chapter 7
Phase 3	To identify the practical implications of the stakeholder engagement process resulting from the case studies	Multiple case studies Cross-case synthesis Industry participation Experienced stakeholder managers	Comparison and convergence of analysis results	Chapter 8
Phase 4	To establish best practice guidelines for stakeholder engagement in construction infrastructure projects	Multiple case studies Industry participation	Comparison and convergence of analysis results	Chapter 9

3.6.1 Cross-sectional research design

A cross sectional multi-site study was conducted at four different infrastructure projects in New Zealand and Malaysia between March 2013 to January 2016. A cross-sectional design entails the collection of data on more than one case and at a single point in time in order to collect a data in connection with two or more variables, which are then examined to detect patterns of associations (Bryman and Bell, 2011). The purpose of this studies was to collect data that would be pertinent to finding the answer to a research question (Sekaran and Bougie, 2010). Data collection at one point in time was sufficient. Multiple-case study designs is considered in the section on ‘comparative design’ because multiple-case studies are largely undertaken for the purpose of comparing the cases that are included. Multiple-case studies allow the researcher to compare and contrast the findings deriving from each of the cases. This in turn encourages researcher to consider what is unique and what is common across cases, and frequently promotes theoretical reflection on the findings (Bryman and Bell, 2011).

The aim of the research is to contribute to both project theory and project practice (Eisenhardt, 1989). The empirical material – the observations – are gathered from partaking in regular formal and informal discussions and meetings at the project office, at the construction site and at so-called collaboration workshops. Subsequently, 14 formal semi-structured interviews among project stakeholders, internal and external stakeholders ranging between 60 minutes and 2 hours were conducted tape-recorded, and transcribed. From this information, day-to-day actions, and interactions, performed by the project practitioners representing different stakeholders and different professions could be investigated in situated practice. The empirical material gathered is thus rich and consists of field notes from participant observations (i.e. notes from formal and informal discussions and meetings at the

project office and the construction site as well as notes from collaboration workshops meetings), internal and external documents (i.e. project time plans, organizational charts, collaborative project goal statements, meeting memos, project information booth), and interviews with project practitioners from the different stakeholders (property owner/client, tenant, architectural firm, engineering companies and general contractor).

The analysis has been following an interpretative process (Silverman, 2001, 2010), starting with developing contextual awareness and understanding in order to gain a holistic understating of the project and its context (compare to Engwall, 2003; Soˆderlund, 2004).

3.6.2 Document analysis.

Document analysis of secondary data is a commonly used qualitative research method (Kalof et al., 2008). In this research, the first, second and third research objectives were mainly concerned with evaluating the suitability of stakeholder engagement and public participation. Thus, in-depth document analysis was considered a suitable approach to understand the implications of stakeholder management and to examine public participation in New Zealand and Malaysia.

Information on the development of the stakeholder engagement procedure in the New Zealand case study was obtained through analysis of the case study report, policy papers and industry discussion papers. Internet searches of reports and documents and access to electronic databases of academic publications enabled the researcher to collect the relevant information. Document analysis was deemed essential for this research, as it offered evaluations of historical data on the stakeholder engagement activities in New Zealand;

reviews of ongoing government and industry debates surrounding the merits of stakeholder engagement; and insights into current policy, legal and institutional settings around stakeholder management.

3.6.3 Semi-structured interviews.

Interviews are a widely-used method for qualitative research. Kvale (1994) described qualitative interviews as a method to ‘gather descriptions of the life-world of the interviewee with respect to interpretation of the meaning of described phenomena’. In this research, interviews were adopted to accomplish Objectives 2, 3 and 4, which were concerned with understanding the drivers of stakeholder engagement and factors affecting stakeholder engagement implementation in New Zealand and Malaysia. Semi-structured interviews with project practitioners were considered particularly appropriate because the research aim required an understanding of current practice and experience in the construction industry. The purpose of the interviews was to obtain the participants’ perceptions of the stakeholder engagement process in infrastructure projects, as well as the challenges and problems encountered during the engagement process.

As suggested by Fellows and Liu (2012), relatively small sample sizes can be acceptable, based on the notion that smaller numbers of respondents with adequate understanding of the subject matter are more suitable than larger samples with limited knowledge. Bryman and Bell (2015) articulated that determining adequate sample size in qualitative research is ultimately a matter of judgement and experience in evaluating the quality of the data collected, the uses for which the data will be applied, and the particular research method and purposeful sampling strategy employed. Consequently, a purposive

sampling technique was used to identify all participants, which provided an adequate representation and balance of knowledge and experience.

The coding was based on the interview questions, and all the transcripts were individually broken down into various preliminary codes: first-, second- and third-level coding. These codes were then analysed for commonalities and examined for emerging themes. This approach enabled the researchers to clearly define which themes were most useful—those that supported a logical progression in the order of the codes—as well as helping analyse questions that sort to grasp ‘where,’ ‘why’ and ‘how’ the practice of stakeholder engagement in infrastructure projects occurred. Ultimately, this rigorous form of analysis ensured that the key implications of the integration of stakeholder engagement were readily identified. The verification occurred after the interpretation of data analysis. This involved presenting the findings to the main participants. The main philosophical considerations of this research could be linked to the essential requirement to examine stakeholder engagement and project collaboration in infrastructure projects for the purpose of capturing lessons aimed at enhancing future project collaboration during the planning phase of projects.

3.6.3.1 Selection of participants.

A number of researchers (Hancock, 2002; Liamputtong & Ezzy, 2005; Yin, 2003) maintain that the objective of sampling in qualitative interviews is different to that in quantitative research, such as large-scale surveys, which are concerned with ensuring that the results derived from the samples can be statistically generalised to the population. Instead, qualitative research uses a purposeful sampling strategy, whereby participants are selected

based on their ability to provide a thorough and sophisticated understanding of all dimensions of the subject matter (Liamputtong & Ezzy, 2005).

In this research, 50 participants of four case studies were chosen for the interviews. The limited number of interviewees was commensurate with the current status of stakeholder engagement practices in New Zealand and Malaysia. The selection of participants followed a purposeful sampling procedure that allowed the selection to be narrowed to a specific group of individuals who could provide rich and in-depth information on the trends and implications of stakeholder engagement practices. To be specific, the selection was based on the participants' experience with stakeholder engagement practices (often in New Zealand and Malaysia), understanding of the intent and direction of public participation, and positions in their organisation. The stakeholders selected for this study included senior and middle management from both the public and private sector. Tables 3.5, 3.6, 3.7 and 3.8 present detailed descriptions of the participants' backgrounds and characteristics.

Table 3.5
Profiles of Interviewees for Case Study 1 in New Zealand

Project: Mackays to Peka Peka Expressway (M2PP), Wellington		
Interviewee Code	Affiliation	Concern
A1	Alliance project manager	Alliance
A2	Interface manager	Alliance
A3	Alliance approval manager	Alliance
A4	Design manager	Alliance
A5	Construction manager	Alliance
A6	Stakeholder manager	Alliance
A7	District community board member	Oppose in part
A8	Advisor of national historic heritage agency	Oppose in part
A9	Manager of regional council	Support in part
A10	Chair of business organisation	Support in full
A11	Representative of affected school	Oppose in full
A12	Community group member 1	Oppose in full
A13	Community group member 2	Support in full
A14	Community interest group	Neutral

Table 3.6
Profiles of Interviewees for Case Study 2 in New Zealand

Project: Ara Tūhono–Pūhoi to Wellsford expressway (Further North Alliance)		
Interviewee Code	Affiliation	Concern
B1	Project manager	Planning alliance
B2	Stakeholder manager	Planning alliance
B3	Project engineer	Planning alliance
B4	NZTA highway manager	Project owner representative
B5	Auckland transport	Support in full
B6	Auckland council	Support in full
B7	Representative of community group member 1	Support in part
B8	Representative of community group member 2	Oppose in part
B9	Affected landowner 1	Oppose in full
B10	Affected landowner 2	Oppose in part
B11	Representative of the trading company business	Support in part
B12	Road and transport organisation	Neutral

Table 3.7
Profiles of Interviewees for Case Study 3 in Malaysia

Project: KVMRT Line 1 Sungai Buloh–Kajang (SKB)		
Interviewee Code	Affiliation	Concern
C1	Strategic communication and public relations director	Project delivery partner (PDP)
C2	Stakeholder manager of KVMRT	PDP
C3	Stakeholder manager and public relations of underground tunnel	PDP
C4	Project manager, MMC Gamuda (underground tunnel)	PDP
C5	Engineer of Dewan Bandaraya Kuala Lumpur (DBKL)	Support in full
C6	Engineer, MMC Gamuda (underground tunnel)	PDP
C7	District council representative 1	Neutral
C8	District council representative 2	Neutral
C9	Representative of community group member 1	Support in part
C10	Representative of community group member 2	Oppose in full
C11	Chair of business and trade organisation	Oppose in part
C12	Representative of Chinese business association	Support in part
C13	Work package contractor 1	Neutral

Table 3.8
Profiles of Interviewees for Case Study 4 in Malaysia

Project: KVMRT Line 2 Sungai Buloh-Serdang-Putrajaya (SSP)		
Interviewee Code	Affiliation	Concern
D1	Project manager	Project
D2	Stakeholder manager	PDP
D3	Engineer of Mudajaya (work package contractor)	Project
D4	District council manager (Majlis Daerah Sepang)	Support in full
D5	Project engineer, Perbadanan Putrajaya	Support in full
D6	Individual landowner 1	Support in full
D7	Individual landowner 2	Oppose in part
D8	Representative from community group member 1	Oppose in part
D9	Representative from community group member 2	Support in full
D10	Chair of business and trade organisation	Support in part
D11	NGOs	Neutral

A prepared list of questions was used as a tool for face-to-face discussion. The participants were asked to express their views and experiences relating to the engagement process, as experienced by them and their group, whether they were in support or opposed to the scheme, as well as how the project affected them. The interviews typically lasted 30 minutes to one hour. They were recorded and then transcribed. The data analysis procedure involved converting raw narrative data (interview notes, audiotapes) into partially processed data (transcripts), which were then coded (with the aid of NVivo software). Before the analysis process was developed, all interviews were transcribed and carefully arranged according to themes. Key steps in the stakeholder engagement process were then developed from the coding process. Table 3.9 summarises the number of stakeholders selected for the study.

Table 3.9

Number of Stakeholders Selected

Stakeholders/ Respondents	Case Study 1	Case Study 2	Case Study 3	Case Study 4	Total
Key stakeholder	6	4	5	3	18
Internal	3	2	3	2	10
External	2	2	3	2	9
Community/public	3	4	2	4	13

3.6.3.1 *Acknowledgement of the Treaty of Waitangi and the Māori*

The selection of the participants was made based on the databases provided by the project personnel in New Zealand. In New Zealand access to Maori people must be carefully conducted in line with Treaty Waitangi constitution. Traditionally, indigenous Māori lived in local tribal areas where ancestry (*whakapapa*) and beliefs (*te ao Māori*, values) linked Māori to their natural and spiritual environment and customary practices were reinforced through

inter-generational knowledge and application. Colonization by the British from the mid-1800s had major impacts on the Māori population, especially Māori health, culture, language, social status, and loss of land, water, and natural resources (Durie 1998, King 2003). Despite these major changes, the basic beliefs of traditional Māori society remain strong and influence the way Māori construct tribal status and authority, manage their lands and resources, and relate to other agencies and government. The way traditional indigenous rights and membership are enacted in current legislation continues to provide robust debate and models of democratic and collaborative practice (Te Aho 2010, Ruru 2012).

Māori have an intricate, holistic and interconnected relationship with the natural world and its resources. While there is no “one” Māori world view, there are principles and values that establish and reinforce whānau, hapū, rūnanga (tribal assembly) and iwi identity, their responsibilities and rights to manage and use natural resources, including lakes (William et. al, 2018). To sustain their mana (prestige, authority, status), kaitiaki (guardians) are bound to do everything they can to preserve and restore the mauri (life force) of their environment (William et. al, 2018). Thus, it provides life, vitality and energy to all living things and is the binding force that links the physical to the spiritual worlds. It denotes a health and spirit that permeates all living and non-living things and damage or contamination to the environment is therefore damage to or loss of mauri (Harmsworth et. al., 2016).

NZTA has recognise that they have a significant responsibility towards communities throughout New Zealand especially Māori. The NZTA acknowledge the status of Māori as tangata whenua – the indigenous people of Aotearoa New Zealand and as partners with the Crown in the Treaty Waitangi (NZTA, 2010). NZTA works to achieve the principles of the Treaty of Waitangi. Other than that, NZTA extend the opportunity for Māori to participate in their decision-making process and build a Māori capacity to contribute to the decision

making. The NZTA's Framework for Engaging Effectively with Māori (2010) highlighted the obligation to "maintain and improve opportunities for Maori to contribute to and transport decision-making processes" This is aligned with the Auckland Council Act (2009) stated that the legislation need to "establish and maintain processes for Māori to contribute to its decision-making processes".

The framework drafted to emphasis on building strong relationships and moving towards a second-generation partnership, rather than just transactions on an as-needed project basis. NZTA define this as moving towards a co-management or co-governance arrangement, currently being explored under some Treaty settlements. NZTA will consult with Maori wherever possible on activities that are likely to affect them or their interest. In the project in New Zealand, NZTA has provide their project personnel with the knowledge and skills to appreciate and understand the Treaty of Waitangi, and Maori language, culture and protocol.

3.6.3.2 Interview protocols.

The interviews were conducted in two New Zealand cities—Auckland and Wellington—and in Kuala Lumpur, Malaysia. Fourteen pilot interviews were conducted between April and June 2013, following which the questionnaires were revised. A second round of interviews was undertaken from July 2014 to December 2015. The second round was conducted for Case Studies 2, 3 and 4. For Case Study 4, the researcher had limited access because of restrictions on data, as the data collection occurred when the engagement process had just begun. Thus, information was limited and data were collected solely from the interviews, rather than documentation. The interviewees were selected based on their profile and background related to the project. For the purposes of confidentiality, all

identifying information, including the participants' names and organisations, were replaced with letters and pseudonyms where necessary. This was important because the project was then at the stakeholder identification phase and all data regarding the affected stakeholders were confidential. The participants were initially approached by email and telephone. The interviews were audio-taped with the participants' permission. The study used the face-to-face interview technique because it enabled acquisition of in-depth answers from the participants and allowed probing questions to delve deeper into the research problem. A semi-structured questionnaire was used to elicit reliable, comparable qualitative data, as well as spontaneous discussion. The questions asked during the interviews with various stakeholders were essentially the same.

3.7 Ethical Issues

Considering ethical boundaries when collecting data is important to uphold the integrity of research findings (Maxwell, 2005). This research was conducted with ethics approval obtained from the University of Auckland Human Participants Ethics Committee on 4 March 2013 (reference number: 9224) for three years. It is a requirement of the ethics approval that participants are provided with a participant information sheet that details the objectives of the research and the nature of the data collection process, as well as a consent form that is to be signed by the interviewee in agreement with the terms stated in the participant information sheet. This research encountered minimal ethical issues. The only sensitive areas were any possible controversial opinions of the stakeholders interviewed regarding their own or another organisation. These sensitivities were managed by guaranteeing confidentiality and privacy. It was agreed that any material written or published

containing the collected data would only include the names of organisations, and the interviewees would be referred to using codes, with no other information presented, such as names or positions are included in Tables 3.5, 3.6, 3.7 and 3.8 of this Chapter.

3.8 Summary

This research methodology chapter has explained the process of the research from the beginning until the validation of the study was completed. The chapter has discussed the research process and the development of the four research phases. These phases included writing an extensive literature review, an in-depth exploratory preliminary case study, a cross-case synthesis of the case studies, and validation of best practices. This chapter also explained the protocol of the methodology and the relevant ethical issues.

CHAPTER 4

Case Study 1

Implementation of Stakeholder Engagement Practice through Alliancing in New Zealand: A Case Study of Mackays to Peka Peka Expressway (M2PP)

This chapter has been partially published as a paper for:

Baharuddin, H. E. A., Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2017).

Managing stakeholders through alliances: A case study of a megaproject in New Zealand. *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, 170(4), 151–160.

and

Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2016). Improving early stakeholder engagement process for infrastructure projects. In K. Kähkönen & M. Keinänen (Eds.), *Proceedings of World Building Congress 2016: Volume 1—Creating built environments of new opportunities*. Finland: Tampere University.

4.1 Introduction

The chapter examines stakeholder engagement in a New Zealand infrastructure project aiming to answer one of the key questions in the thesis “What are the processes used for stakeholder engagement for a large infrastructure project in New Zealand?”. Clients of large and mega infrastructure projects use complicated procurement systems and manage large numbers of relationships with different infrastructure stakeholders. The growth of interest in stakeholder management, particularly in infrastructure projects, has led to recognition of the importance of the subject to project outcomes (Aapaoja & Haapasalo, 2014; Yang et al., 2009). Many infrastructure stakeholders are involved in the provision and delivery of construction projects, and each has their own function and requirements that contribute to the complexity of managing megaprojects (Bal et al., 2013). Aaltonen and Kujala (2016) stated that the central issue in managing stakeholders is understanding the four key dimensions of the project stakeholder landscape: complexity (element and relationship), uncertainty, dynamism and institutional context. They emphasised that the ability to understand these dimensions will help evaluate the implications of different types of project landscapes during the early front-end phases of projects. To meet the demands of diverse stakeholder groups, project owners need to ensure stakeholder engagement plans are comprehensive, particularly during the project preparation and planning phase, where stakeholders with various demands and objectives have the highest possibility of affecting the project outcomes (Heravi, Coffey, & Trigunarsyah, 2015; Mok et al., 2015). Neglecting to engage stakeholders during an early phase is one of the reasons for failure in infrastructure projects (Baharuddin, Wilkinson, & Costello, 2016).

It is widely accepted that stakeholder satisfaction can be achieved through an early collaborative approach from project teams (Lloyd-Walker & Walker, 2016). Researchers have found that collaborative procurement can positively influence stakeholder engagement, depending on the processes, governance arrangements and collaborative features embedded within the procurement (Baharuddin, Wilkinson, & Costello, 2013; Lloyd-Walker & Walker, 2016). Project alliancing has been postulated as the most appropriate procurement approach for managing stakeholder complexity (Lloyd-Walker & Walker, 2016). An alliance is a collaborative way of working on major projects that involves the joint management of project challenges. It provides a different approach from the more traditional adversarial forms of contracting, and allows the client to work more closely with their allies. Proven successful in Australia and New Zealand (Che Ibrahim, Costello, & Wilkinson, 2015), its ability to leverage collaborative features can drive greater stakeholder engagement and collaboration. Further, understanding stakeholders and devising engagement strategies based on the spectrum of the stakeholder has become one of the key capabilities of project alliances (Baharuddin et al., 2013).

In New Zealand, most of the road infrastructure projects under the Road of National Significance (RoNS) program have been delivered in a collaborative manner through alliances, where collaboration between diverse teams enables them to foster high-level integration practice in delivering complex infrastructure projects (Che Ibrahim et al., 2015). The positive advancement of infrastructure projects in the country, coupled with the experiences of the NZTA—the base organisation (project owner)—in managing a number of alliances, has initiated the application of advanced procurement approaches not only to deliver complex mega infrastructure projects, but also to manage the stakeholder complexity involved in the project. As Tamburro and Wood (2014)

stated, public owners need to focus more on maximising value for money when they procure assets and services for the community with public monies.

Despite the increased attention devoted by project owners to the need to manage infrastructure stakeholders (Aapaoja, 2014; Heravi et al., 2015), little is known about how alliance management particularly influences the effectiveness of the engagement process in the early phases of project planning. Hence, the aim of this chapter is to report a real-life case study of the Mackays to Peka Peka (M2PP) Expressway in New Zealand, where the alliance was formed in the early planning stage. Individuals from the alliance management team (AMT), representing different organisational interests, were interviewed, while relevant documentation of the case study project was reviewed to examine the adopted structure of the alliances and the operational mechanisms for engaging with stakeholders. Importantly, the diverse stakeholders' views on the engagement process during different phases (inception, option investigation, preliminary design and scheme assessment) were determined.

4.2 Stakeholder Management

Stakeholder management is widely recognised as an essential element of construction project management (Jepsen & Eskerod, 2009; Mok et al., 2015; Yang et al., 2011). The concept of stakeholder management was derived from the resource dependence view of firms and emphasises the management of a multitude of stakeholders within the context of interests, risks and ethical issues (Eskerod et al., 2015). There is a plethora of literature on stakeholder management (i.e., Aaltonen & Kujala, 2016; Mok et al., 2015; Yang et al., 2011), focusing on different perspectives of stakeholder research (such as the management of stakeholders and management for

stakeholders approaches). The literature highlights the importance of stakeholder management to project success, particularly in large-scale infrastructure projects. This was supported by Cuppen et al. (2016), who stated that the interest in stakeholder management is driven by the increasing difficulty faced by governments and industry in delivering infrastructure projects. Nevertheless, project owners often fail to consider affected stakeholders, which can contribute to disputes and problems regarding completion of the construction project (Olander, 2007). Stakeholders' negative attitudes towards large-scale and complex projects are significant because they can severely obstruct project progress and cause cost overruns and exceeded time schedules (Aaltonen et al., 2015). There is a common belief that megaprojects have strikingly poor performance records, not only in terms of the 'iron triangle' of project management, but also with regard to the environment and public support (Aaltonen et al., 2015; Flyvbjerg, 2014).

Compared with standard construction projects, stakeholder management in large infrastructure projects is more challenging and complex because of the different priorities of different stakeholder groups (such as social issues, sustainability concerns or enhancing infrastructural facilities), extensive stakeholder management processes (from the inception and planning phase), stakeholder analysis (wide-ranging methods being considered) and stakeholder engagement (more collaborative and relationship-oriented approaches required) (Mok et al., 2015; Yang et al., 2011). As a result of these challenges, concerns related to the external effects of megaprojects (such as the role of civil society and public involvement) are typically not addressed until later in the project lifecycle (Flyvbjerg, 2014). Stakeholder management performance in infrastructure projects demands rigorous scrutiny in several contexts (Aaltonen &

Kujala, 2010). Eskerod et al. (2015) emphasised that understanding stakeholder management requires a dynamic approach. For example, different communication practices are required over time because of stakeholders' varying degrees of salience. Cuppen et al. (2016) suggested that involving stakeholders at an early stage and embarking on an 'unstructured' process that promotes the interaction and exchange between stakeholders with different values, knowledge and interests are crucial for managing stakeholders. In particular, for large infrastructure projects, certain interactions—such as public hearings and citizen juries—should be organised to allow stakeholders and communities to voice criticisms and initiate healthy negotiations (Flyvbjerg, 2011). However, Yang et al. (2011) highlighted that there is no single, most effective approach, and usually several alternative approaches are combined to analyse and engage stakeholders, particularly in large-scale projects.

4.2.1 The nature of engaging stakeholders in infrastructure projects

Infrastructure projects are complex and involve multiple stakeholders. Buckley (2012) stated that, in large-scale resource projects and major transport infrastructure, it is important to build strong and effective relationships with local communities and other important stakeholders who are recognised as an integral part of the project. Freeman (1984) described stakeholders as dynamic and changing over time as their stakes change, depending on the strategic issues under consideration. The growing numbers of stakeholders (Yang et al., 2009) and the involvement of new types of stakeholders complicate the already complex construction process (Storvang & Clarke, 2014). This explains why the engagement process with stakeholders needs to be smooth with regard to key stakeholders and the other stakeholders affected. Thus far, no standard guidelines

have been established for the process of engaging stakeholders in infrastructure projects. The basic participation model for stakeholders is based on the generic level of IAP2. The process can occur at any stage of a project, from the feasibility and concept phases through to the operational phase (Buckley, 2012). Practical decisions must be made in relation to the level of community engagement required for a given project. Through early engagement, stakeholders and communities can identify the scope of what is to be done, reviewed and ensure that all other issues in stakeholder management are studied. Early stakeholder engagement also ensures respect among all parties by working in partnership, rather than imposing decisions on stakeholders. The importance of engaging stakeholders at an early stage of the project leads to positive outcomes, such as increasing credibility and transparency, and the early identification of constraints (Tammer, 2009). It is essential that stakeholders be engaged as early as possible, as this is considered critical for stakeholder analysis and decision making (Buckley, 2012; Reed et al., 2009; Tammer, 2009).

Sutterfield et al. (2006) pointed out that, to achieve a successful project outcome, the project manager must be adept at managing the interests of multiple stakeholders throughout the entire project management process. Innes and Booher (2004) stated that one of the purposes of public participation is to promote equity and fairness because individuals and groups who are excluded from the decision-making processes are unlikely to have their needs and preferences reflected in the outcomes. Cleland and Ireland (1999) suggested that success in construction projects is significantly dependent on meeting the needs of stakeholders. Bourne and Walker (2005) attributed many project failures to poor consideration of all stakeholder needs.

4.3 Alliance Management

Infrastructure megaprojects are usually large scale, complex and full of uncertainties (Flyvbjerg, 2014). Where the environment is very complex, with multiple stakeholders, competing interests and expectations, the collaboration and integration of inter-organisational relationships is seen as a vital enabler to performance (Eskerod et al., 2015). Alliancing has been acknowledged as a platform to develop inter-organisational relationships that complement and extend their core expertise and have been used extensively on large infrastructure projects. Bringing together and forming integrated teams at an early phase, sharing risk and reward, ensuring collective decision making and upholding a collaborative multiparty agreement are some of the features incorporated in all alliances to varying degrees (Lahdenpera, 2012). Alliances embrace the use of formal (e.g., sharing risk) and informal (e.g., highly integrated teams) governance mechanisms to manage the project (Manley et al., 2014). Mendez et al. (2016) argued that, in the context of alliance management practice, relational elements of governance are seen to be more important than the contract itself. Project success can be strengthened by a governance structure consisting of close cooperation between project owners and project participants throughout the project lifecycle (Andersen, 2012). Governed by the project alliance board (PAB) and led by the alliance manager and AMT, governance and organisational arrangements in alliance management are crucial as the project team integrates the resources and capabilities of organisations from wider functional areas, including design, construction, systems and controls, community and stakeholders (Lloyd-Walker & Walker, 2011; Manley et al., 2014).

There is considerable debate in the literature over the rationale of having an alliance as a potential panacea for fostering collaborative efforts in managing

stakeholders. In particular, Tamburro and Wood (2014) suggested that an alliance model was found to be effectively outsourcing to the team any accountability for the protection of the public interest. Lloyd-Walker and Walker (2016) emphasised that the alliance model offers an alternative approach to project planning and delivery that can incorporate community and stakeholder concerns during the front-end phase of the project. Alliances can consider creative and constructive engagement of stakeholders, particularly when dealing with early stakeholder interest (Hietajärvi et al., 2017). Nevertheless, an important aspect of stakeholder management in construction projects is the contractual approach to managing risk and uncertainty collectively (Ward & Chapman, 2008). The combination of project management and relationship management best practices provided through an alliance model enhances the opportunity to manage stakeholders during the early phase of the project. However, as a mode of contracting, alliancing is also vulnerable to its management, particularly when defining its principles. In particular, ensuring a high level of integrated alliance team performance towards alliance and stakeholder relationships from the front-end phase of a project is vital to project outcomes (Che Ibrahim et al., 2015). Given that different projects may require different levels of stakeholder engagement in different phases, there remain significant issues related to how alliancing should integrate the stakeholder management processes within the alliance features during the very early phase (IPAA).

4.4 Methodology

A single case study was selected to understand stakeholder engagement. The case study was of a New Zealand infrastructure project. A case study was also seen as the best way to capture a wide range of views and opinions of the respondents selected

from a project that had some unique features (Yin, 2009). This case study employed a qualitative method of data collection, by way of semi-structured interviews. Accordingly, the views of different stakeholders were sought, including owner and non-owner participants (NOPs). Semi-structured interviews were also undertaken with personnel from external stakeholders, including a non-government transportation agency, a historic and cultural agency, community groups, a district board, councils and environmental groups. These personnel were identified in collaboration with the stakeholder manager, who initially listed relevant stakeholders (who were directly/significantly affected by the project) and emailed them to obtain their consent to participate in this study. Accordingly, a total of six project personnel from the alliance management team (AMT) were interviewed. Eight representatives from the relevant stakeholders agreed to participate, and these included a balance of those who supported, opposed and were neutral towards the infrastructure project. Table 4.1 presents a profile of the interviewees.

Table 4.1

Profile of the Interviewees

ID	Organisation	Concern	Interest
A1	Alliance project manager	Alliance	Project, public
A2	Interface manager	Alliance	Project, public
A3	Alliance approval manager	Alliance	Project, public
A4	Design manager	Alliance	Project, public
A5	Construction manager	Alliance	Project, public
A6	Stakeholder manager	Alliance	Project, public
A7	District community board member	Oppose in part	Interchange and local connectivity
A8	Advisor of national historic heritage agency	Oppose in part	Historical heritage, cultural
A9	Manager of regional council	Support in part	Local river, flood, land management
A10	Chair of business organisation	Support in full	Local connectivity, good access, environmental mitigation
A11	Representative of affected school	Oppose in full	Sustainability and fairness
A12	Community group member 1	Oppose in full	Affected landowners, local people, social effects
A13	Community group member 2	Support in full	Expressway, interchange, local people
A14	Community interest group	Neutral	River

The focus of these interviews was, first, to understand the alliance features adopted in this project and, second, to elicit feedback from the multiple stakeholders regarding their understanding and view of the success or otherwise of the engagement process undertaken. This study focused on the IPAA phase, as this is when the external stakeholders and community exert the strongest influence on a project. The interview session with each interviewee was conducted within the vicinity of the Wellington region and lasted for around one to two hours. In addition to the interviews, secondary sources of evidence were examined to verify the interviewees' statements. This evidence included the project's scope of work, in-house guidelines for implementing the alliance approach and relevant project reports on the alliance. In addition, documents

related to stakeholder engagement were examined, such as newsletter articles, public engagement reports and transportation agency reports. The documents were examined before, during and after the interviews. Secondary sources of evidence were used to support the primary source and minimise bias in data collection during the interviews.

The discussion of the findings will involve reflections on the identified key alliance features adopted to manage stakeholder complexity—that is, the alliance governance and commercial model involved. Further, the discussion expresses the views and experiences of the external stakeholders related to the process of stakeholder engagement during the IPAA phase.

4.5 Background of the Case Study: M2PP Expressway

The MacKays to Peka Peka (M2PP) Expressway is parts of the RoNS programme designated by the New Zealand Transport Agency (NZTA). Driven by the one of the ‘four sublimes’ (i.e. economic) of megaproject management (Flyvbjerg, 2014), this highway programme represents one of New Zealand’s biggest ever infrastructure investments. The project includes the construction of approximately 18 km of road construction, 3.5 million m³ earthworks, 18 new bridges and three grade-separated interchanges, including a river crossing. At the time of this study, the project was still under IPAA phase. In January 2010 the NZTA called for tenders from consortia to unite with them to form an Alliance for the planning, design, consenting and construction of M2PP. At the time of this study, the project was still under the Interim Project Alliance Agreement (IPAA) phase. The IPAA phase was delivered in the three phases (Shown in Figure 4.1) namely; phase 1 (1A and 1B): investigations and consenting; phase 2:

specimen design and target outturn cost (TOC); and phase 3: detailed design and construction. The estimation and reconciliation of TOC was started during the IPAA phase, and the final TOC was NZD630 million (1 NZD = 0.729 USD). The IPAA phase started in mid-2010, and the alliance completed a detailed process of optioneering assessments of possessions, design and planning extensive consultation with key stakeholders and the public, submitted its application to the Environmental Protection Authority (EPA) in April 2012. After extensive Board of Inquiry (BOI) hearing, NZTA's application for consents was approved in April 2013 and the timetable for the project sees details design and construction beginning in the middle of 2013 and completed by 2017.

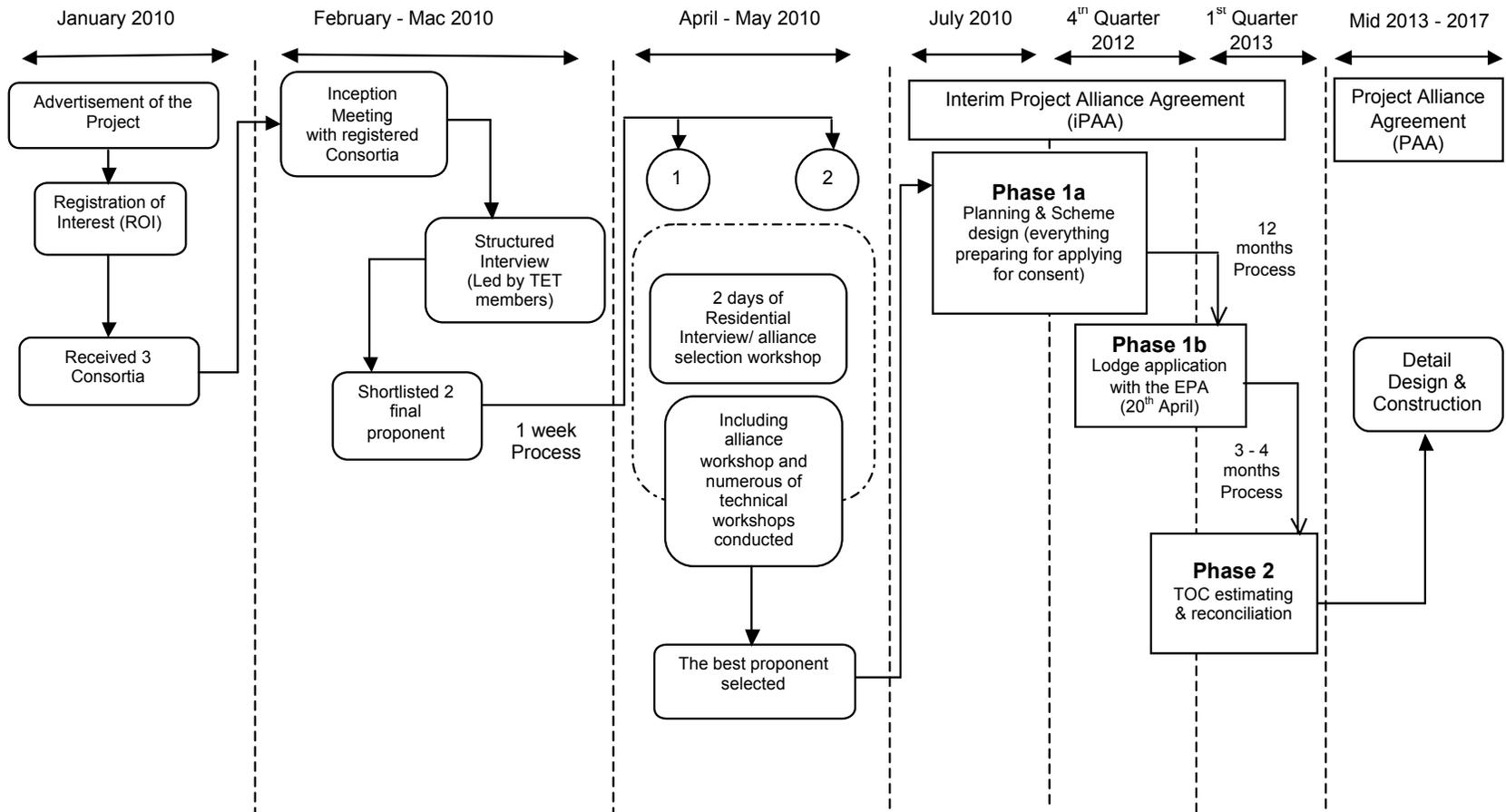


Figure 4.1. Formation of alliance team, from January 2010 to 2017 (adapted from M2PP report, NZTA, 2010).

The Alliance members of this project comprises the NZTA, Beca, Fletcher Construction, Higgins Group and Kapiti Coast District Council, supported by Goodmans Contractors, Incite and Boffa Miskell, to design and deliver the project. Figure 4.2 described the project structure of the alliance procurement.

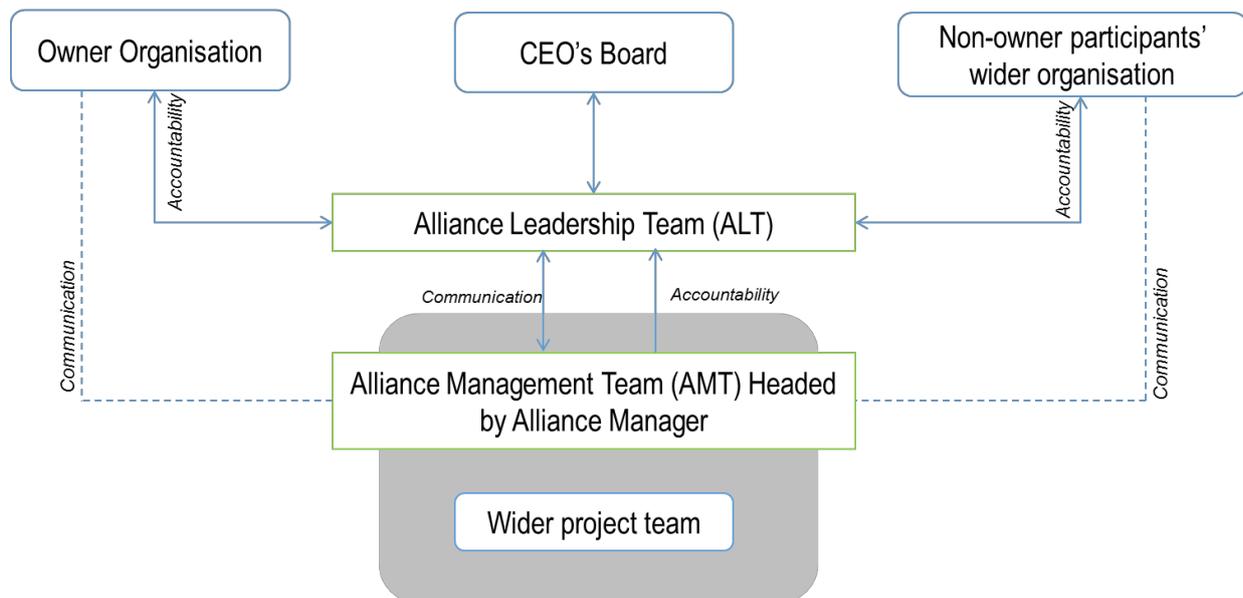


Figure 4.2. Project structure of the alliance

4.6. M2PP Alliance Model

Four entities form the M2PP alliance that is delivering the M2PP Expressway. The entities comprise the owner and three NOPS, which include representatives from the main contractor, civil and structural consultant and civil infrastructure contractor. From the investigation, it was found that this case study used a common alliance governance framework, which comprised a three-level structure (see Figure 4.4):

1. the PAB (Project Alliance Board)
2. the AMT, which was led by the alliance manager
3. the wider alliance team.

In this project, the PAB committee comprised representatives from the owner and NOPs was appointed to act as a board of directors to provide governance and strategic direction for the alliance.

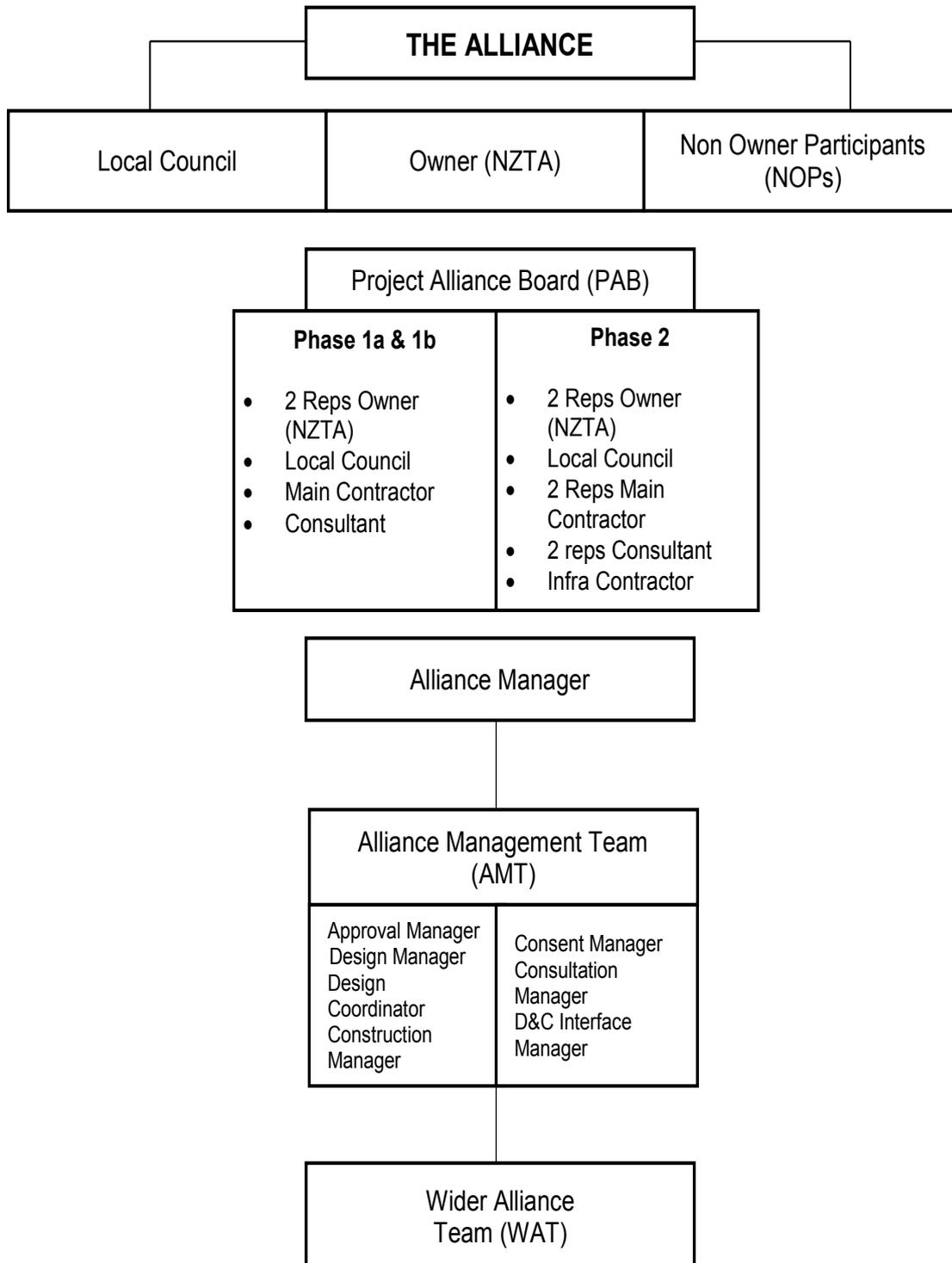


Figure 4.3. M2PP governance framework during IPAA phase.

From the interviews, it was found that the number of PABs was smaller in Phase 1 than in Phase 2 to ensure greater focus on strategy and governance. In Phase 2, at least one representative from each alliance participant was appointed to hold a position in the PAB. However, in this particular project, an interesting feature was that the local council was part of the interim alliance, with the chief executive officer (CEO) of the local council being allocated a seat on the PAB. However, their role and involvement was mainly restricted to voting rights. There was general agreement from interviewees that the involvement of the local council was partly in recognition of the statutory role of the local council's responsibility for planning and regulating land use in the local district. Their inclusion also indicated that the alliance team was embracing the concept of empowering the council to help ensure consultation outcomes that would maximise the benefits for the community. Interviewee A3 argued: 'that's a real innovation, a bold and brave move by NZTA [and] it is needed as the alliance team [is] trying to build a better relationship with key stakeholder'. Interviewee A5 added: 'it is definitely help[ing] alliance rebuild the trust and get the relationship [on] much better footing'. In New Zealand, alliance procurement and PPP have been used extensively in infrastructure projects. One of the interviewees stated that:

“NZTA has made a commitment to the Kapiti community to provide certainty about the proposed route for the Mackays to Peka Peka Expressway as soon as possible ... By establishing an alliance to deliver the expressway, we will be able to move much quicker into the investigation and design phases than if we were to use traditional methods of expressway design and construction.”

Another unique feature found in project governance during the IPAA phase was the appointment of an alliance manager from an independent consultant, instead of from the lead contractor. Based on the investigation, it is believed that having an alliance manager from an

independent member would allow the NZTA to earn the utmost confidence, lead the public consultation with the community and fairly represent the various interests of the NOPs. An independent alliance manager was equipped with vast experience of dealing with complex public and private infrastructure, and being hands-on in managing highly challenging stakeholder relationships. This project uniquely empowered an independent alliance manager to deliver outstanding stakeholder outcomes. It was believed that this would succeed because the focus during this early stage was shaping relationships with the multiplicity of stakeholders, rather than focusing on constructing the project. Thus, any designation and consenting issues could be finalised and lodged with the EPA within the time planned. Interviewees A1 and A4 explained:

...because of the complex stakeholder, they decided that what was needed is [a] CEO kind of person—particularly somebody who [is] experienced with the public engagement ... alliancing is about having the right people at the right role. We need somebody who had specific skills dealing with the stakeholder and controversial sort of issues.

Interviewee A3 added: 'having an alliance manager from outside has helped the balance of all parties' interest'. Interviewee A2 pointed out that the appointment of an independent alliance manager gave the alliance extra dimensions to help unify the alliance team and the community.

4.6.2 Commercial Model during IPAA

One of the unique features adopted during this IPAA was the enhancement of a commercial model for the alliance. Most of the interviewees agreed that it was significant to employ an incentivised commercial model designed to deliver high performance, particularly in the critical area of engaging with the community to enable a smooth pathway through the

consenting process. Traditionally, alliance models have had comparatively short IPAA phases and have focused incentivisation more on achieving high performance in the project alliance agreement (PAA) phase of the project. The reason for focusing incentivisation on the PAA phase is that any conversation concerning project-related costs will increase the risk that the selection process will become tainted and the wrong participant could be chosen (Sakal, 2005). The commercial model reflects this with performance measurement and pain/gain incentives being a feature of the PAA (Botha & Scheepbouwer, 2015; Love, Davis, Chevis, & Edwards, 2011).

From the investigations, the interviewees indicated that, for the project teams to be effective in facing the unique challenges of this project, the introduction of performance measurement and incentives was vital in the IPAA phase. One of the main attractions of alliancing is the ability of the commercial model to incentivise the alliance participants with non-cost key result areas (KRAs) that represent value to them (Ross, 2003). KRAs are a set of agreed performance indicators that represent the project owner's interpretation of value, which normally extends beyond the standard iron triangle measures and includes triple-bottom-line measures (Walker et al., 2015). In addition, of the three limbs that form an alliance's overall compensation framework, the pain share/gain (limb three) appears to exert the most influence on team behaviours, and is measured based on the KRAs (Che Ibrahim et al., 2015; Love et al., 2011).

The alliance participants agreed to have a series of key performance indicators (KPIs) to incentivise the performance of the alliance team during the IPAA phase. Interviewee A2 stated that:

“A series of KPIs to incentivise the team has been developed and a fee was set to one side ... we do have some KPIs—trying to give the team some incentives and motivation.”

Interviewee A3 added that:

“...a couple of hundred thousand was available in the pool [to] respond to specific KPIs, for example, on the community, key stakeholders and the alliance itself ... these KPIs breed the collaborative way of working.”

From the investigation, four KRAs were identified during the IPAA phase: (i) responsiveness, (ii) consent conditions, (iii) quality of engagement with key stakeholders and (iv) alliance health. Table 4.2 presents details on the purpose and measurement tools of the respective KRAs.

Table 4.2
KRAs in the IPAA Phase

No.	KRA	Purposes	Measurement Tool	Assessment Period
1	Responsiveness	How responsive the interim alliance is to stakeholder requests for information	Number of days	Quarterly
2	Consent conditions	Judgement on team ability to identify the conditions and requirements of BOI prior to the lodgement	Documentation and results from BOI	Once (after the BOI hearing)
3	Quality of engagement with key stakeholders (regional and district authorities and entities)	Satisfaction of relevant authorities during the course of engagement	Questionnaire survey	Once (prior to BOI hearing)
4	Alliance health	Part of health check diagnostics for alliance team relationships	Questionnaire survey	Quarterly

4.7 Engagement Process during IPAA Phase

Researching the origin of the project from the early concepts to the consenting stages indicated that the stakeholders and community had a major stake in this project. As shown in Figure 4.5, stakeholder engagement progressed with four stages:

1. inception: clarifying scope and process
2. option investigation: project parameters
3. preliminary design: options concepts
4. scheme assessment: testing and refinement.

During the inception stage, the early start team (alliance, Māori *iwi* group and Kapiti Coast District Council) was established as a specialist team because of their expertise along the affected area of the expressway project, and their ability to acknowledge and provide a solid basis for wider engagement, particularly to key stakeholders. An early activity to clarify the project scope and inform an understanding of the sensitivities included undertaking a series of meetings with the key stakeholders and making announcements about the project in the national media, such as the national television and newspapers. One of the significant engagement techniques adopted during this stage was the establishment of the community reference group (CRG). The CRG was chaired by the alliance manager and held a monthly meeting and forum to facilitate high-level dialogues between key locals, the community and the alliance on critical issues, and subsequently disseminate information to the wider community. The CRG also provided an important forum to hold deliberative workshops at key points of the process, during which options were tested through exposure to different opinions. Apart from the CRG, an *iwi* engagement forum was also established in recognition of Māori (New Zealand's indigenous people) interest and to fulfil statutory obligations. The

establishment of this forum at an early stage was crucial to work early with *iwi* to determine the most mutually satisfying basis for *iwi* to participate in the project, and to potentially establish an ongoing relationship with the alliance.

The option investigation (Stage 2) focused on developing a range of options within the broad alignment of the road designation, and making recommendations for the final option. At this stage, the engagement process was extended to a wider group of stakeholders. The first project expo was also held throughout this stage. The expo was a form of manned exhibition, over several days, supported by a program of presentations and targeted appointments. A physical model of an expressway was also used to aid understanding and express the idea to wider external stakeholders, which provided an early opportunity for local input. Such expos allowed the project owner to discuss further issues and opportunities, test concepts and proposals, and explore refinement of the expressway. Enhancement of the expos was achieved through mobile units and mini-expos held at local regional libraries. In addition to the expos, the alliance established a local presence in the area through establishing a shopfront centre. This centre was regularly staffed by members of the project. The intention was for the shopfront to be transformed into a larger visitor centre by the time construction began. The alliance also explored the use of other engagement techniques—such as a physical and three-dimensional virtual model—to facilitate ongoing dialogue (testing key questions drawn from the CRG) through web-based online discussion forums.

Concentrated periods of consultation occurred during the preliminary design and scheme assessment stages. During the preliminary design stage, the project expo acted as a platform to present the concept of the expressway to obtain feedback and identify further issues. During this stage, wider community opportunities were also identified and recorded. During the scheme assessment stage, the final option for the expressway and refined details were

communicated to stakeholders. The alliance also sought feedback on the construction methodology to give stakeholders a real opportunity to effect change.

The early engagement period for IPAA ran for 24 months. In addition to each stage having its own specific engagement techniques, various other techniques were adopted to capture feedback throughout the period. For example, letters to stakeholders were sent to potentially affected property owners, followed by a consultation brochure with a feedback form to ask the affected stakeholders' preferred route options. Information on the expressway could be viewed through the project website, on open days and at information desks. There was also a project telephone hotline that was monitored 24 hours per day, and residents were encouraged to telephone, regardless of the time, if they experienced unreasonable disruption during the engagement process. A web-based online discussion forum, called BangtheTable.com, was made available to external stakeholders to ask key questions of the project personnel. Public meetings and meetings with individuals within the community were also held. Complaints, queries, suggestions and compliments were logged and tracked monthly. More than 200 engagement sessions were conducted between 2010 and 2012 on the first phase (Phase 1a) of the engagement session. The large number of stakeholders and their interest in the project was recorded in Darzin databases. Darzin was the software used by the project manager and stakeholder manager to store details of the stakeholders who lodged an interest in the project.

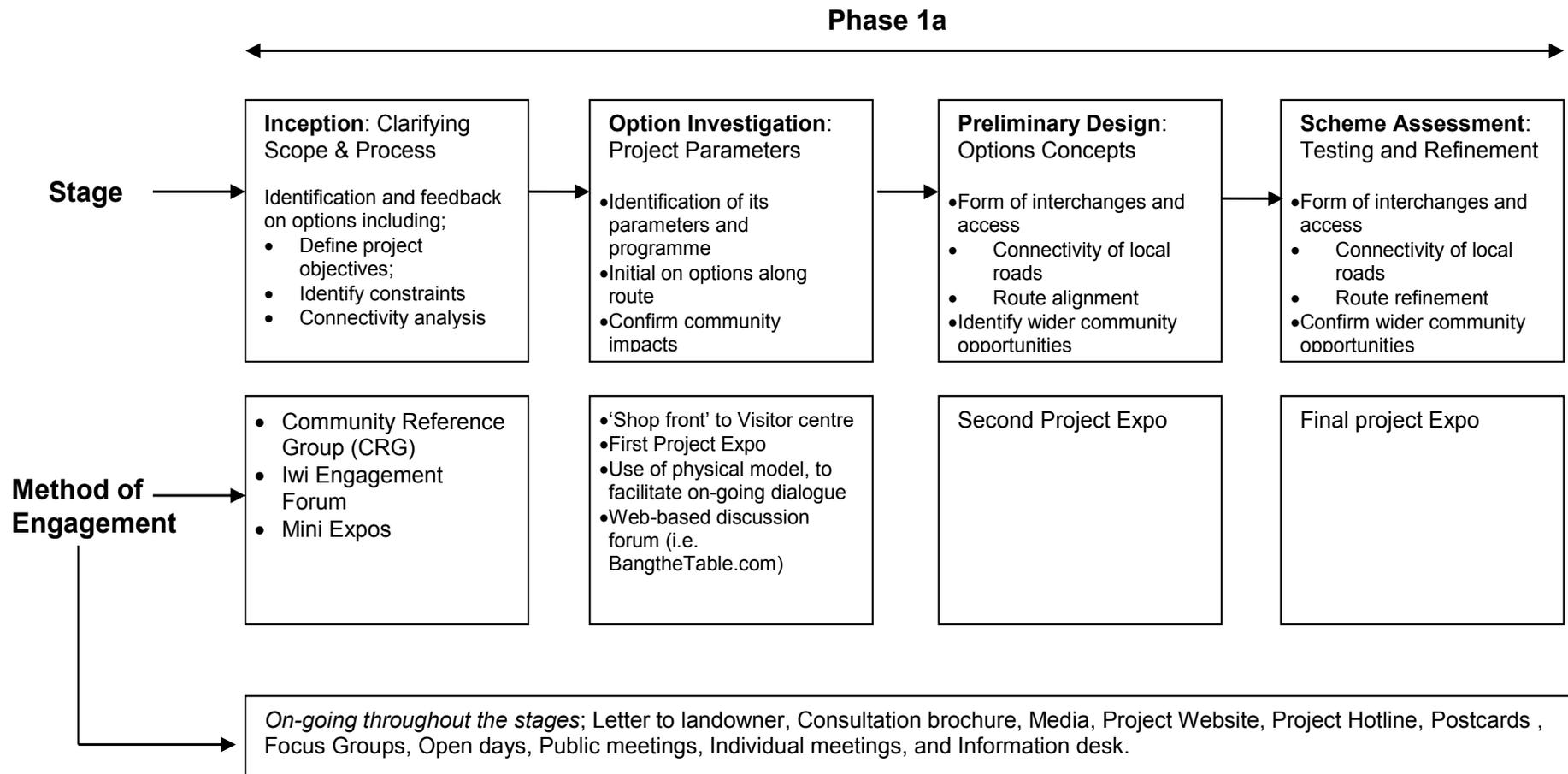


Figure 4.4. Progressive process of engagement of the M2PP during IPAA phase.

4.8 Engagement Process and Relevance with the IAP2 Spectrum

Table 4.3 summarises the external stakeholders' experience with the engagement methods during the planning phase. The tools were mapped according to the spectrum of participation of the public and stakeholders. Most of the respondents were satisfied with the overall process of engagement. This aligns well with the results from the interviews, as the stakeholder manager emphasised that they used many mediums of communication to inform the community and stakeholders about the project. Tools used by the team included open days, expos, brochures, newsletters, the media and the project website. Stakeholders were consulted during the public hearing and consultation meetings, where there were two sessions of consultation held by the alliance team. The interviewed stakeholders of this case study stated that they were aware of the information channels by the alliance, and acknowledged that the alliance gave clear information during the consultation. Briefings in writing, in presentations, in exhibitions, at workshops, at community forums and on the website were also used, depending on the size and potential influence of the work. Stakeholders who did not attend the community events were contacted by the project team by telephone and by 'door knocking' at their house.

The scenario supported the findings by El-Gohary (2012) that participatory involvement flows in three different directions: dispersing technique, gathering technique and interaction technique. The case study employed a one-to-one involvement technique, where the affected landowners were contacted through telephone calls based on the databases and submissions made by the affected stakeholders. The other method involved 'door knocking' at each and every house. This practice was undertaken to ensure none of the landowners were left out. The alliance team members searched for those who were affected directly by the project to

ensure they were not mistakenly overlooked. One-to-one telephone interviews, emails and conference calls were particularly useful for engaging stakeholders who were geographically dispersed or whose schedules were very busy (O’Haire, McPheeters, & Nakamoto, 2011). By engaging these tools, stakeholders were aware of the current progress of the project, and mutual understanding could be built. C. Zhang, Canning, Dubois, and Vipham (2011) stated that, if engagement is carefully managed, this form of interaction can provide a cost-effective way to engage with the time-poor or hard-to-reach population and allows increased accessibility to the development process. The tools that were demonstrated to be effective included open days, expos, brochures, newsletters and the website, which is in agreement with the study by C. Zhang et al. (2011).

Table 4.3
Result from the Engagement Method of the External Stakeholders

Stakeholders (ID)	Engagement Level/Stand	IAP2 Participation Spectrum				
		Inform	Consult	Involve	Collaborate	Empower
		Methods/Tools of Engagement				
A7: District community board member	Oppose in part	Letter, telephone line, open day/expo, information booth, door knocking	Council meeting, public meeting	Involved—not using any tools	Not applicable	Not applicable
A8: Advisor of national historic heritage agency	Oppose in part	Media, invitation to submission	Open forum, one-to-one meeting	Involved—not using any tools	Not applicable	Not applicable
A9: Manager of regional council	Support in part	Discussion	Consultation— not using any tools	Public meeting, one-to-one meeting	Collaborated as a key stakeholder	Not applicable
A10: Chair of business organisation	Support in full	Media, brochures, flyers, standard letters	X	Series of meetings, standard letters	Not applicable	Not applicable
A11: Representative of affected school	Oppose in full	Media, brochures, information booth	Public meeting—not involved		Not applicable	Not applicable
A12: Community group member 1	Oppose in full	Local media, newsletter, information booth, brochure, meeting	Expo, council meeting, stakeholder meeting	BOI	Not applicable	Not applicable
A13: Community group member 2	Support in full	Brochure	Community consultation, stakeholder meeting, public meeting	BOI	Not applicable	Not applicable
A14: Community interest group	Support in full	Letter, brochure, open day, project website	Public comment, focus groups, surveys, public meetings	Involved—not using any tools	Not applicable	Not applicable

4.8.1 Stakeholder involvement

As indicated by the findings in Table 4.3, the selected stakeholders were mostly engaged in the ‘inform’, ‘collaborate’ and ‘involve’ levels. The ‘inform’ and ‘collaborate’ levels were the crucial parts of the engagement process. These levels indicate that the stakeholders should be informed about the project and the ways they can be part of the engagement process. The method and tools used to portray the effectiveness of the engagement process with the stakeholder. ‘Inform’ was Step 1 (see Table 4.3) in the engagement process by the NZTA, which occurred in 2009. The method used was mostly one-way communication, where the stakeholders were informed of the objectives of the project to help them understand the project.

The stakeholders from the case study can be categorised as key, internal and external stakeholders. The key stakeholders involved the project team and alliance team. The internal stakeholders involved the local authority and the agency that directly involve with the project. The external stakeholders were the landowners and community, whose interests and land were affected by the project.

4.8.2 Process of engagement (initial stage)

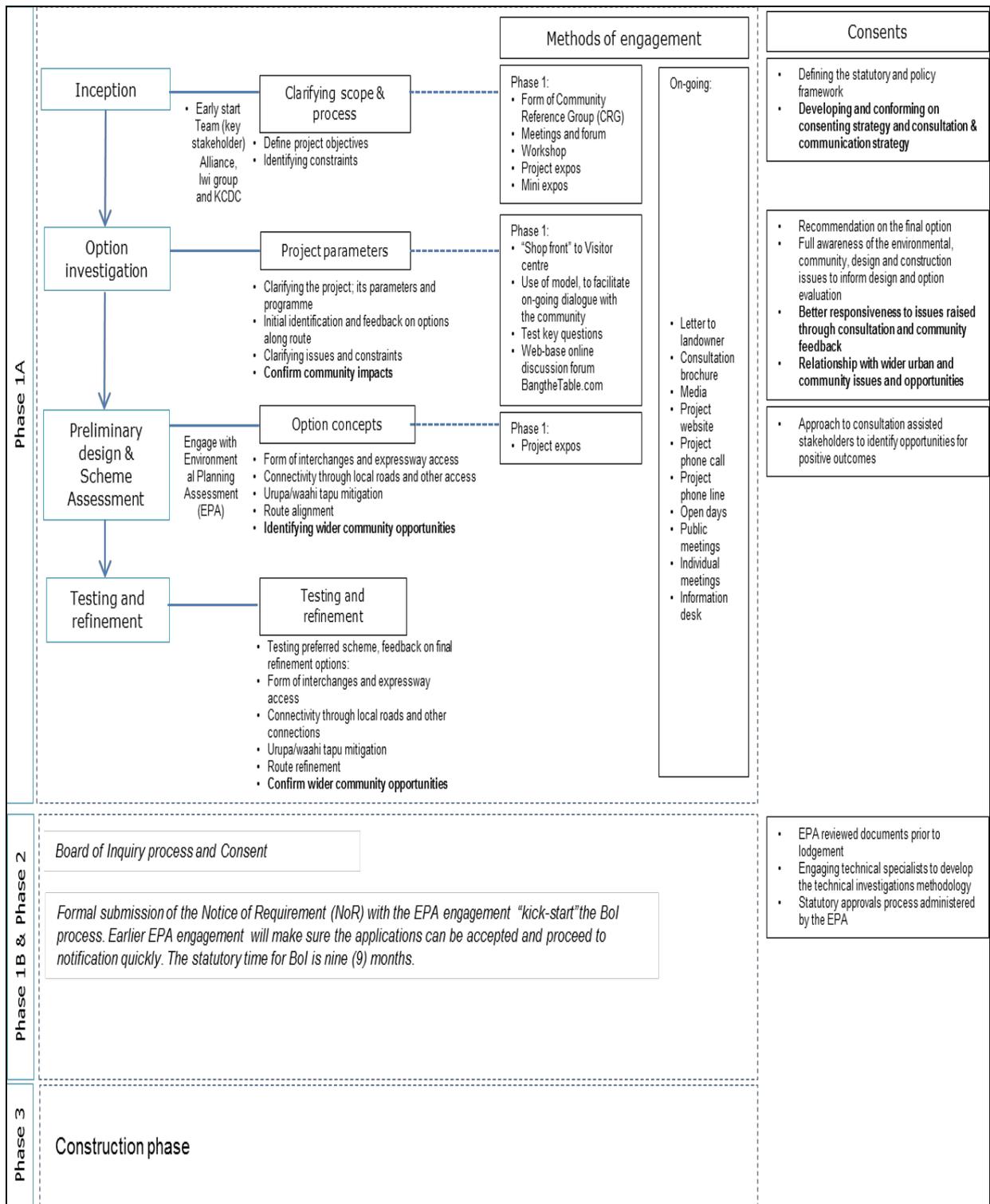


Figure 4.5. Process of initial preparation and planning of M2PP Expressway project.

4.9 Practical Implication for Managing Stakeholder Complexity

Based on the analysis of the qualitative data, the best practices for managing stakeholder complexity were identified. The best practices were based on three elements: (i) culture of care, (ii) communicating and (iii) responsiveness.

4.9.1 Building a culture of care

Fostering a culture of care is fundamental to managing stakeholder complexity. The most significant achievement of stakeholder engagement does not involve an individual engaging stakeholders, but rather empowering project teams to be project ambassadors. The key to building a culture of care derives from the features embedded in an alliance delivery model. Early involvement of key participants is seen as one of the influencing factors in building a culture of care, particularly with the inclusion of the contractor in the early planning and consenting phase. In addition, the early identification of the communities of interest for the project—individuals, businesses and groups who may be affected by the project—can influence its success. In this case study, this was undertaken to integrate multiparty expertise and overcome the variances in the interaction to reduce the power gap between stakeholders with different backgrounds and interests in the construction project.

Contract-based models that have flexibility in their governance structure and commercial models are essential to influence the building of a culture of care. Good project governance in relation to human dimensions is needed in every stakeholder-centric project, as it can provide a synergic effort for the greater good of the wider community in achieving best outcomes (Lloyd-Walker & Walker, 2016). To manage stakeholder complexity at the early stage in a project, it is crucial to embed in the contract greater flexibility of roles and responsibilities, as

well as incentivisation to embrace high performance. For example, the inclusion of an independent alliance manager and local council in the project governance certainly assembled a strong and coherent team, and subsequently indicated commitment to finding consensus and a way forwards that was best for the project. (Young et al., 2016) emphasised that the role of individuals or entities within a project should be on a best-for-project basis. Individuals who work in a project are respected for the knowledge and skills that they have acquired and can contribute to the project, regardless of their parent organisations (Young et al., 2016). In addition, authentic leadership capabilities in a project are vital to satisfy the increasing demands of a range of stakeholders (Lloyd-Walker & Walker, 2011). While ensuring that the right individuals are in the right roles is important, it is also crucial to include incentivisation to ensure that the team embraces performance, particularly during the engagement process. Establishing or enhancing a culture of acknowledgment (and appreciation) of team performance is important to recognise good work and ensure continuous commitment to building the culture of care (Fellows & Liu, 2012). Aapaoja et al., (2013) further emphasised that having some type of appreciation or incentive for teams can lead to a change towards a more collaborative culture with stakeholders.

4.9.2 Communicating beyond the compliance

In any project, issues of stakeholder management are more likely to arise through an expectation or communication gap between project teams and stakeholders when planning and consenting execution (Turkulainen et al., 2015). This misalignment can be caused by lack of appropriate means and limitations in communication development. Davis (2014) claimed that successful projects have a team who actively communicates with the affected stakeholders throughout the project.

The influence of good pre-emptive communication in managing stakeholder complexity is inevitable. Landin (2000) emphasised that the long-term satisfaction of stakeholders depends on the care taken by project teams to foster stakeholder communication. Effective consultation is achieved by having a project team that actively encourages early two-way communication with the community. In particular, recruiting an independent alliance manager with vast experience in public relations, as well as a stakeholder manager and project team involved in stakeholder engagement in other alliance projects, certainly helps understand who the real stakeholders are in order to match the type of communication and information required. In certain conditions, some stakeholders can be more important than others, and the project leader and team should carefully analyse their requirements and salient attributes over time (Heravi et al., 2015; Olander, 2007). Eskerod and Jepsen (2013) indicated that the project manager is responsible for not only the interests of the base organisation, but also for communicating the concerns of other stakeholders. In particular, for this project, continual communication with stakeholders was established through various means. The establishment of the CRG and *iwi* engagement forum was seen as the first step to laying a solid basis for communication and providing effective liaison and interfacing towards wider engagement. In addition, having council representation in the alliance enabled the community to impart local knowledge and advice, raise issues and foresee threats and opportunities. An ongoing local presence will continue to enable the project team to engage and communicate meaningfully with the local community.

Communication levels with stakeholders are not static. For communication to succeed in the contemporary world, with increasing digitisation of information, the provision of timely and transparent data to stakeholders should be considered crucial. For example, the M2PP project had a central website that was accessible to the public, consisting of a large amount of

information regarding the project and stakeholders. Important information can be retrieved from the website, such as stakeholder entities (agency, organisation, individual landowners, traders and so on) who are affected (directly or indirectly) by the project. In addition, an analysis of the community's comments was undertaken, and reports were produced, which were accessible through the website. These reports showed analysis of feedback, such as the community's interests, insights and opinions on the project. It is believed that establishing trust through transparent and proactive communication ensures that the community stakeholders, even the most sensitive ones, support the project progress because they can plan in advance for the effects and perceive that their individual needs have been considered.

4.9.3 Responsiveness

The real significance of the 'relationship bridges' is when people know what will be built in their neighbourhood. A 'customer focus' culture was driven through the case study alliance, from the PAB down to the wider alliance team, as evidenced at the community coalface through team behaviours and interactions with the stakeholders and community. It is important to closely engage with the community so they develop an awareness of the project, and the project team obtains feedback and opinions from the community. It is essential that their opinions are sought, they are listened to and their ideas are collated and integrated into the project process. Although it is well acknowledged that meeting each stakeholder's expectations throughout the process is challenging—indeed, almost impossible—considering their ideas and requests and prioritising them over time is crucial to stakeholder management (Aaltonen et al., 2015). Eskerod and Jepsen (2013) emphasised that greater consideration needs to be allocated to stakeholders who have the greatest potential influence on the project. In particular, for this project, during the IPAA phase, the national heritage agency and *iwi*

group were seen as the most influential stakeholder groups, given that their interests were the most affected by the project. It was crucial to find a suitable balance between protecting the area's unique environmental features (with historically and culturally significant areas) and cost-effective road construction solutions. This was a significant part of the lodgement with the EPA and the BOI process. In addition, the inclusion of the local council as part of the alliance team influenced decision making at the board level, thereby allowing the council to advocate for and protect the community's and stakeholders' interests throughout the project.

Community goodwill that is carefully built up through communication will be rapidly eroded if the community sees no action being taken in response to the feedback offered. From the investigation, for the duration of Phase 1a, the alliance was entrusted to 'care take' its relationships with the community and key stakeholders. For example, the alliance continuously improved their mutual understanding of the needs regarding the design concept through a rapid engagement process. Design options were presented to the stakeholders, who could help decide which path the expressway should follow, based on the consultation process and feedback. This allowed the team and community to build relationships seamlessly, and ensured that the community commitment and construction methodologies developed in the early phase were not lost when entering full construction. The alliance's aim was to give back enhanced relationships and community goodwill as a legacy for the owner at the end of the project.

4.10 Summary

This research has shown the key processes used for stakeholder engagement for a large infrastructure project in New Zealand. The chapter draws attention to the ways in which a collaborative model—in this case, alliancing—offered a testing ground for stakeholder

engagement initiatives during the IPAA phase (the planning and consenting phase). The case study expressway project provided new insights to stakeholder management, based on the specific features of the alliance model during the IPAA phase. The case study also indicated how the flexibility of the governance structure in an alliance model (including an independent alliance manager and the local council in the alliance) could influence the integration of all parties in delivering the project during an early phase, including how incentivisation could be formulated in the commercial model (where responsiveness to information and quality of engagement were KPIs) to influence the team to perform in the critical area of engaging with the community, and how the engagement process (stakeholder identification, analysis and approach) could be conducted in an environment in which stakeholder complexity exists.

This research concluded that, for the project team to ensure success in managing stakeholder complexity during an early phase, three elements need to be considered: building a culture of care, communicating beyond compliance and responsiveness. The incorporation of these elements influenced decisions that drove stakeholders' alignment throughout the project lifecycle.

CHAPTER 5

Case Study 2

Internal Early Preparation of Stakeholder Engagement Process: A Case Study of Ara Tūhono–Pūhoi Expressway (Further North Alliance)

This chapter has been partially published as a paper for:

Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2016). Improving the early stakeholder engagement process for infrastructure project. In K. Kähkönen & M. Keinänen (Eds.) *Proceedings of World Building Congress 2016: Volume 1—Creating built environments of new opportunities*. Finland: Tampere University, Finland.

and

Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2018). Improving internal preparation process for early stakeholder engagement process in infrastructure projects. To be submitted to *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*.

5.1 Introduction

This chapter further develops the discussion on stakeholder engagement, adding more details answers to the question “What are the processes used for stakeholder engagement for a large infrastructure project in New Zealand?”. Mega infrastructure projects are usually multibillion-dollar (Flyvbjerg et al., 2003; Koppenjan, 2005; Turner, 1999), substantial capital projects that are built for public benefit (Flyvbjerg, 2007). They are usually initiated by the government and driven by the private sector (Clegg, Pitsis, Rura-Polley, & Marosszeky, 2002; Flyvbjerg, 2007). Types of megaprojects described by Flyvbjerg (2007) include transport, oil and gas, defence and aerospace, water and dams, power supply and urban development infrastructure. These megaprojects are characterised as uncertain, complex, politically sensitive and involving a large number of partners (Clegg et al., 2002), thereby leading to a large number of stakeholder-related uncertainties and risks (Cicmil & Marshall, 2005). Megaprojects involve multiple stakeholders with varying interests. The construction process in a mega infrastructure project can have a significant effect on stakeholders, both directly and indirectly, which can lead to conflict. Leung, Ng, and Cheung (2002) stated that the conflicts that arise among stakeholders are varied and inevitable in project team decision making for mega construction projects.

The involvement of stakeholders may range from simple consultation on design ideas to fully integrating stakeholders in the design of components, systems, processes or services (Aapaoja, 2014). Technically, the more complex the developed project, the earlier the stakeholders should be involved (Buckley, 2015; Tammer, 2009) to determine their need. The roles and responsibilities of stakeholders can affect the level and time of involvement (Monczka, Handfield, Schannell, Ragatz, & Frayer, 2000). Engaging the stakeholder, community and public as early as possible can reduce the possibility of poor project

performance. The process of engagement helps the project organisation develop a good relationship with the stakeholders. In an international context of public involvement, the IAP2 presents a spectrum of participation with public and community engagement.

Mok et al. (2015) highlighted that many difficulties are encountered in the stakeholder management process. Rose and Manley (2010) highlighted that two major negative drivers in aligning key stakeholders are the late involvement of major stakeholders in the project and discrepancy in stakeholders' relationship intentions. In response to failure of PPP infrastructure projects because of stakeholder opposition, El-Gohary et al. (2006) claimed that capturing stakeholder input is crucial. However, few techniques for assessing stakeholder needs have been developed and reported (Smith & Love, 2004). The growing complexity of mega infrastructure projects requires a more realistic and effective method to engage stakeholders and incorporate their opinions into the project planning and implementation stages (Leung, Yu, & Chan, 2013).

The aim of the chapter is to investigate innovation in stakeholder engagement through an alliance model. Internal early preparation was researched through the case study in New Zealand of the Ara Tūhono–Pūhoi to Wellsford Expressway—also known as the 'Further North Alliance'. This chapter examines the comprehensive stakeholder engagement process used to improve construction project delivery through collaboration and the integration of stakeholder needs with the planning alliance process.

5.2 Internal Early Preparation and Planning Phase

Stakeholder interest can arise in many forms, such as demands, expectations, reasons, needs and values (Leung, 2001; Lukes, 2005). Early work in briefing tends to identify the need for greater cooperation between clients and design and construction teams.

5.2.1 Managing stakeholders at the initial stage

The process of engagement at the early stages comprises the mechanisms and settings provided by local authorities, and the opportunities for stakeholders to provide substantive input (Foo, Asenova, Bailey, & Hood, 2011). For example, during the inform stage, this process involved telephone calls, newsletters, the media and emails. Methods during the 'inform' stage will normally deal with one-sided communication, while consultation will involve two sides of communication. As stated by Foo et al. (2011), the stakeholder engagement process may be one-way or two-way, depending on the flow of information. One-way communication is presented to stakeholders through project exhibitions and presentations. Two-way communication refers to the collection of information and opinions from stakeholders, such as through dialogue sessions and customer satisfaction surveys. Two-way information flow is preferable for stakeholders where Freeman, (1984), stresses the interdependent, two-way relationship between organisations and stakeholders.

Previous research have supported the practice of engaging multidisciplinary stakeholders in public engagement, especially in early stages of construction development projects (Hooton et al., 2011). According to Leung et al. (2013), different stakeholders have different types of power and interests in public engagement projects. Power inequalities and unbalanced interests create the potential to dramatically escalate conflict, and often represent critical barriers to meaningful engagement and final public engagement success (Prell et al., 2007). Two types of interaction occur when conducting public participation exercises: interaction between the policymakers and involved stakeholders, and interaction within stakeholder groups (Ng et al., 2012). To facilitate interactions among stakeholders, the social web, public forums, focus meetings and community workshops can be employed to help build a platform for all interested individuals and stakeholders to openly discuss the issues and debate the benefits and disadvantages of different alternatives and measures, before

presenting them to policymakers for consideration (Deegan & Parkin, 2011; Rowe & Frewer, 2000). Careful planning of participatory groups, including minority groups and general citizens, is invaluable for success (Centre for Civil Society and Governance, 2007).

Promoting early stakeholder engagement requires considerable effort and time commitment. Appropriate internal preparation—such as identifying the affected stakeholders for the project during planning phase—will likely reduce the risk of the consent due to the event. In early feasibility and conceptual design stages, external considerations have been shown to be more pressing than considerations that are internal to the project (Olander & Landin, 2005). There is also increasing requirement to consider the needs of other stakeholders outside the traditional project delivery chain, such as the local community (Zhang et al., 2011). Marthur et al. (2008) highlighted three different approaches to conceptualising stakeholders and their engagement. The first approach is from the strategic management perspective, which identifies which people, groups or organisations are important for a company, and to whom the management must devote attention. The second approach is related to considering stakeholders as citizens with the right to determine or influence the service, and valuing the process of participation for democratic reasons. The third approach is to view stakeholder engagement as dialogue—a social process that has inherent elements of reflection and mutual learning (Innes & Booher, 2004).

Aligning and mapping stakeholders could delineate the possible stakeholders involved and affected. The procedure of identifying the affected stakeholders should be vitally documented as a reference before any relocation of the affected community can be made. The roles and responsibilities of the stakeholders can affect the level and time of involvement; hence, stakeholders with very little responsibility for the project can be involved at a later stage of the project (Monczka et al., 2000). Olander and Landin (2008), stress it is necessary

for project managers of infrastructure development projects to analyse the concerns and needs of different stakeholders, both external and internal.

5.2.2 Consideration of initial planning process issues

Creighton (2005) reported that, to help practitioners plan or organise a public participation activity that will fit their unique circumstances, it is necessary to divide the planning into three stages: (i) decision analysis, (ii) process planning and (iii) implementation planning. Practitioners should be able to identify the appropriate participants, decision makers, problems, stages of the decision-making process, constraints and required participation level. During the planning stage process, attention should be shifted to considering which specific targets the practitioners would like to achieve by going through each step of the public participation exercise, which will help determine the most appropriate techniques to enhance participation. Practitioners are then required to devise an implementation plan according to the identified participatory techniques to ensure public opinions are effectively and efficiently collected (Creighton, 2005).

In developing countries, the engagement process is still regarded by some governments as a non-value-adding task in terms of infrastructure projects. The stakeholder engagement process in some developing countries does not involve public participation because this can be time consuming and expensive (Ng et al., 2012). The study by Ng et al. (2012) added that a lack of a systematic framework to guide the participatory process for different types and scales of infrastructure facilities may also contribute to the failure of some public participation exercises. In some cases, planning participatory activities is left to public relations companies, who may not have a good grasp of the project's nature and sensitivity. Meanwhile, the project team members may not have sufficient skills to solicit opinions from

the general public (Ng et al., 2012). During the planning stage, the team will organise the participatory exercise by initially classifying the proposed project according to the sensitivity level. While projects of low and medium sensitivity may largely attract local residents' attention, highly sensitive projects, usually of strategic significance and national/regional interest, attract wider attention, especially if they have significant environmental impacts. Controversy and conflict may arise over the location, size and design of a project if the potential effects of a proposed project are not adequately communicated (Olander & Landin, 2005). Engaging stakeholders through public engagement is one of the most direct approaches to manifesting and resolving potential conflict and improving stakeholder satisfaction (Rowe & Frewer, 2005).

5.2.3 Planning alliance

Strategic alliances are a mutual agreement between two or more independent firms to serve a common strategic (business) objective (Bronder & Pritzel, 1992). A strategic alliance exists when the value chains between at least two organisations (with compatible goals) are combined for the purpose of sustaining and/or achieving significant competitive advantage (Bronder & Pritzel, 1992). An alliance can exist between any number of organisations (Mandalet al., 2003). Mandal et al. (2003) stated that developing a strategic alliance can significantly improve an organisation's performance through joint, mutually dependent action. Lynch (1989) highlighted that companies frequently lack sufficient management skills and resources to tackle stakeholder engagement on extremely large and complex projects. Team managers need to develop and nurture a culture of collaboration throughout the organisation and between organisations to manage such projects. According to Walker and Hampson (2003), in project alliancing, trustworthy, committed and world-class professional

and competent firms are invited to join with the owner/client to develop the project. As an alliance of talented professionals pooling resources to achieve the project goal, they develop the project price target through design development, with agreed risk- and reward-sharing arrangements established. Alliancing has been acknowledged as a platform to develop inter-organisational relationships that complement and extend each organisation's core expertise (Baharuddin et al., 2017; Che Ibrahim et al., 2015).

According to most authors, trust is the most critical success factor in these relationships (Walker & Hampson, 2003). According to Howarth, Gillin, and Bailey (1995), trust in a strategic alliance includes the concept of reciprocity, with a long-term focus, the acceptance that obligations are mutual, and room for adjustment if one partner is suddenly placed in a compromising position. The principles of successful strategic alliance proposed by Hampson and Kwok (1997)—trust, commitment, interdependence, cooperation, communication and joint problem solving—reflect a similar theme. According to Holmberg and Cummings (2009), successful business alliances are a critical strategic component in many industries, yet too many strategic alliances fail to meet their partners' objectives. While the reasons behind alliance failures are complex and vary according to the type of alliance and industry, many failures result from ill-conceived overall alliance strategies; narrowly focused industry and firm partner selection; analytical thinking and models; and poor alliance management, execution and implementation. Draulans et al. (2003) found that the knowledge, skills and competencies needed to select appropriate partners and then manage the ensuing collaboration make 'an important contributing towards enhancing alliance success'. Holmberg and Cummings (2009) emphasised that, in many diverse types of alliance (including joint ventures, marketing agreements, research and development arrangements, project-oriented alliances and so forth) and the variety of organisational types involved (e.g., firm to firm, firm to non-profit organisations/associations, non-profit to non-profit, or firm to

government agency) render partner selection and other alliance competencies even more important. Moreover, the need for superior collaborative know-how is particularly acute considering the high percentage of alliances that fail to meet their stated partner objectives (Dyer et al., 2001, as cited in Holmberg & Cummings, 2009).

5.3 Methodology

The data collection and findings for this case study were based on the New Zealand ‘Further North Alliance’ expressway. During the preplanning stage, 11 participants from the case study were interviewed. The interviews were undertaken from April 2014 to January 2015. The deadlines had to be adjusted because of the availability and unavailability of respondents and because some respondents had to be interviewed twice because of lack of information in the first interview. Table 5.1 presents details of the involved interviewees. This second case study of New Zealand expressway projects was chosen because of its unique feature of involving a legal agency in the alliance. During the interviews, the alliance team stated that they still had not yet decided which type of procurement delivery method they would use for the expressway. They were yet to decide whether to use a strategic alliance (as with the M2PP project discussed in chapter 4) or PPP as the delivery model. However, the decision to use the PPP delivery method was reached on November 2015. The focus of the interview process in Case Study 2 was as follows: first, it aimed to understand the features of the planning alliance—a different approach than the first case study. Second, it aimed to identify the process of engagement in the project, and what lessons could be learnt and compared with the first case study. Third, it aimed to justify the involvement of the legal agency as a strong entity in the planning alliance team.

Table 5.1

List of Interviewees

Project: Ara Tūhono–Pūhoi to Wellsford Expressway (Further North Alliance)		
Interviewee Code	Affiliation	Concern
B1	Project manager	Planning alliance
B2	Stakeholder manager	Planning alliance
B3	Project engineer	Planning alliance
B4	NZTA highway manager	Project owner representative
B5	Auckland transport	Support in full
B6	Auckland council	Support in full
B7	Representative of community group member 1	Support in part
B8	Representative of community group member 2	Oppose in part
B9	Affected landowner 1	Oppose in full
B10	Affected landowner 2	Oppose in part
B11	Representative of the trading company business	Support in part
B12	Road and transport organisation	Neutral

In addition to interviews, other sources of evidences were collected via a combination of project documentation analysis, archival reviews and direct observation to increase the reliability and validity of the research results.

5.4 Background of the Case Study: Ara Tūhono—Pūhoi to Wellsford Expressway (Further North Alliance)

The Ara Tūhono—Pūhoi to Wellsford Road of National Significance route is a connecting pathway (*Ara*), with *Ara Tūhono* meaning connecting or linking one area to another. The project represents one of New Zealand’s largest ever infrastructure investments. The name was part of the NZTA’s ongoing engagement with Hōkai Nuku (the Māori tribe representatives from five *iwi*). The expressway is generally consistent with supporting the growth forecast of the region. State Highway 1 is the main interregional route between

Northland and Auckland. It connects the far north to Whangarei, Auckland and beyond. The project comprises approximately 38 km of additional expressway between Auckland and Northland. The Pūhoi to Wellsford project extends from the end of the existing Northern Gateway Toll Road at Pūhoi to immediately north of Wellsford. During the interview phase of this research, this project was in the development phase, with a focus on project data collection and planning for public consultation regarding route options and then project consenting. During the development phase, the alliance was investigating options for tolling a new motorway. The estimated project cost was currently NZ\$100 million. Figure 5.1 shows the PPP contractual framework of the project.

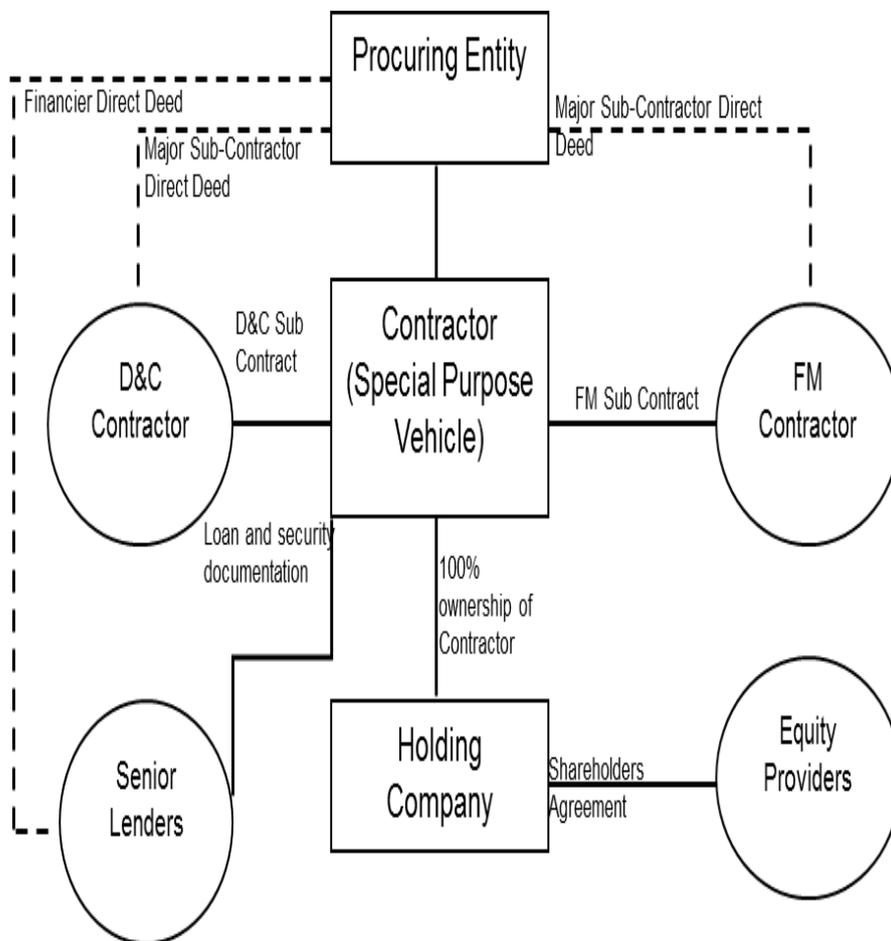


Figure 5.1. PPP contractual framework. Source: The Treasury, New Zealand Government (2013).

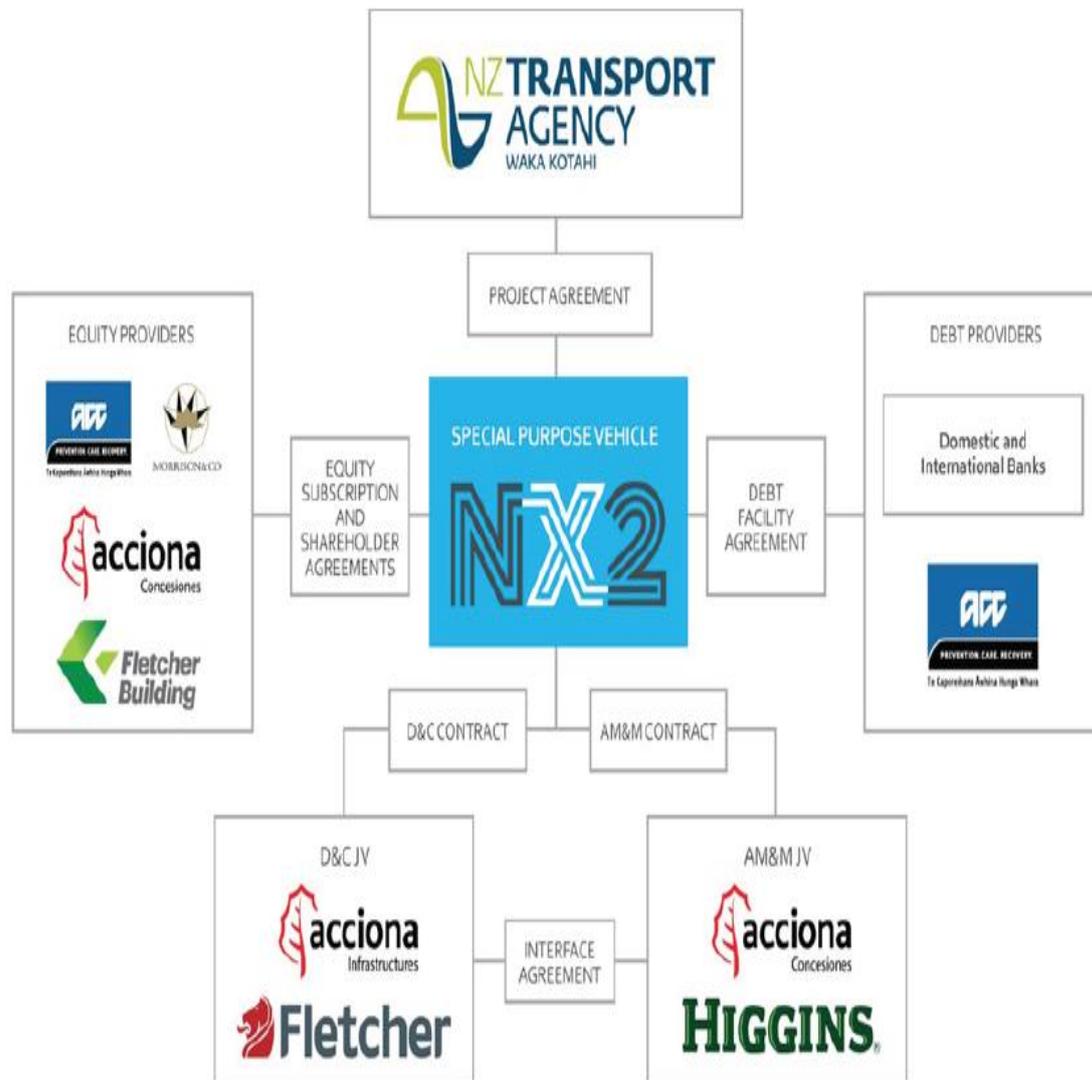


Figure 5.2. Northern Express Group PPP consortium of Ara Tūhono—Pūhoi Expressway.
Source: Ara Tūhono—Pūhoi newsletter, November 2016.

The project is being delivered as a PPP and will be open in late 2021. The term of construction proposed is five years. The project is an alliance between the government and a private consortium called the Northern Express Group (NX2), as shown in Figure 5.2. The NX2 private sector consortium will be responsible for financing, designing, building, maintaining and operating the motorway for up to 25 years. The principle partners in the consortium include the Fletcher Construction Company, ACCIONA Infrastructure Australia,

Fletcher Building, ACCIONA Concesiones SL, HRL Morrison & Co Public Infrastructure Partners, and the Accident Compensation Corporation. The team undertaking the PPP procurement for the project comprise the Further North Alliance from the planning phase, in addition to Bell Gully and PwC, who worked on New Zealand's first state highway PPP—Wellington's Transmission Gully motorway project. Figure 5.1 shows the PPP project structure. Awarded in October 2016, the Ara Tūhono—Pūhoi Expressway was Auckland's first state highway in PPP project procurement. The Pūhoi to Warkworth project is the country's second PPP transport project, with the first being Wellington's 27.5 km Transmission Gully motorway project.

5.5 Planning Alliance for the Ara Tūhono—Pūhoi to Wellsford Expressway

The Further North Alliance is an alliance established to achieve the statutory approvals to construct the Pūhoi to Warkworth section of the motorway. The project's stakeholder management developed unique features in planning alliances, with the NZTA including lawyers in the alliance during the planning. The strategic alliance for M2PP discussed in chapter 4 was set for planning and construction. In contrast, the Further North Alliance was for professional services only. The Further North Alliance was the first alliance in New Zealand to include lawyers as non-owner participants (NOPs). The alliance includes both engineering consultants and lawyers to support the NZTA's application to the EPA for the Notice of Requirement (NoR) to obtain the necessary land. Interviewee B1 stated that 'alliances to construct projects are common, but this is the Transport Agency's first planning alliance and the NZ\$17.5 million contract was a sensible option'. There were also an existing NZTA partnerships with Hōkai Nuku, a collective of North Auckland *iwi*. The alliance

comprised staff from Sinclair Knight Merz (SKM) and GHD (an engineering and environment consultant), Chapman Tripp (lawyers) and the NZTA as an owner. Figure 5.3 displays the collaboration of the planning alliance.

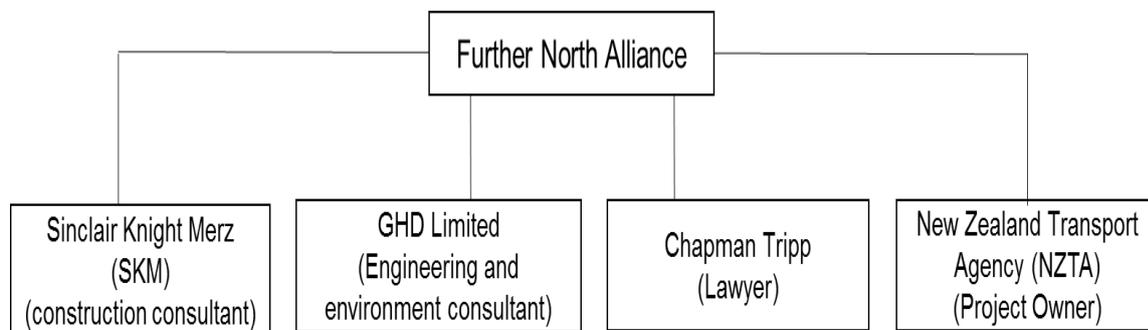


Figure 5.3. Agencies collaborating in planning alliance.

The parties involved had specific roles as alliance members. The addition of a lawyer is an innovative move, and takes a step towards the natural development of the alliance culture. The usual roading design practice, as explained by the project manager, has been to have one team complete the environmental and planning assessment for a new project, followed by the introduction of a legal partner to manage the evidence preparation and subsequent hearing process. Interviewee B4 stated:

“Incorporating a legal partner in the alliance from the outset kept the end goal—a Board of Inquiry hearing—top of mind for all participants. It also challenges the team to ask question ‘why?’ when it came to considering the level of assessment needed to achieve resource consents.”

The original structure often meant that the legal team presenting the Transport Agency’s case at the hearing had very little input into the documents that formed the basis of the application.

Including the legal partner in the alliance gave the team the opportunity to approach the process differently by building an innovative team culture.

According to the alliance member representative (Interviewee B4), the main report needing to be produced was an assessment of effects on the environment. This report supported the NoR and resource consent applications by identifying actual or potential effects on the environment arising from the construction and operation of the new highway. The alliance team had to lodge these documents with the EPA in August 2013, with a view to securing consent and a designation by August 2014. The NZTA had to lodge its NoR with the EPA to be ready to start construction on the expressway as early as the end of 2014, subject to property purchases and funding. Much of the work subject to property purchases was focused on disrupting the norms of roading design. In this expressway project, the Transport Agency embraced change and compiled an experienced project team with suitable affiliation to embrace the stakeholder's engagement program during the planning phase which included the fundamental approach to environmental assessment.

According to Interviewees B2 and B1, another aspect of the planning alliance that operated well was the co-location of team members in the same building. By co-location of team member under one roof, members of the team could be easily communicated and reached regarding the project. Co-location was usual for full alliances where there is a need to overcome tight timeframes. The planning alliance portray an on-time pre-planning program which 'in house' specialist were bonded to the team rather than operating as separated individual agencies. According to the interviewees, the combined experience and expertise of the Further North Alliance would help the Transport Agency meet the timetable. Interviewee B1 stated that, 'The alliance reflects the ambitious timetable we have set for this project, and it makes good sense to have our specialists working together in a team rather than individual companies'. Interviewee B1 stated that the same model was implemented for

the Northern Gateway Toll Road (the first toll road in New Zealand), which indicated the effectiveness of design and construction of a partner alliance that brought together all partners under one roof in the early planning phase. According to Interviewee B3, during the geotechnical investigations undertaken between Pūhoi and Warkworth, the alliance was glad that the property owners cooperated and were patient with the onsite teams.

Another factor for implementing the planning alliance was flexibility. Flexibility was central to the discussion and planning around the indicative alignment of the roading, which was produced for the purposes of assessing environmental effects. Interviewer B4 agreed there was:

“...flexibility in the expressway development phase, with the exclusion of one condition from the consent package that the project [was] to be built in general accordance with [the] plan submitted at the time of application.”

The exclusion of the condition from the consent package enabled the NZTA to offer an unprecedented level of flexibility to a future contractor, which enabled them to be innovative and deliver superior value for money in the implementation phase of the project. It was stressed to all involved—including the Board of Inquiry, Auckland Council and other key stakeholders—that the alignment could shift within the designation, either vertically or horizontally, with sensitivity tests included to take account of the potential movements. The designation ensured flexibility throughout the detailed design and construction phase.

5.5.1 Governance during the project investigation and development phase

Figure 5.4 displays the organisation chart from the scheme assessment phase of the project.

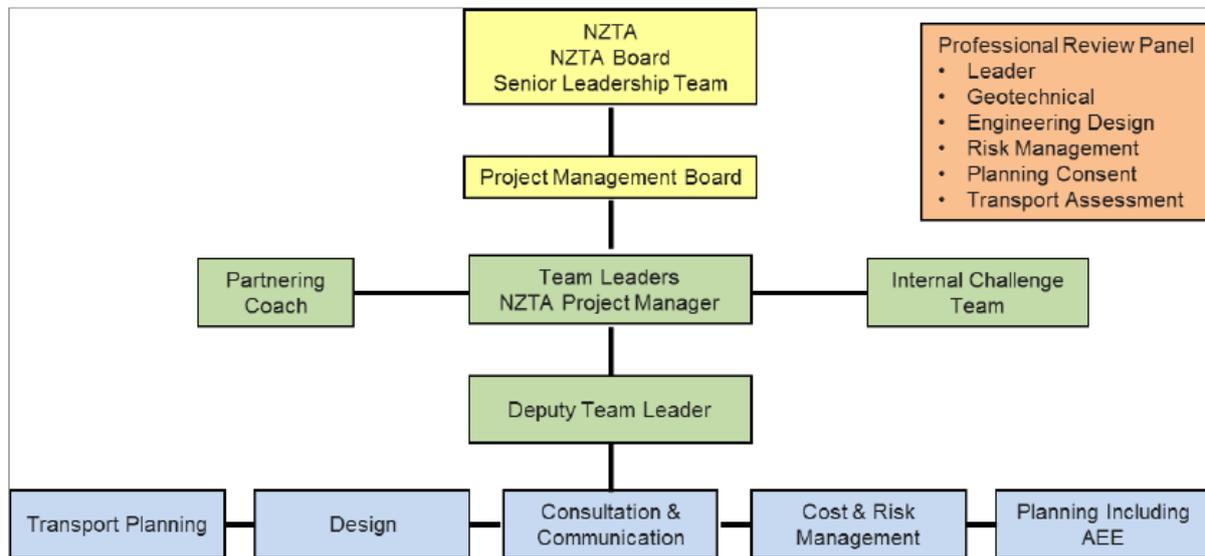


Figure 5.4. Governance of project structure during investigation and development phase.
Source: NZTA (2015).

During the scheme assessment study, the project was split into two sections: (i) Pūhoi to Warkworth and (ii) Warkworth to Wellsford. This splitting process aimed to ensure that the investigation, design and construction of the expressway could be effectively managed, especially for identification of stakeholders. The NZTA had close involvement with the Auckland Council and Auckland Transport during the scheme assessment phase. The Transport Agency board had overall responsibility for transport planning for this project.

5.5.2 Internal early preparation and planning of Case Study 2

North Alliance Expressway was under a planning alliance at the time of the study. Consultation with the affected stakeholders started in early 2010. Figure 5.5 displays the four phases involved in the consultation.

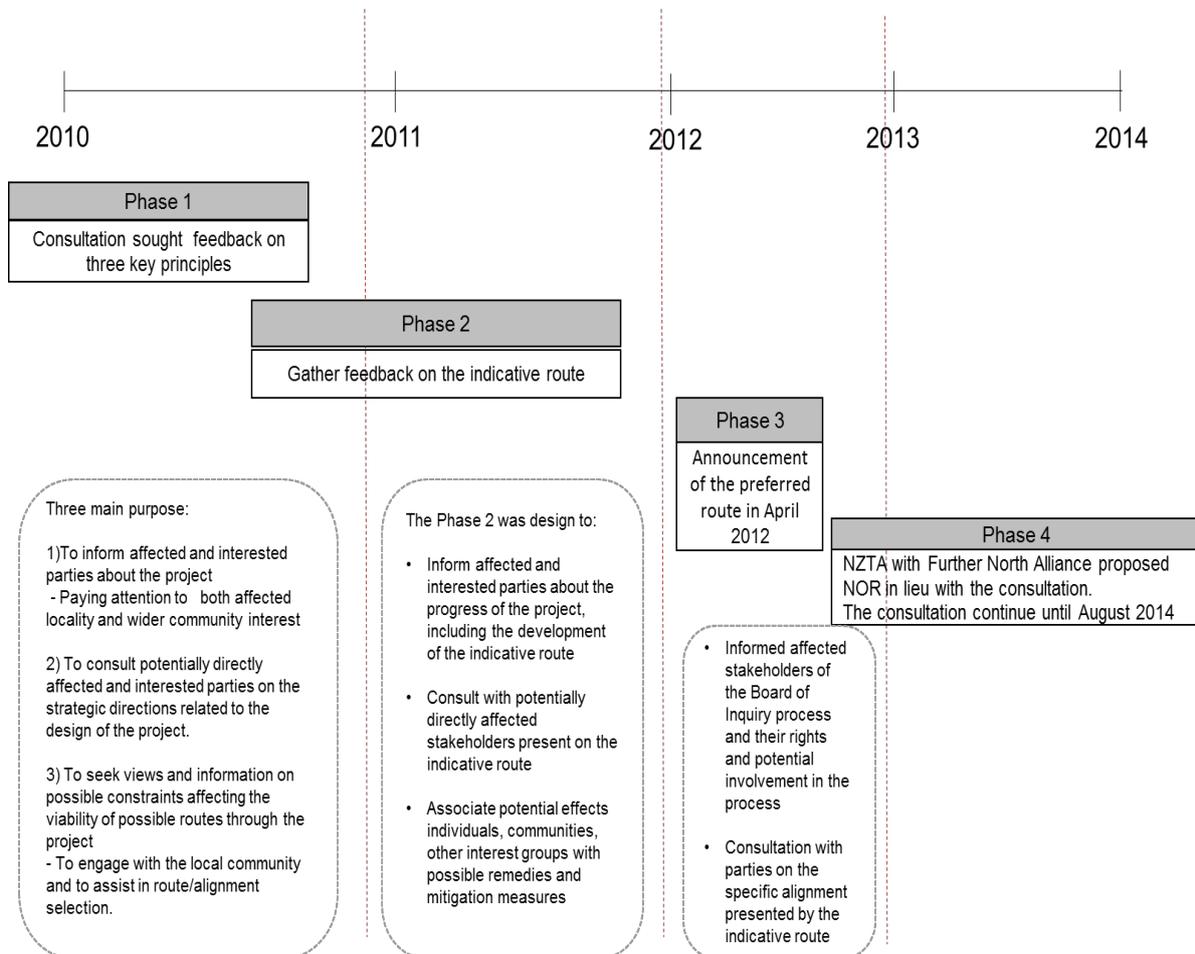


Figure 5.5. The consultation phases (adapted from Board of Inquiry into Ara Tuhono-Puhoi to Wellsford Road of National Significance: Final Report and Decision of the Board of Inquiry, 2014).

The first consultation phase with the stakeholders occurred from June to August 2010, informing the affected parties of the project and gathering information on constraints. The second phase of consultation occurred from November 2010 to January 2011, and focused on

the preferred route. The aim of the consultation was to gain feedback from the community and public on the new highway, which was an entirely new alignment. The consultation process informed the stages of investigation: (i) options development, (ii) corridor identification, (iii) route selection and (iv) development of the indicative alignment. The consultation was undertaken with a wide range of local, regional and national stakeholders, including directly affected landowners, neighbours of the route, community groups, business and educational facilities, utility providers, road user organisations, relevant regulatory authorities and the wider public. Ongoing collaboration and engagement enabled conversations with organisations such as the Auckland Council and EPA, who could ask questions and become comfortable with the idea of the outcomes-based set of conditions.

When asked if there was any further early collaboration during the development phase, Interviewee B2 replied:

“There was also early consultation with neighbours of the project, with engagement beginning in July 2013, well before the final documents were lodged with the EPA, instead of the usual disclosure at the time of public notification.”

Consultation with important *iwi* groups engaged with *mana whenua* for the project led to the formation of Hōkai Nuku, a collective of *iwi* representatives. The NZTA established strong and valued relationships with local *iwi*. The *iwi* representative provided cultural advice to the project, participated in site walkovers with technical specialists and prepared an assessment of cultural effects for the project. In the 2010 consultation, 25,000 newsletters were distributed. The media was used to advertise the expressway in the newspaper, and it received further editorial coverage. The project information was provided on the NZTA website. In the same year, a series of individual interviews and group discussions with residents, businesses and local groups were held to present information, seek and encourage feedback, and obtain local knowledge. From the consultation, 600 feedback forms were obtained. Table 5.2 shows

the action taken, methods of obtaining feedback in each phase and stakeholders involved in the early stages of the expressway.

Table 5.2
Actions Taken, Feedback Methods and Stakeholders Involved in Further North Alliance Expressway

Phases	Year	Action	Method	Stakeholders involved
1	June to August 2010	Inform potentially affected and interested parties about the project Consult with public Seek feedback on proposal for interchanging, bypasses and the principle of an offline route	Newsletter Radio advertisement Newspaper advertisement Static poster Website Free post office box Free telephone call Media releases Line interview with NZTA's project manager on national radio	Community group Public Businesses
2	November 2010 to January 2011	Gathering feedback about the selected indicative route from Pūhoi to Warkworth	Door-knocking exercise Public information days Information posters Videos 3-D simulation Distribution of feedback sheet	Community group Public Businesses Other affected stakeholders
3	March to June 2012	Inform potentially affected landowners and wider community of changes made to the indicative route to determine the preferred route Consultation with several new landowners and neighbours who would be directly affected by the changes made to the route	Door-knocking exercise Letter Presentation delivered to selected stakeholders to communicate wider vision for Auckland North 3-D simulation Open days	Affected stakeholders
4	March 2013	Further North Alliance formed Further North Alliance liaising with directly affected landowners to organise onsite technical investigations and discuss the upcoming designation and consenting process Further North Alliance work, with <i>iwi</i> group (Hōkai Nuku) consulted regarding environmental assessments	Printer newsletter Website update Telephone calls Drop-in days Updated maps	Neighbours Community groups Road user organisations Government NGOs Local business

Site investigations
EPA and Auckland Council
established early ongoing
engagement with stakeholders

From the consultation program, 187 submissions were received on the various applications. From these, 116 submissions (62%) supported the project partly or in full, 46 submissions (25%) opposed the project partly or in full, 12 submissions (6%) were neutral and 13 submissions (7%) had a varied range of views. A wide range of concerns were raised in the submission, mostly regarding the connectivity and economic development. The key issues raised by the community and stakeholders during the engagement process included the land required, construction phase, operations and local access during construction. Issues of property were discussed regarding the land required for the project, such as land acquisition and dislocation. Interviewees B9 and B10, as the external stakeholders, raised issues about uncertainty of timing and the implications of land acquisition for the nearby neighbours. Interviewees B9 and B10 added that issues were raised by the community regarding construction activities, such as the duration of construction, maintenance of local access, disruption to traffic movement, air and noise effects, scale of earthworks and risk of sedimentation. A good practice of the NZTA was listing online the necessary documents regarding the stakeholder consultation activities. The documents were made available online as soon as they were accepted by the EPA. The public were given three months to read the documents before the submission to the BOI. It is believed that the ongoing collaboration and engagement was another unique aspect of the planning processes, with all stakeholders involved in the project from an early stage.

5.5.3 Professional Engagement Process

The alliance employed a special workforce during the scheme assessment. The project employed an emergency services team in the area, which taken by police officer liaison group. The group provided guidance to the design team on operation issues, emergency facilities and maintenance requirements for RoNS. The other professional team assisting the engagement process was the Auckland Council and Auckland Transport, who were involved from the beginning of the development phase. These two agencies ensured that the local road network and land users were supported and integrated with the preferred option. The preferred option was the key factor in providing effective and efficient infrastructure. The Auckland Council and Auckland Transport worked closely with the planning alliance when the project entered the procurement and design phase. The engagement process included mutual strategic partnership of five iwi groups of Hōkai Nuku (group of Maori tribes) and the NZTA regarding the project route. The planning alliance worked closely with Hōkai Nuku through the consenting process, including site investigations and input into cultural aspects and decisions for the project. The professional engagement process provided valuable input to reduce risk involving stakeholders. These practices were added to this expressway project as a new input from the planning alliance and NZTA.

5.6 Keys Implications of Planning Alliance Model for Managing Stakeholder Complexity

5.6.1 Emerging factors from stakeholder engagement and planning alliance practices

The planning alliance innovated the alliancing system by having a legal agency to be in-house. The practice was to challenge the norm. The interviews and content analysis indicated the practical implications of the model. The practice of having in-house legal agency adopted by NZTA as a new approach to the Ara Tūhono—Pūhoi Expressway projects. The ultimate goal that the alliance needed to achieve was flexible consent within 18 months (by September 2014), which was unusual practice and diverted from previous RoNS projects. The legal team provided strategic input into alliance decisions, ensuring compliance with statutory processes and was instrumental in delivering a result for the alliance. The legal agency worked together with other alliance members in a same project office, which enhanced collaboration and made communicate easy and effective. Information derived from the interviews conducted showed the ways in which the alliance operated and handled multiple stakeholders.

Item	Factors	Indication of Success
1	Alliance	<p>‘People have left their hat at the door. It doesn’t matter what organisation you are from, everyone is there to get to the same goal.’ – B1</p> <p>‘All parties being co-located gives the opportunity to work and collaborate directly with other disciplines. The collaborative behaviour is driving strong professional and technical development in all team members.’ – B2</p> <p>‘Key information dependencies are understood by the whole team, and work streams plan to provide key material in time to avoid delays.’ – B3</p>
2.	Legal team	‘Having an embedded legal team is making a huge difference. The team was challenged and questions why they are doing things, and often resulted in cost savings. The technical specialist are focused on the key RMA [<i>Resource Management Act 1991</i>] tests and the first review is a legal, environmental and

		planning review. Usually the legal review occurs as the last review and then rework occurs. The reports are being crafted in such a way they easily form the basis of the required statements of evidence.’ – <i>B1</i>
		‘A draft suite of resources consent conditions are already taking shape, which gives the entire team visibility of the “approvals” outcome NZTA are seeking.’- <i>B2</i>
3	Engagement with key stakeholders	‘Program performance certainly enhances the NZTA reputation with key stakeholders, such as landowners, EPA, BOI, Auckland Council and wider community.’ – <i>B4</i>
		‘ <i>Iwi</i> are actively engaged and working with alliance members on activities, and this has resulted in some spectacular results, including the discovery of an unrecorded <i>pā</i> site wholly within the proposed designation.’ – <i>B2</i>
4	Option for design	‘The design is not driving what all the other disciplines do. The design is being driven by environmental and social issues.’ – <i>B3</i>
5	Time	‘The alliance is on track to lodge documents with the EPA in late of August 2013. The entire documentation process completed within a six-months timeframe, rather than 18 months.’ – <i>B1</i>

The model planning phase of the project was also able to change the approach to environmental planning. As interviewee B1 stated, ‘the project team with the right attitude to take on the challenge, including tackling the back-to-the-basic approach to environmental assessment’.

5.6.2 Keys implications of engaging stakeholders in the case study

The investigation from the case study highlighted three main implications: (i) a no-blame culture arose during the development phase, (ii) bringing the best value to stakeholders and (iii) enabling innovative delivery of the stakeholder engagement process.

5.6.2.1 *No-blame culture*

Having agencies with different backgrounds working together in the planning alliance led to the development of a no-blame culture in the organisation. The entire team worked together to find innovative approaches and efficient solutions to developing issues and

stakeholder engagement. Working together enabled flexibility in changing the scope to meet changing demands. Through this process, the alliance made decisions that were best for the project.

5.6.2.2 *Best value for stakeholders*

The project was highly complex and risky. Against this background, the project needs to offer best value outcomes for the NZTA and other stakeholders. It must provide the NZTA with access to the best value and skills the industry has to offer. The planning alliance allowed the NZTA to work closely with key stakeholders and provided stakeholders with certainty around timeframes.

5.6.2.3 *Innovative delivery practices*

As the pioneer project in the planning alliance, the NZTA aimed to lead the transportation industry by introducing innovative delivery practices and promoting a relationship-based culture by recognising and seeking to fulfil the aspirations of all parties involved. Various reviews of this process have been undertaken, and a number of consistent themes have been identified

5.7 Summary

This chapter focused on the stakeholder engagement process during the development phase of another infrastructure project in New Zealand. The research investigated how the engagement processes differed in this case study to the M2PP case study. An earlier phase of

the research identified the purpose of the planning alliance formed during the development phase, and how the approach benefited both parties involved with the project at the early stage of the project. The second part covered the initial preparation of the engagement. The alliance accepted the challenge of delivery consent to construct the Pūhoi to Warkworth section of the Pūhoi to Wellsford RoNS, within approximately half of the normal planning timeframe, which required the alliance to alter normal practice. The investigations stage and design efforts were targeted to provide information to facilitate assessment, which satisfied the legal planning requirements to obtain consent for the project. This approach required close collaboration with stakeholders. All members had to understand the legal planning requirements and the specific information and timing requirements of each specialist to enable the effects of individual assessments.

The results from the interviews indicated engagement features included engaging closely with the public, being transparent with information and understanding the design concept. Ongoing collaboration and engagement was another unique aspect of the planning alliance process, with all stakeholders involved in the project from an early stage. All of this is believed to have had a significant influence on the decision-making process

CHAPTER 6

Case Study 3

Investigating Stakeholder Engagement Process in Malaysia: A Case Study of KVMRT Project Line 1 Railways (Sungai Buloh – Kajang Line)

This chapter has been partially published as a paper for:

Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2016). Improving early stakeholder engagement process for infrastructure projects. In K. Kähkönen & M. Keinänen (Eds.), *Proceedings of World Building Congress 2016: Volume 1—Creating built environments of new opportunities*. Finland: Tampere University.

and

Part of this chapter will be published a paper for:

Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2018). Enhancing stakeholder engagement features through project collaboration in infrastructure projects. To be submitted to *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, ICE Publishing.

6.1 Introduction

Community and stakeholder engagement programs enhance the possibility of project success. Project success is measured not only by completion of the scope of work to time, cost and quality, but also by the performance of the project's outputs, outcomes and effects, and thereby the achievement of the desired business objectives, as assessed by different stakeholders over different timescales (Turner & Zolin, 2012). Rawlinson (2006) highlighted that projects may go wrong because of ineffective engagement with stakeholders. Major problem areas in stakeholder management include failing to identify the correct stakeholders in the first instance, not understanding or agreeing with stakeholder requirements, not resolving conflicting priorities and failing to manage stakeholders' continued involvement (Rawlinson, 2006). To achieve effective engagement, the project management team must engage with stakeholders. Stakeholder analysis and engagement in construction projects is extremely important for project teams, as the nature of construction projects is uncertain and complex (Yang et al., 2011). Stakeholder engagement is increasingly becoming part of construction project practice to deliver the desired project outcomes (Bal et al., 2013). Bal et al. (2013) added that stakeholders have their own interest in the project practice, which may result in different priorities, causing conflicts and dramatically increasing complexity. Consequently, Chinyio and Akintoye (2008) stated that it is essential to formulate a process for stakeholder management and to identify effective approaches for stakeholder engagement and analysis to achieve the project objectives. Organisations that actively engage with their stakeholders are more likely to succeed (Lerbinger, 2006).

The KVMRT Line 1 project was the first mass rapid transit (MRT) project built to reduce congestion in Malaysian motorways. The railway track will be built in three phases, with the KVMRT Line 1 starting operation in 2017. The project was the first to include a

project delivery partner (PDP) in Malaysia. The role of the PDP was to encapsulate the engineering design, procurement and system operation. The PDP enabled the MRT project to be rolled out efficiently in phases by attending to the delivery obligations and ensuring the performance of all other contractors.

This chapter outlines the stakeholder engagement process identified in this Malaysian infrastructure project. The case study was the first project in Malaysia to introduce a stakeholder engagement team. The case study examines the project of the MRT railway in Malaysia with the PDP model to investigate the stakeholder engagement process within the system. The chapter focuses on the findings regarding the key implications from the Malaysian case study to enhance the methodological principles of stakeholder engagement in infrastructure projects.

6.2 Methodology

Chapter 3 detailed the methodology applied in this research. The data collection and findings were derived from the Malaysian railways case study. Semi-structured interviews occurred with the key stakeholders and external stakeholders, including a non-government transportation agency, historic and cultural agency, community groups, district board, councils, environmental groups and project personnel. The interviewees included a balance of those who supported, opposed and were neutral towards the infrastructure project. Table 6.1 displays a profile of the interviewees.

Table 6.1

Profile of the Interviewees

Project: KVMRT Line 1 (Sungai Buloh–Kajang)		
Interviewee Code	Affiliation	Concern
C1	Strategic communication and public relations director	PDP
C2	Stakeholder manager of KVMRT	PDP
C3	Stakeholder manager and public relations of underground tunnel	PDP
C4	Project manager, MMC Gamuda (underground tunnel)	PDP
C5	Engineer of DBKL	Support in full
C6	Engineer, MMC Gamuda (underground tunnel)	PDP
C7	District council representative 1	Neutral
C8	District council representative 2	Neutral
C9	Representative of community group member 1	Support in part
C10	Representative of community group member 2	Oppose in full
C11	Chair of business and trade organisation	Oppose in part
C12	Representative of Chinese business association	Support in part
C13	Work package contractor 1	Neutral

The focus of these interviews was: (i) to understand the governance structure adopted in the project, (ii) to elicit feedback from the multiple stakeholders on their understanding of the engagement process undertaken and (iii) to find improvements that could be made by the project owner to enhance the practice of stakeholder engagement. This study was limited to the early stages of the project (the planning phase) because this is when the stakeholders and community started to engage with the project and when the external stakeholders and community could exert the strongest influence on the project.

6.3 Background of Case Study: KVMRT Line 1 (Sungai Buloh–Kajang Line)

6.3.1 Case study approaches

The case study was a railway megaproject in Malaysia that is currently ongoing. The railway project is a current development by the Malaysian Government under the Economic Transformation Programme's Greater Kuala Lumpur/Klang Valley National Key Economic Areas, and will provide a major boost to the integration and efficiency of urban public transport. The entire process of the KVMRT project includes the construction of KVMRT Lines 1, 2 and 3, covering different areas of Klang Valley. For this research, the case study focuses on KVMRT Lines 1 and 2.

6.3.2 Background of KVMRT Line 1 (Sungai Buloh-Kajang) case study.

The third case study in this thesis was a mega infrastructure project in the vicinity of Klang Valley, Malaysia. Klang Valley is an area in Malaysia that is centred in Kuala Lumpur (the capital of Malaysia), and includes its adjoining cities and towns in the state of Selangor. The KVMRT is part of a Greater Kuala Lumpur project that will encompass a public transport system to support the Greater Kuala Lumpur metropolis. The 51 km railway project will be build as an integrated urban MRT system to enable greater connectivity for the Klang Valley population. The project gave significant influence to stakeholders and the community during the construction phase. The Sungai Buloh–Kajang line is one of three phases of the project, which has a total distance of 150 km. The line is estimated to cost approximately RM36.6 billion (US\$11.60 billion). The KVMRT is Malaysia's largest infrastructure project. The KVMRT project's aim are to further enhance the city's public transport network.

Improving public transportation is one of the six national KRAs, and is a priority under the Government Transformation Programme. Upon completion, the project will cover a radius of 20 km from the city centre and, when fully operational, will serve up to 2 million passengers per day.

Given the size and complexity of the project, the MRT Corporation Sdn Bhd (MRT Corp) was established in 2011 as the project developer and asset owner. Figure 6.1 shows the organisational structure of the project. MRT Corp was responsible for concluding the agreement, and appointed MMC Gamuda Joint Ventures Sdn Bhd as the PDP. KVMRT Line 1 was completed in 2017.

6.3.3 KVMRT Line 1 project structure.

The KVMRT Line 1 project structure involves parties from private and governmental organisations. The structure includes the PDP acting as project manager. Figure 6.1 displays the organisation of the project structure.

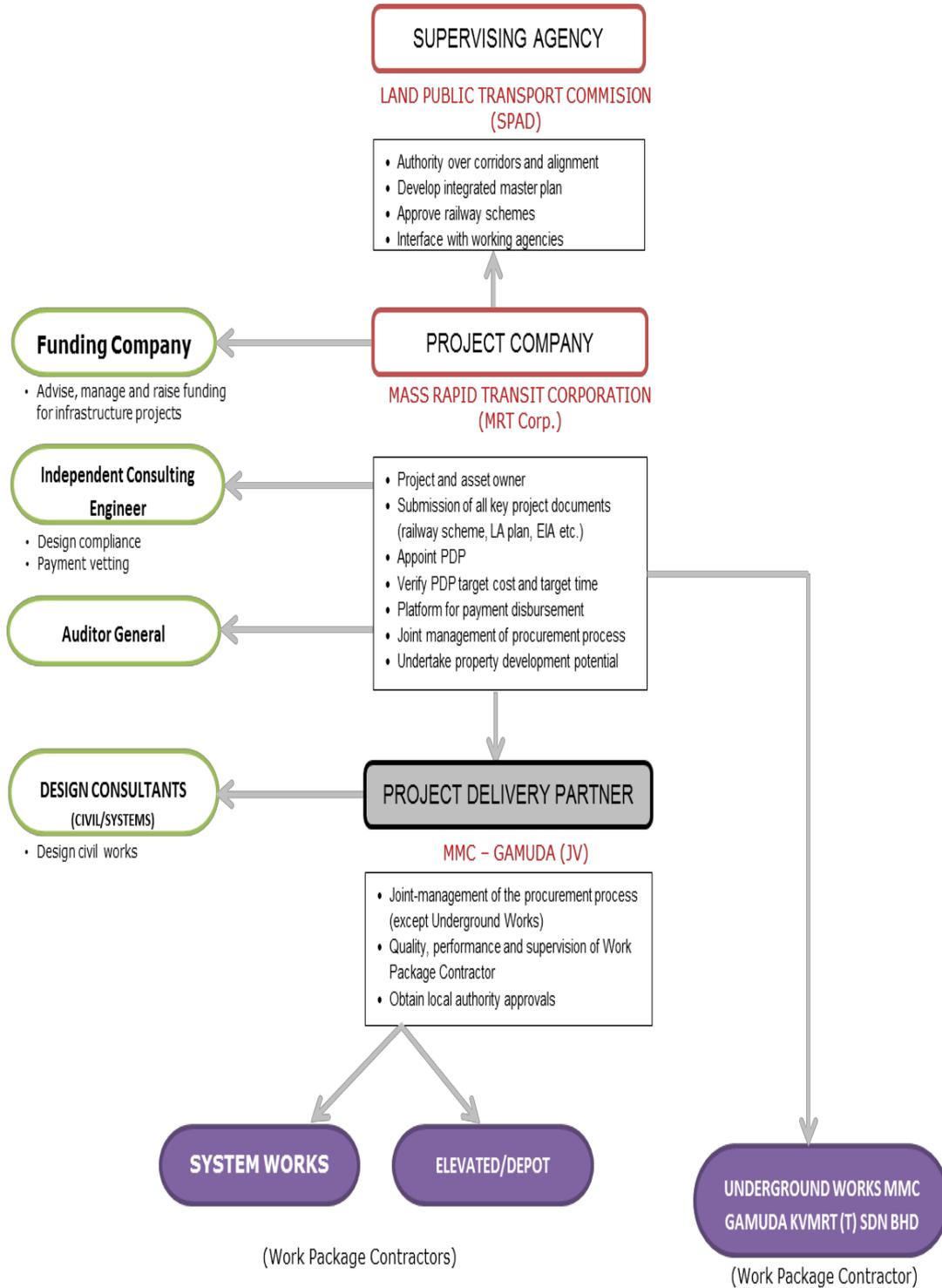


Figure 6.1. KVMRT project structure.

Source: KVMRT Annual Report (2013).

6.4 Project Governance

Figure 6.2 displays the project governance structure for the KVMRT. The steering committee role to supervise the overall policies and direction and the resolution to the strategic issues and give a big decision to the project outlook, that chaired by the Prime Minister. The project governance assist by the executive committee leads by chief secretary to the government to monitor the resolution regarding inter-agency issues and give progress reporting regarding the project. The technical committee leads by the *Suruhanjaya Pengangkutan Awam Darat* (SPAD) (land public transport commission) monitored on the project progress monitoring and tracking the entire project process. The technical committee have a direct relationship with the implementation players lead by the MRT Corp.



Figure 6.2. KVMRT project governance.

Sources: KVMRT Line 1 Project Report (2012) and MRT Corp CEO Presentation (2015).

6.4.1 Project delivery partner (PDP) in KVMRT line 1 project

MRT Corp is the developer and owner of the KVMRT project and asset. MRT Corp is fully owned by the Ministry of Finance Incorporated, and was set up to be the developer and asset owner of the MRT project. The company was established in September 2011 and took ownership of the project in October 2011 from Prasarana Malaysia Berhad (Malaysian Infrastructure Limited). Prasarana Malaysia is the government-linked company that was established by the Ministry of Finance to own the assets to the multi-modal public transport system. MRT Corp's responsibilities include monitoring and tracking construction of all elevated structures, stations and depots of the MRT project. It also monitors underground works, which involve tunnelling and construction of underground stations. MRT Corp is also responsible for the contracts involved, the procurement process, dispute resolution and stakeholder engagement, as well as ensuring the quality of delivery in terms of cost, scheduling, health, safety, security and environment requirements. MRT Corp is working with other parties in developing the project, including MMC Gamuda KVMRT as its PDP and the SPAD as the supervising agency.

MMC Gamuda KVMRT Sdn Bhd was the PDP for the project that provides single point of responsibility and accountability to deliver Line 1 within the agreed KPIs of target cost and set completion date. The turnkey methods that have been used in other infrastructure projects in Malaysia can prove costly if there is any variation in plans or cost. PDP is an option preventing high costs in construction. The responsibilities of PDP include ensuring the engineering design and technical specifications meet the employer's requirements; ensuring optimum performance of all other work from WPCs in terms of quality, safety and time; packaging the works; calling for tenders; evaluating bids; selecting WPCs; and distributing

the awards to contractors on behalf of MRT Corp. PDP operates like a special purpose vehicle in PPP procurement delivery. A PDP was brought on board to work closely with the government. The KVMRT Line 1 project was the first PDP model implemented for a Malaysian infrastructure project. The PDP model was applied for the first time with the appointment of MMC Gamuda Sdn Bhd. Its role and responsibility was to encapsulate the engineering design, procurement and system work. The PDP concept enabled the MRT project to be rolled out efficiently in phases, attending to the delivery obligations and ensuring the performance of all other contractors. Other projects that have used the PDP concept include Crossrail and the London Olympic Park in the United Kingdom. These projects provide successful evidence of the efficiency and effectiveness of having a PDP on board. The PDP was a joint-venture contract, where the partners consist of two independent bodies who agree to work together to achieve a joint-venture goal. Further, the PDPs share all relevant information and are willing to cater for risk in return for reward (Whyte et al., 2012). In general, the PDP model delegates the construction to work package contractors (WPCs) (KVMRT Report, 2012). Concurrently, the PDP model must still ensure the WPCs deliver the project according to the time and required quality. In addition, the PDP must oversee and control all contractors as part of PDP obligations. The PDP model is somewhat the same as a project management consultant. PDP provides a single point of accountability to deliver the whole project within the agreed time and cost targets. Figure 6.3 presents the roles and flow of information from the PDP to WPCs in the KVMRT Line 1 project.

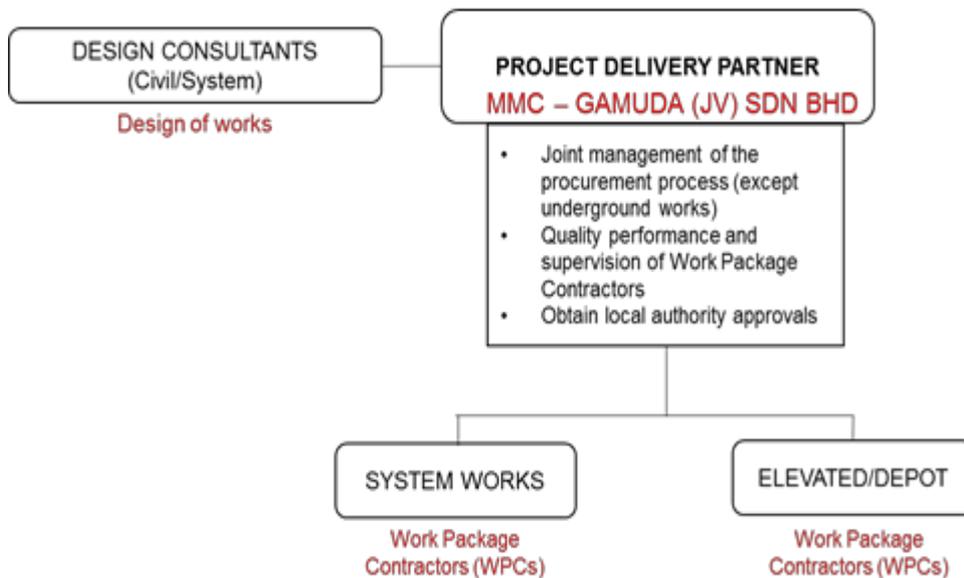


Figure 6.3. PDP roles and flow of information in KVMRT Line 1.

6.5 Internal Early Preparation and Planning of Case Study 3

Since its inception, MRT Corp pledged to set new standards in the construction sector, especially in terms of stakeholder engagement. Such engagement ranges from town-hall gatherings to one-on-one meetings, thereby providing channels for communities to raise issues and give feedback, so that MRT Corp can take appropriate action to mitigate concerns. During the period under review, more than 60 engagement sessions were organised with residents, resident associations, business people, traders and other groups. The most common types of feedback included concerns regarding noise generated from construction work, traffic congestion and living close to the railway alignment. Many stakeholders expressed the hope that the MRT project would be completed as soon possible to minimise the inconvenience. MRT Corp acknowledged that some affected stakeholders lived as close as six metres from the railway track. The project owner adopted a standard practice that any member of the community living or operating a business adjacent to the railway alignment or

anyone who could be potentially affected by the construction had to be kept informed of construction activities. The stakeholders could lodge a report regarding their property through a free telephone line, or could visit the project information centre located at the MRT Corporation headquarters or the two KVMRT kiosks within the project area.

During the 'inform' stage, the project owner announced the upcoming railways project, as well as briefing stakeholders on the work plans and schedule of work to be undertaken in the affected area. The engagement sessions conducted served as a forum for concerns to be raised, alongside the stakeholder meetings in the affected residential areas, shop buildings and historical buildings. Based on interviews with the management team and stakeholders, 70% of the affected residents and business owners supported the project. Thirty per cent opposed the project, including residents whose businesses or houses were adjacent to the railway. The main issues arising from the opposition included land acquisition and relocation of the business area. An extensive and continuous effort was undertaken by the project owner to promote the project to the public. Campaigns and programs occurring in an early phase of the planning project advocated the reasons for building an urban rail system in the city. This was considered important to educate stakeholders and the public alike, as the main critical component in engagement is communication.

According to Interviewee C1, there was no standard method of engagement process formed for the infrastructure project. For this project, the project owner adopted an engagement process from the agricultural sector, which includes the processes of 'prior', 'inform' and 'consent'. This means that the project owner must inform the stakeholders prior to the project, and gain consent from the stakeholders before beginning the work. The project was undertaken after three months of public display information at the information centre, (from 14 February to 14 May 2011).

6.5.1 Process of stakeholder engagement (initial and planning stage)

The aim of the process of engagement was to amicably resolve the many land issues, some of which attracted public attention. The solution for some of these cases was the novel idea of allowing privately owned land to coexist with the MRT, by way of a mutual agreement between the land owner and MRT Corp. Almost all owners of shophouses along Jalan Sultan were able to retain ownership of their properties, while allowing the MRT tunnel to be built underneath. However, land issues were just one of a multitude of challenges encountered by such a huge infrastructure project. Other main challenges were congestion, noise, ownership status and relocation of the business area. As with the solution regarding land, these challenges were overcome through meaningful stakeholder engagement. In an effort to keep stakeholders updated with the latest KVMRT work plans and works to be undertaken, regular engagement sessions were initiated to ensure timely and effective dissemination of project- and construction-related information to the residents living within the KVMRT construction worksite vicinity and to seek feedback. Figure 6.4 summarises the process of initial preparation.

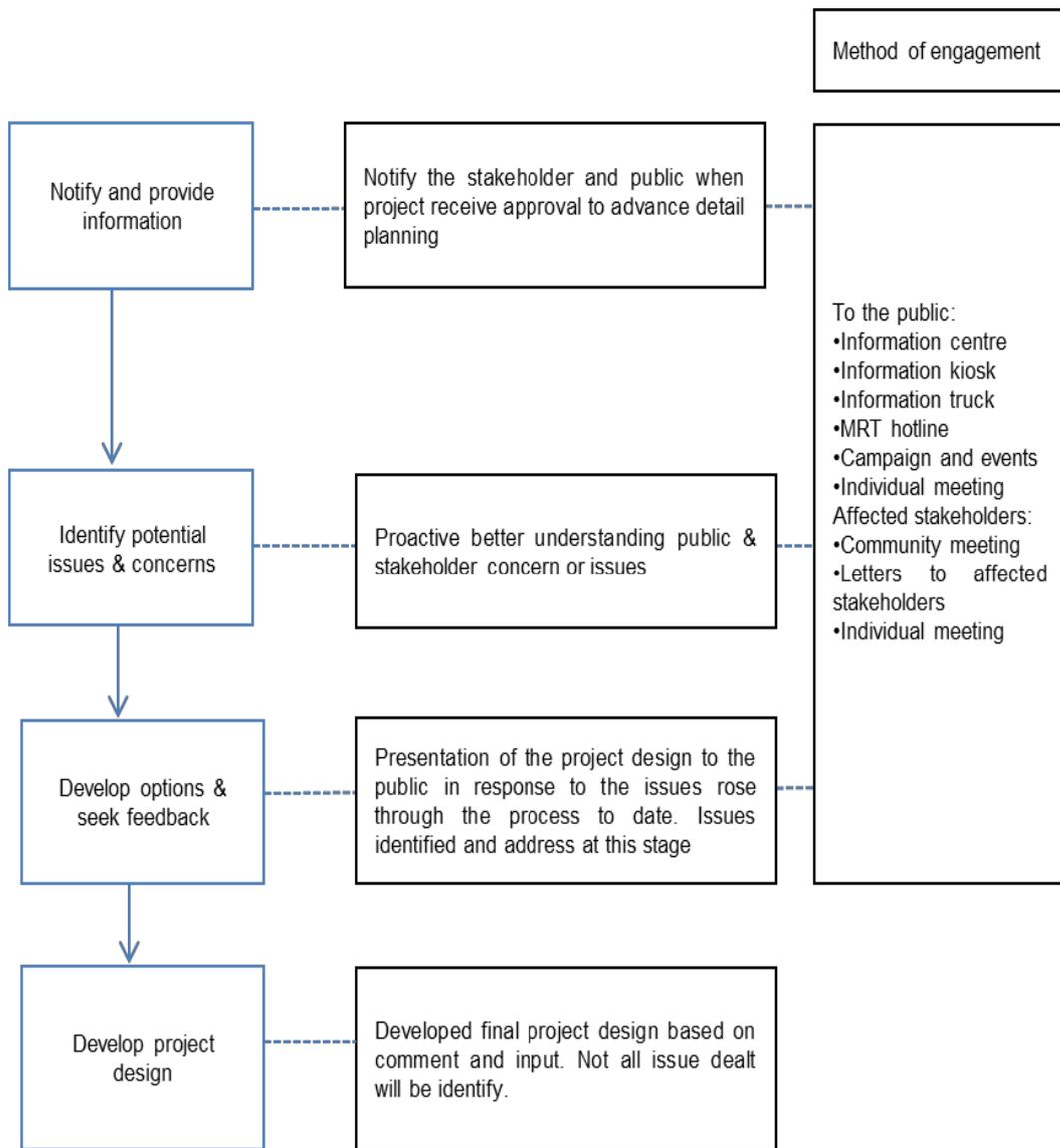


Figure 6.4. Process of initial preparation and alignment of KVMRT project.

The engagement sessions were organised and jointly arranged by the WPCs, Project Management Department of PDP, and Public Relations Department of PDP, in consultation with the project owner, MRT Corp. The respective WPCs identified and started to engage the affected stakeholders and community living near the KVMRT worksite three to six months before the commencement of construction activities. The requirement for stakeholder

engagement was determined based on proximity (distance) to active construction works, and the type of construction works that would be undertaken. The KVMRT stakeholders were categorised into three clusters: (i) sensitive or complex areas, (ii) high-profile areas with existing issues and (iii) areas with close proximity to KVMRT alignment areas. Sensitive areas included places such as schools, hospitals and places of worship. High-profile areas with existing issues included a community in high-end areas. Areas with close proximity to KVMRT alignment areas included places directly affected or land that needed to be acquired to build the infrastructure for the MRT line.

There was a total of 21 engagement programs at various KVMRT elevated package worksites to follow up and address concerns related to the implementation of the project. This continuous engagement enhanced mutual collaboration with stakeholders and allowed the project team to gain insights from stakeholders to further improve their approach towards safety, traffic congestion, quality of work and the environment. Besides worksites and community halls, engagement programs were also held at venues such as MRT information centres or the MRT Corp head office. Stakeholders affected by the elevated and underground works of the KVMRT were provided with access to a 24-hour MRT hotline, where complaint was reported to MRT Corp and resolution on a daily basis. Besides serving as a tool to gauge public satisfaction, the Complaint Management System (CMS) was also used to evaluate the quality of WPCs' work and to identify and rectify potential safety, health and environmental risks at MRT worksites. The KVMRT Line 1 made a serious effort in educating the community and other external stakeholders. There are various activities which the agency developed closer connections with the community through programs they had formed. This included engagement with campaigns and events to promote awareness about the MRT project and educate the public about the need for MRT. One of the successful campaigns was the KVMRT logo competition and the 'I Love MRT' slogan. The winner received a cash

prizes and the logo was attached to the advertisement board. MRT Corp reached the community through social media, such as Facebook, Twitter and Instagram which provided updates on the progress of the construction of the Sungai Buloh–Kajang line. KVMRT project was actively engaged with the community to raise awareness about the benefits of the project during construction stage.

The initial phase in developing the Greater Kuala Lumpur Master Plan was to understand the current conditions and issues in the Greater Kuala Lumpur region. As part of the ongoing study, stakeholder engagement with key agencies was used to inform the development of the Greater Kuala Lumpur Master Plan. The initial engagement included federal agencies, DBKL as the local council, Selangor State Unit Perancang Ekonomi Negeri as the government economic agency, Perbadanan Putrajaya as the local council at the federal administrative centre of Malaysia, other district local authorities and transport operators. The initial stage of the project commenced when the authorised agency started the three-month engagement period with the community and business traders near the affected area. The feedback was gathered, and the stakeholders lodged their views and reports regarding the project. The reports were then analysed to determine the issues about which stakeholders were concerned. The project owner ensured that concerns regarding stakeholder interests and reports were considered during the planning stage. This process included identifying key concerns and issues, such as: (i) identifying stakeholders' plans and proposals for the future and (ii) collating a range of data, including land use information, rail patronage, bus network data, traffic counts and journey time data.

6.5.2 Stakeholder involvement and engagement

The idea of including a Stakeholder Engagement and Public Relations Team was to ensure that stakeholders could be coordinated towards the successful implementation of the project. In previous mega infrastructure projects, stakeholder engagement was not a serious concern of project owners. KVMRT took the initiative to establish mutual engagement with the key stakeholders, internal and external stakeholders, community and public to build a seamless and meaningful relationship to create awareness of the project. The key stakeholders included the Ministry of Finance, Performance Measurement Delivery Unit, Land Public Transport Commission, financier, and PDP itself. Table 6.2 presents the roles and relationships of the KVMRT key stakeholders.

Table 6.2
Roles and Relationships of Key Stakeholders of KVMRT Line 1 Governance

Key Stakeholders	Roles and Relationships
Performance Management Delivery Unit—a unit under the Prime Minister’s Department	Oversees implementation and assesses progress of the KVMRT project under the Government of Malaysia Economic Transformation Programme
Ministry of Finance (Incorporated)	Shareholder
Suruhanjaya Pengangkutan Awam Darat (SPAD)—Land Public Transport Commission	Regulator
Auditor General	Government auditor
DanaInfra Nasional Berhad	Raises financing for government infrastructure projects, including the KVMRT
PDP	Delivers KVMRT project within the agreed time and cost targets
Independent consulting engineers	Monitor the progress of the KVMRT project and give input or verification before WPCs are paid
Ministry of Finance	Approval of tenders
DBKL (City Hall)	Approval and issuance of licences or permits
District and local councils	Approval and issuance of licences or permits according to the locality and district
WPCs	Underground, elevated and depot, and system works contractors
Workers	Workforce for construction works
Public	Ultimate beneficiary of the KVMRT project

6.6 Keys Implications from KVMRT

The research showed that engaging stakeholders early in the planning process can reduce the potential of cost overruns, delays and other serious construction problems in later stages of the project. Further, stakeholders' commitment, interest and power can be fully assessed so that project managers can manage the key problems.

When analysing Case Study 3 in Malaysia, speed with which the project was implemented was important. A suitable structure was quickly developed, the project owner was incorporated, the PDP was appointed, financing was sourced and relevant laws were implemented to suit the needs of the project. Base on the literature review of the stakeholder engagement process discussed in Chapter 2, appropriate coordination and planning are essential for megaprojects. This project obtained relevant approvals through local authorities and legal agencies, and conducted studies on environmental impact to mitigate or avoid future problems. Support for the project was needed from high up in project governance. Moreover, there was room for improvement and decision makers may want to seriously consider on the appropriate coordination and planning structure. During the period under review, when the engagement occurred, there were protests and a court case against MRT Corp. MRT Corp provided a compensation offer and help in searching a new area for the landowner and the business traders. A comprehensive social impact assessment was completed and made available before the KVMRT Line 1 project commenced.

6.6.1 PDP team and project governance of case study 3

MRT Corp (as the developer) and MMC Gamuda as the PDP operator work closely together in a seamless cooperative relationship. Project coordination meetings were held once a month between MRT Corp, PDP and the underground work contractor. The meetings

discussed issues regarding joint policies and strategies for the project; assessed, managed and mitigated risk relating to the project; and held a forum to resolve any issues between them. Another technical meeting—called the ‘Make it Happen’ meeting—was held when required to address technical issues that needed a quick decision. Meetings between various parties helped ensure project success and that the members were all aligned when it came to managing wider stakeholders.

6.6.2 Coordination of stakeholders

The research indicated that the project owner aimed to ensure minimal disruption to the communities living in close proximity to the project, and kept the residents well informed about current and future developments. The project owner wished to gain stakeholders’ support and improve transparency in the project. The research found evidence of ongoing engagement efforts with the communities along the KVMRT Line 1.

6.7 Summary

This chapter investigated the ways that a mega infrastructure project in Malaysia implemented its stakeholder engagement process. This study involved multiple stakeholders’ interests and perceptions in the project. The chapter identified the early preparation for the engagement process and how the approach benefited both parties involved with the project. The research showed that engagement was introduced after the design phase was established. A high-profile project, such as the KVMRT, needs special involvement from senior representatives of various government agencies. The reason of this is that the project was partially funded by the Malaysia government and was listed as a Malaysia mega

infrastructure project and this high-profile project needed special attention especially on stakeholder management. The appointment of the PDP provided a single point of accountability to deliver the KVMRT Line 1 within the agreed KPIs of the target cost and completion date. The PDP also showed accountability for stakeholder groups and stakeholder management. The finding shows that key features of stakeholder engagement in early stages of a project are important management measures.

CHAPTER 7

Case Study 4

Investigating the Stakeholder Engagement Process in Malaysian: A Case Study of KVMRT Project Line 2 (Sungai Buloh – Serdang – Putrajaya)

This chapter has been partially published as a paper for:

Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2018). Enhancing stakeholder engagement features through project collaboration in infrastructure projects. To be submitted to *Proceedings of the Institution of Civil Engineers-Management, Procurement and Law*, ICE Publishing.

7.1 Introduction

Construction industry practice currently does not include an effective stakeholder interaction mechanism to improve project outcomes and achieve success (Joaquin et al., 2008). According to Heravi et al. (2015), in the planning process, the purpose of the first phase is to provide clear goals and a correct direction for the project. The next step provides systematic identification and understanding of all project stakeholders and their needs, expectations and requirements. Stakeholders who have strong influence on society and high expectations

should be included in the project management process (Yang et al., 2011). By identifying stakeholders and explicitly assessing their expectations, understanding and perception, gaps can be avoided. Basu (2014) highlighted that there is a strong correlation between organisational quality and areas such as stakeholder management, project leadership and top management support. Thus, identification of the important roles of key members in projects has developed more in recent years. If the project stakeholders are not satisfied with the quality of ongoing project management or project outcomes, the project team can adjust scope, time and cost to meet the stakeholders' expectations.

This chapter discusses the ways this second Malaysian case study improved stakeholder management based on the KVMRT Line 1 project. The chapter examines whether, in Case Study 4, the challenges faced solved and stakeholder management improved. This chapter compares, with KVMRT1, stakeholder engagement in KVMRT Line 2, by evaluating the engagement process, practices, culture and management approaches.

The government was highly committed to implementing KVMRT Lines 2 and 3, as the socioeconomic benefits that could be reaped from the KVMRT far outweigh its costs. KVMRT Line 2 is expected to have the highest ridership, compared with the previous KVMRT Line 1, as it serves a densely populated, lower-income neighbourhood area. KVMRT Line 2 commenced in mid-2015, immediately after the completion of KVMRT Line 1. KVMRT Line 2 retained trained staff to ensure continuous usage of the construction equipment. Based on the success of KVMRT Line 1, the government decided to duplicate the underground of Line 1 in Line 2, with the same team, same tunnel boring machines, same lining and same contractual setup. However, there was a difference in cost, with Line 2 being

12% more expensive than Line 1. With the same PDP delivery method as Line 1, Line 2 was expected to require less stakeholder engagement than Line 1.

7.2 How Stakeholder Engagement Practices Can Sustain an Active Relationship?

Rawlinson and Cheung (2008) highlighted that central to project success is stakeholder management and the level of resistance of the key stakeholders towards an upcoming project can influence the success or failure of the project. Project

The project team comprises people who are dedicated to the project. The project manager needs to provide leadership, direction and support to team members as they accomplish their tasks. Working closely with the team to solve problems can help the project manager learn from the team and build rapport. Support and cooperation is needed from each member of the team to sustain team performance (Watt, 2010). A crucial skill for managers of construction projects is to manage stakeholders' expectations. Cleland et al. (2011) claimed that failure to address stakeholder expectations can result in project failure, primarily because construction stakeholders tend to have the resources and capability to stop construction projects. In particular, they have significant influence on project outcomes relating to cost, time, technical performance and stakeholder satisfaction (Zwikael, Shimizu, & Globerson, 2005). The project manager (such as the owner's representative) must manage the influence of various stakeholders in relation to the project requirements to ensure a successful outcome (Chandra, Putu Artama Wiguna, & Kaming, 2012). Lerbinger (2006) agreed that organisations that actively engage with their stakeholders are more likely to succeed.

In construction projects, stakeholders—such as the local community and public—are active in the engagement process. Community engagement is perceived as the responsibility of planners, and is often neglected by many building professionals involved in the construction phase of projects, such as consultants, engineers, project managers and subcontractors (Akbar & Rasul, 2011). Residual community concerns from pre-development stages often continue into construction stages (WRI, 2007). Further, new community concerns can emerge during construction, as the scale and nature of development become physically evident onsite and as major decisions continue to be made, sometimes over many years, which have significant potential community effects (Teo & Loosemore, 2013).

Figure 7.1 highlights the stakeholder mapping in a project. The figure shows the project manager as the centre of the project team, and is the person who manages stakeholders.

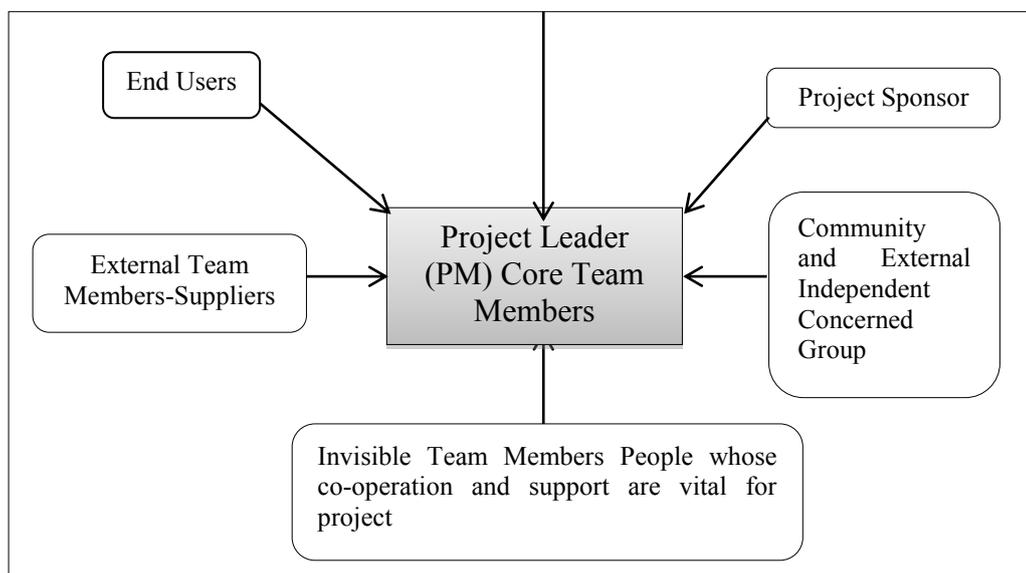


Figure 7.1. Stakeholder mapping. Source: A. Walker (2002).

Community engagement is often outsourced to public relations practitioners, thereby separating building professionals from the communities in which they build. The number of stakeholders that project managers must encounter means they will have a complex job guiding their project through its lifecycle. Problems with any of these members can derail the project. It is important that the project team know whether they are successfully managing project stakeholders. Previous research highlighted the factors of successful stakeholder management in construction projects, such as communicating with stakeholders and analysing stakeholders' needs. Having learnt from one infrastructure project, this chapter examines enhancements in stakeholder engagement using another Malaysian case study.

7.3 Methodology

This research examined stakeholder documentation related to the case study, KVMRT Line 2, to understand some of the changes that had occurred from the project's inception to when it opened to the public. This document review was followed by face-to-face interviews with 11 stakeholders involved in the project, who played key roles and influenced the flow of work relating to the infrastructure project.

This chapter investigates the latest railway project in Malaysia, which commenced construction at the end of 2017. This chapter considers whether there has been improvement from Case Study 3 of KVMRT Line 1, which was the first project of this case study. The interviews were conducted using semi-structured questions, which were divided into two parts. The first part considered the technical aspect of the stakeholder engagement process and governance of the project. The second part was intended to obtain an overview of improvement efforts and the key implications derived from the project. The interviewees

were from different backgrounds and included key stakeholders, external stakeholders and the community. The data collection occurred from September 2015 to March 2016. During data collection, the engagement sessions were still ongoing and some of the respondents could not cooperate because of data privacy and confidentiality between the stakeholders and MRT Corp. Table 7.1 provides details of the respondents.

Table 7.1
Research Interviewees for Case Study 4

Project: KVMRT Line 2 (SSP)		
Interviewee Code	Affiliation	Concern
D1	Project manager	Project
D2	Stakeholder manager	PDP
D3	Engineer of Mudajaya (WPC)	Project
D4	Manager of district council	Support in full
D5	Project engineer, Perbadanan Putrajaya	Support in full
D6	Individual landowner 1	Support in full
D7	Individual landowner 2	Oppose in part
D8	Representative from community group member 1	Oppose in part
D9	Representative from community group member 2	Support in full
D10	Chair of business and trade organisation	Support in part
D11	NGOs	Neutral

7.4 Background of KVMRT Line 2 Case Study

Case Study 4 was the second phase of the KVMRT line to be developed as part of the mega infrastructure project in the vicinity of Klang Valley, Malaysia. As a continuation of KVMRT Line 1, KVMRT Line 2 serves 52.3 km, with a total of 36 stations, including 25 elevated stations and 11 underground stations. The elevated section will be 38.75 km, while the underground section will be 13.5 km. The line will serve Sungai Buloh to Putrajaya (Malaysian administrative area), which has a total population of approximately 2 million

people. It will have a daily ridership of roughly 529,000 passengers upon its completion in July 2022 (KVMRT Report, 2016). The line is being constructed in two phases, with the first phase involving the construction of new stations between Kwasa Damansara and Kampung Batu (within the vicinity of Kuala Lumpur). The construction commenced on September 2016 and is expected to be operational by July 2021. The second phase involves the construction of the stations and is expected to be completed by July 2022. Figure 7.2 presents the timeline for the KVMRT Line 2 project.

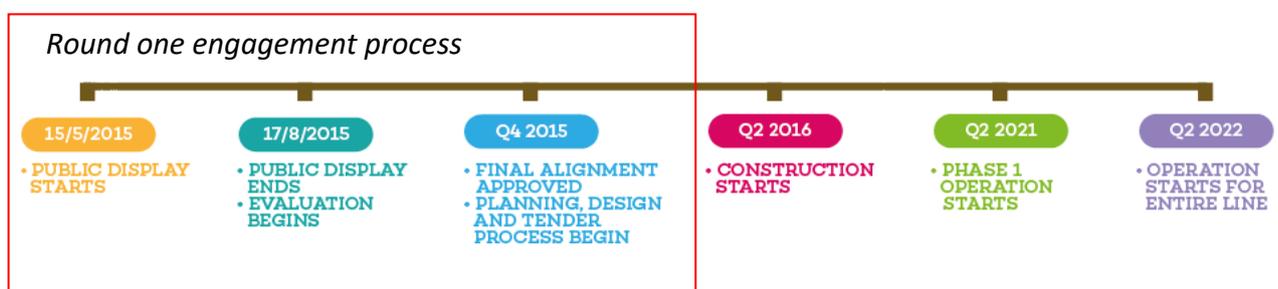


Figure 7.2. Timeline for KVMRT Line 2.

In July 2015, MRT Corp and MMC Gamuda KVMRT Sdn Bhd again signed a consensus for the appointment of PDP for KVMRT Line 2. KVMRT Line 1 has been an exemplar for Line 2 in pre-planning and construction process. MRT Corp and MMC Gamuda as the PDP forged a partnership with each other after working together for KVMRT Line 1. Additional KPIs were added to ensure compliance with safety, health and environmental requirements; compliance with agreed quality standards; timely response to public complaints and implementation of stakeholder management. MRT Corp will enforce a fee charge towards MMC Gamuda if the KPIs are not achieved.

Approval for KVMRT Line 2 was obtained in July 2013 by the Malaysian government cabinet, and the tendering and PDP occurred in early 2015. Land acquisitions

and public feedback was estimated to take about 1.5 years post-approval. The construction cost of KVMRT Line 2 is estimated to be RM24.90 billion, based on the KVMRT Line 1 actual contract rates.

7.4.1 KVMRT Line 2 project structure

The KVMRT Line 2 project structure has no difference to Case Study 3 (KVMRT Line 1). The structure was derived from the same governance and the implementation of the project followed the model of KVMRT Line 1 as shown in Figure 7.3

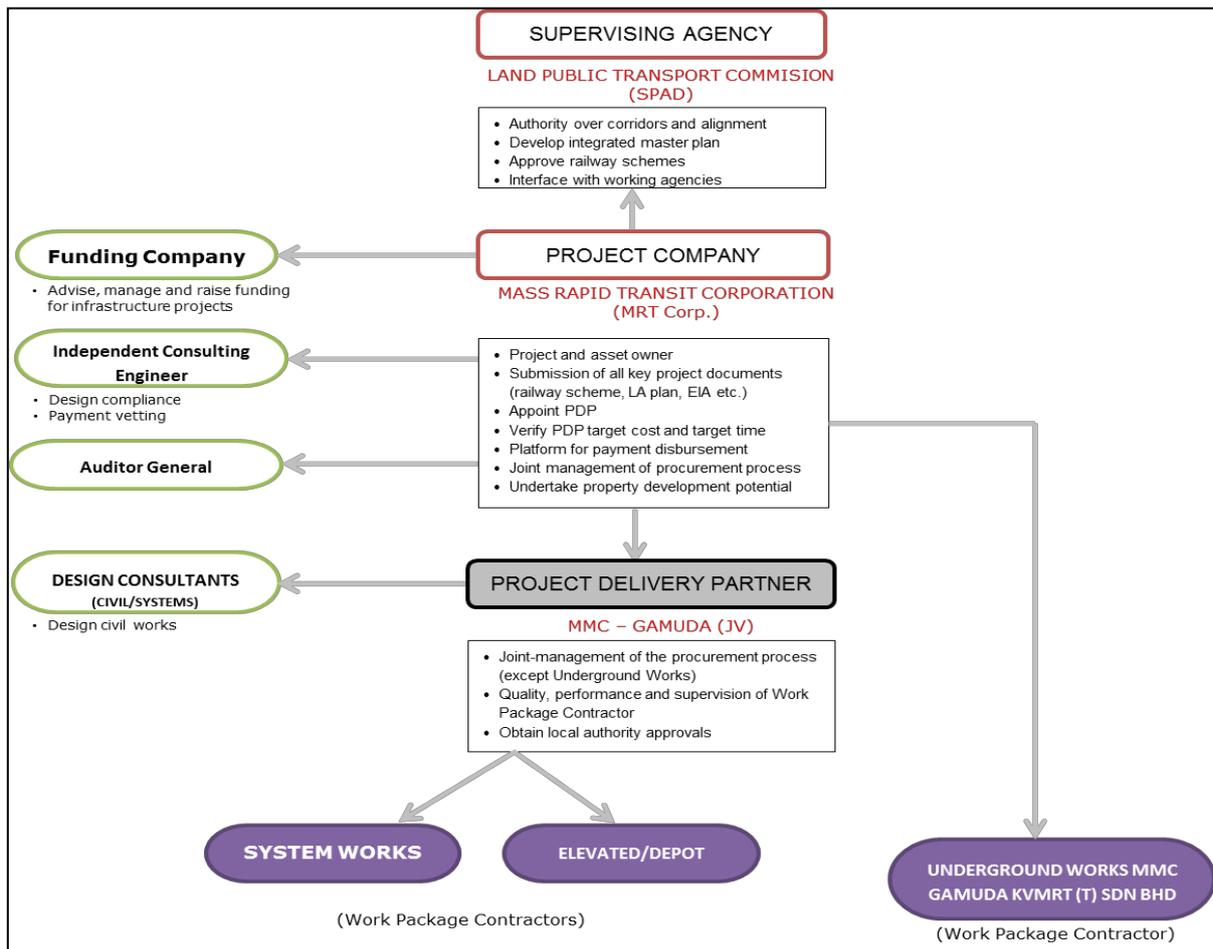


Figure 7.3. KVMRT project structure. Source: KVMRT Annual Report (2013).

As with the previous case study, KVMRT Line 2 involved a PDP delivery system. The PDP in this case study was involved in all stages of the project, working closely with all relevant stakeholders, including the government, project owner, regulatory bodies/authorities, landowners and operators. Where there are gaps in with the relevant stakeholders networking, the PDP assumes different roles by injecting resources, stepping in or even taking over to ensure delivery. Interviewer D1 highlighted that, ‘the working relationship between MRT Corp and MMC Gamuda KVMRT (MGKT) as the developer began with KVMRT Line 1, and this good relationship can now continue with the KVMRT Line 2’. The parties involved remained the same for KVMRT Line 2 to ensure more effective engagement and collaboration. The project owner good lessons from the previous collaboration with the parties involved. The project owner continued to educate the public by having two MRT information centres for KVMRT line 2, that opened in January 2016, located along the KVMRT Line 2 alignment. Engagement with the local communities enhanced the relationship between the project owner and stakeholders, and allowed the project team to gain insights to ways to further improve their approach towards safety, traffic congestion, quality of work and the environment.

One of the advance features that the stakeholders experienced with the construction of KVMRT Line 2 was the responsive complaints management system, CMS. Compared with KVMRT Line 1, for Line 2, the system was more responsive and effective for large-scale infrastructure projects. Affected stakeholders of KVMRT Line 2 were provided with 24-hour access to the MRT hotline, where complaints resolution was governed by a standard operating procedure, and resolution status was reviewed by the PDP and reported to MRT Corp on a monthly basis. As well as serving as a tool to gauge public satisfaction, the CMS

was also used to evaluate the work package contractor (WPC)s' quality of work and ability to identify and rectify potential safety, health and environment risks at MRT worksites.

The PDP is the new benchmark for the delivery of large-scale and complex infrastructure projects of national interest. The concept of PDP assumes single-point accountability to deliver an entire project—from its conceptual to detailed feasibility studies, to project design and technical input, procurement, project management, contractor management, assumption of risks, testing, commissioning and completion—on time and within budget, with significant involvement of and responsibility held by the PDP in every stage of the project.

The PDP model was first introduced in KVMRT Line 1 (see Chapter 6, Case Study 3), awarded to MMC Corporation Berhad (MMC) in July 2011. The model is the culmination of experience in various infrastructure and construction management across all engineering disciplines. Given the success of the PDP in KVMRT Line 1, it became the practice model replicated for the subsequent KVMRT Lines 2 and 3 (under investigation phase), and for other large-scale projects in Malaysia.

7.5 Internal Early Preparation of Stakeholder Engagement during Planning Phase of Case Study 4

Various initiatives have been implemented as part of the early preparation of KVMRT Line 2 to gauge the public's perception and create greater understanding. The early engagement process of KVMRT Line 2 commenced in the second quarter of 2015 and continued until the fourth quarter of 2015. The engagement was the first round of the process before the consultation occurred in the second round. The earlier engagement scheme engaged the public to announce that KVMRT Line 2 would soon commence. The details of

KVMRT Line 2 were on public display in the SPAD (land transport agency) office, MRT Corp offices, Kuala Lumpur City Hall (as the local council), Selayang Municipal Council (local council) and Petaling Jaya Council (local council). In addition, roadshows were held, primarily at a shopping mall near the KVMRT Line 2 alignment.

The engagement occurred from December 2014 to January 2015, with more than 1,500 stakeholders engaged in a perception survey on the project, including local communities, NGOs, businesses and government agencies. There were 33 interviews, focus group discussions and dialogues conducted from 7 December 2014 to 9 March 2015. In addition, from March to August 2015, 132 face-to-face discussions were organised with a member of parliament, the state legislative assembly (Ahli Dewan Undangan Negeri), local councillors, the public relations departments of local authorities and the public.

A three-month public inspection, which ended in August 2015, was organised at 26 locations along the KVMRT SSP line alignment. In accordance with the Land Public Transport Commission's requirements, a public inspection feedback analysis report was prepared as part of the final scheme submission. Public perception and stakeholder feedback were important inputs in planning the SSP line. When MRT Corp confirmed that the Malaysian Government had given final approval for the 52.2 km KVMRT Line 2, construction was able to begin on the line from Sungai Buloh to Serdang to Putrajaya. Approximately 40,000 people visited 26 exhibition booths along the route, and gave feedback on the proposed alignment. More than 10,500 people provided feedback on the alignment, with 90% expressing support for the project. Comments from the remaining 10% mainly related to the location or alignment of the route and its future effects. Following analysis of the feedback, approval was granted without any major modifications to the alignment. Minimal modifications were made for certain areas to overcome issues regarding land

acquisition. The government also requested construction of an additional elevated station in a congested area. Table 7.2 presents details of the engagement session with 33 selected stakeholders for KVMRT Line 2.

Table 7.2

Stakeholders Involved with the Engagement Session

No	Stakeholder	Social Group	Type of Engagement
1	Damansara Damai	Commercial	FGD
2	Sri Damansara - Manjalara	Commercial	FGD
3	Sri Damansara Community	Residential	Public Dialogue
4	Metro Prima - Kepong	Commercial	FGD
5	Taman Jinjang Baru	Residential	FGD
6	Jinjang Jalan Kepong	Commercial	FGD
7	Kg Batu Delima	Residential	FGD
8	Pekan Batu PPR / Taman Rainbow/Taman Bamboo	Residential	FGD
9	Jalan Ipoh	Commercial	FGD
10	Hospital Kuala Lumpur	Institution	Interview
11	Istana Budaya	Institution	Interview
12	Perbadanan Pembangunan Kampong Baru	Institution	Interview
13	Kompleks Kraft, Jalan Conlay	Institution	Interview
14	Ampang Park-Jalan Binjai	Commercial	FGD
15	PPR Laksamana Jalan Peel	Residential	Public Dialogue
16	Chan Sow Lin	Commercial/Industrial	FGD
17	Kuchai Lama	Commercial/Industrial	Public Dialogue
18	Salak Selatan Baru	Commercial/Industrial	Interview
19	Taman Salak Selatan – Taman Naga Emas	Residential	Public Dialogue
20	Kg Malaysia Raya	Residential	Public Dialogue
21	Police Station, Pekan Sg Besi	Institution	Interview
22	Pekan Sg Besi	Commercial	Public Dialogue
23	PPR Raya Permai – Pangsapuri Permai	Residential	FGD
24	Serdang Raya	Corporate	Interview
25	Serdang Raya	Commercial	Public Dialogue
26	Serdang Raya	Residential	Public Dialogue
27	Seri Kembang North	Residential	Public Dialogue
28	Seri Kembang South (Taman Equine/Taman Dato' Demang/Taman Pinggiran Putra)	Residential	FGD

29	Seri Kembangan (Commercial & Industrial)	Commercial	Interview
30	Putrajaya (Presint 7,8 & 9)	Residential	FGD
31	Perbadanan Putrajaya	Institution	Interview
32	Cyberview Sdn. Bhd.	Corporation	Interview
33	Putrajaya Holdings	Corporation	Interview

Source: Detailed environmental impact assessment for KVMRT Line 2 (2015).

7.5.1 Stakeholders ‘perceptions of engagement process for KVMRT Line 2

The interviews, content analysis of the KVMRT Line 2 perception survey in February 2015, and project documentation all indicated that level of awareness of KVMRT Line 2 was still low. Only half of the respondents had read or heard about the KVMRT Line 2. In some areas, especially suburban areas, the level of awareness was very low—some individuals had no idea what would occur in their area. The vast majority of respondents believed that the project would not adversely affect them. This positive perception permeated throughout all survey zones, although there were some variations in opinion. For example, the highest proportion believed they would not be personally affected by the SSP line. An NGO made an allegation that MRT Corp refused to engage stakeholders in this project. To answer this allegation, Interviewee D2 stated that:

“...[the] decision of 39 strata owners of the Ampang Park shopping centre [traders in the affected shopping centre] to bring the matter to court in 2016 had put an end to negotiations between the two parties, pending the decision of the Federal Court.”

Interviewer D1 stated that:

“...the small and medium scale enterprise association claimed that MRT Corp had refused to have discussion with the strata owners. The association had submitted a memorandum to [the] Prime Minister to intervene in the issue and put an end to the deadlock.”

Stakeholders who felt they were affected indicated that traffic congestion and noise were the two major negative factors. According to Interviewees D6, D7, D8 and D9, most of the residential group had the same opinion, that the community were worried about noise, traffic congestion and diversion of the road in their area. In contrast, as stated by Interviewees D3 and D10, the commercial/industrial stakeholders were concerned about loss of business if the project took too long to construct, and loss of customers because of parking problems.

7.5.2 Stakeholders' perspective on the new railways

Stakeholders highlighted different negatives effects regarding the project. The negative issues included:

- traffic congestion, traffic diversion and lanes reduced during construction
- reduced accessibility to station and facilities
- land acquisition issues
- environmental pollution, such as noise and vibrations, dust and air pollution, flash floods and land subsidence
- safety and risk concerns
- constructability of some MRT sections
- the appropriateness of some stations.

7.6 Stakeholders and Governance Engagement

A wide spectrum of stakeholders was engaged during the pre-construction and early stages of the KVMRT. As awareness of the project increased, MRT Corp reduced direct sessions

during the KVMRT Line 2 consultation program. Table 7.3 highlighted the engagement session during pre-construction from 2015 until 2017.

Table 7.3
Engagement Session during Pre-construction Planning for KVMRT Lines 1 and 2

Year	2017	2016	2015
Number of stakeholders engaged	2,953	1,440	1,500
Number of engagement sessions	209	120	132

Source: Gamuda Annual Report (2017).

Although the process of stakeholder engagement imitated KVMRT Line 1, a few improvements were made to the stakeholder engagement process. KVMRT Line 2 learnt lessons through the engagement sessions of KVMRT Line 1, where the engagement process took 1.5 years to complete. The engagement session of KVMRT Line 2, was take three months with the affected stakeholders and publics.

7.7 Practical Implication of Case Study 4

7.7.1. Continuous engagement and internal early preparation

To conclude the positive and negative views obtained from the engagement session, it can be seen that there was consensus that KVMRT Line 2 was much needed for public transportation, as this transportation would enhance connectivity to other public transport modes. In some areas, the respondents stated that KVMRT Line 2 would reduce their need for motor vehicles. Through integration with other modes of public transport, many stakeholders acknowledged that, with the new line, they could have access to seamless connectivity across the entire Klang Valley using MRT, light rapid transit and Keretapi

Tanah Melayu (KTM) Komuter trains. The commercial and industrial stakeholders near the proposed stations viewed the project as an opportunity to increase their earnings. In areas where the line alignment crossed hospitals or cultural complexes, the outcomes were still viewed as being beneficial to the public, with the somewhat outweighing some of the concerns regarding the proximity of the KVMRT Line 2 line. In some areas, the project could create growth. As a government administration centre, Putrajaya will experience a tourism boom, and stakeholders viewed the project as another mode of transport that enhanced its connectivity to Kuala Lumpur. Engagement with the local communities enhanced project owner relationship with stakeholders and allowed the project team to gain insights to how to further improve their approach towards safety, traffic congestion, quality of work and the environment.

7.7.2 More rapidly resolved issues on land acquisition.

Another issue during the engagement session was stakeholders' concern about land acquisition. The vital question raised by the stakeholders was whether they would be affected by acquisition. This concern came to be an important issue, with stakeholders questioning whether the project owner would be able to relocate them to a similar property because of lack of availability or affordability. Moreover, the stakeholders—especially land owners and residents—were concerned about loss of social cohesion, sense of community and current lifestyle among long-standing communities. Finally, business owners were concerned about the loss of potential or loyal customers, which businesses rely on in local neighbourhoods.

According to the project owner, some of these issues have mitigating measures proposed. These measures include:

1. ensuring fair valuation of the land or properties that will be acquired

2. developing communication and an engagement plan with the affected area/parties, with a focus on dissemination of information and on the land acquisition process
3. establishing a dedicated team to handle the land acquisition
4. maintaining continuous engagement with the affected parties to address and attend to any queries regarding the whole spectrum of acquisition
5. providing due notice, information and assistance to the affected parties, thereby giving them ample time to make an alternative plan and minimise inconveniences.

These matters minimised stakeholder problems during stakeholder engagement.

7.7.3 Effective communication tools

Effective communication with the relevant stakeholders is very important. As part of Line 2's environmental management framework, regular communication with relevant stakeholders, affected communities and the general public was established and maintained to ensure a systematic, efficient and prompt response to any complaints and feedback. A CMS was established by MRT Corp, which was first used for the KVMRT Line 1 project and will be continuously implemented in the Line 2 project. The CMS enables all complaints to be attended to quickly and effectively, including procedures for investigation and closure. MRT Corp has established, and will maintain, several channels for stakeholders and the public to provide feedback or lodge complaints through the MRT hotline (free telephone line), MRT website (through comments and feedback forms), MRT information centre, MRT information truck, MRT information kiosk and engagement sessions with stakeholders.

7.8 Summary

This chapter has examined the case study of KVMRT Line 2. Following the success of KVMRT Line 1, the Line 2 project invested effort to sustain the efficiency of the process. This study investigated the opinions and views of the stakeholders during the earlier phase of the project. It attempted to add to the ongoing research on stakeholder engagement, focusing on key issues in infrastructure projects. The research engaged with the experiences of project personnel in Malaysia. A number of noteworthy issues were identified that have not been discussed in the construction management literature. This research presents a perspective on engagement and managing uncertainty in the planning stage. The project manager must consider uncertainty during the process and minimise this for stakeholders.

CHAPTER 8

General Discussion and Research Synthesis

This chapter has been partially published as a paper for:

Baharuddin, H. E. A., Wilkinson, S., & Costello, S. B. (2018). Investigating the key implications of stakeholder engagement processes through collaborative procurement delivery system: A comparative study on infrastructure in New Zealand and Malaysia. To be submitted to *Australasian Journal of Construction Economics and Building (AJCEB)*, UTS Press.

8.1 Introduction

This chapter will discuss the findings from the case studies in New Zealand and Malaysia, and develop practical implications regarding stakeholder engagement in infrastructure projects. This chapter aims to answer one of the key research questions in this thesis, “How do the stakeholder engagement processes in New Zealand and Malaysia differ across infrastructure projects?” This chapter examines the themes that emerged from the literature, document analysis and results of the interviews and four case studies, which are drawn together, synthesised and compared. It makes recommendations for how New Zealand and Malaysia can improve stakeholder engagement. From the research, six dominant themes emerged for improving stakeholder engagement. These themes are displayed in Table 8.1 and discussed in this chapter..

Table 8.1
Themes Obtained from Cross-case Synthesis

Themes	Subheadings
The stakeholders: which stakeholders are involved, and how to identify stakeholders	8.2.1
Internal early preparation and planning (method for stakeholder engagement and planning)	8.2.2
Procurement: the procurement delivery system and the relationship with stakeholders	8.2.3
Project governance and stakeholders	8.2.4
Delivering values in the engagement process	8.2.5
Social effects on stakeholders	8.2.6

Input from the themes will be used to structure the for best practice guidelines in stakeholder engagement.

8.2 Cross-case Synthesis

Cross-case synthesis is necessary to build a body of knowledge from individual case studies. Research synthesis is used as a collective term for a family of methods to summarise, integrate, combine and compare the findings of different studies on a specific topic or research question (Cruzes & Dybå, 2011). It is built on the observation that, regardless of the design and execution, empirical findings from single studies are limited to the extent to which they may be generalised (Cruzes & Dybå, 2011). The synthesis of case studies must consider the flexible nature of the cases, the mixed qualitative and quantitative characteristics of the data, and the type of cases being studied. Flexibility in the choice of methods for performing a case study is one of the characteristics that leads to challenges in conducting the synthesis (Cruzes et al., 2015). For further discussion, findings from the case studies has been narrated across abovementioned themes.

8.2.1 The stakeholders: which stakeholders are involved, and how to identify stakeholders.

Upon analysing the data, it became apparent that the selected case study projects explicitly implemented a stakeholder engagement process in the initial stages of the projects. Case Study 1 of M2PP in New Zealand is a leading example of the engagement and consultation process for infrastructure projects. A large amount of information was accessible to the stakeholders and community through the M2PP central website and the Transport Agency website regarding the project and stakeholder complaints and concerns. The information could be retrieved based on analysis of communities' comments, reports on the ongoing projects, newsletters and environmental impact assessment documentation. These indicated that there was two-way communication between the project owner and stakeholders, with the stakeholders' feedback, interests, insights and opinions on the project shared with the public. The stakeholders' feedback covered a wide spectrum of topics, ranging from comments on the various proposed design and alignment options to environmental and community concerns. This feedback was taken seriously and published to indicate the transparency of the process. Moreover, the stakeholder engagement process was part of the decision-making process, as agreed by Mathur et al. (2008) and Bal et al. (2013). Mathur et al. (2008) stressed that meaningful stakeholder engagement can be seen to enhance inclusive decision making, promote equity, enhance local decision making and build social capital. Systematic engagement will improve stakeholders' understanding and decisions. Thus far in the literature, there were lesser standard procedure written in emphasising the stakeholder engagement process in infrastructure projects. The case study of the M2PP statutory framework of stakeholder engagement was based on the NZTA Public Engagement Policy (2008), which commits to:

1. providing opportunities for public consultation

2. ensuring people are informed
3. adopting and representing an approach to public engagement
4. maintaining highly professional public engagement standards.

In all four case studies, the engagement process could be more thorough. However, in New Zealand, the process seemed to be more systematic, while, in both Malaysian case studies, the process seemed more rudimentary. The engagement processes in New Zealand often create stakeholders who are informed and use early collaboration which has resulted in a shared understanding of the priorities and concern of each party. In contrast, Malaysia infrastructure project, are still elemental in project collaboration, when the guideline on the process was not systematically specified and limited. The differences in the stakeholder engagement processes between these two countries occurred because of the nature of the project and the multiple and varied groups involved with the project. In Case Study 1 of M2PP, external stakeholders and the community were the major influencer of the project. During the consultation process, four stages of engagement had major involvement with stakeholders. The stages included Stage 1: inception and clarifying scopes and process; Stage 2: option investigation and project parameters; Stage 3: preliminary design and options concepts; and Stage 4: scheme assessment, testing and refinement. In Case Study 1, one of the unique engagement techniques (compared with the other case studies) was the establishment of the CRG. As discussed, the CRG enabled high-level dialogue between locals and the community with the alliance regarding critical issues, and disseminated information to the wider community. This is where the values of transparency of the stakeholder engagement process could be seen as effective.

Case Study 2 of the Further North Alliance used a similar approach, with four phases of stakeholder engagement. Likewise, each phase of the consultation program was guided by

the IAP2 Public Participation Spectrum and the NZTA's own guidelines for best practice. The Further North Alliance specific consultation objectives were identified in Phase 1 (consultation to seek feedback) and Phase 2 (gather feedback on the indicative route), which identified all stakeholders' and local people's concerns and preferences regarding the project. The consultation phase was trying to build positive relationships with the affected and interested parties on consent, design and construction before the planning alliance was formed. This practice aimed to enhance the reputation of the NZTA among the community. Similar to M2PP, a door-knocking exercise was implemented in the Further North Alliance case study.

The scenario was different with the two Malaysian case studies. Both of the railway projects (Case Study 3 of KVMRT Line 1 and Case Study 4 of KVMRT Line 2) notified stakeholders and the public when the project received approval to advance planning. At this stage, the design was merely a brief and the stakeholders involved were not part of the design option activity. In the Malaysian case studies, MRT Corp, as the developer of the KVMRT projects, had set the standard in the Malaysian construction sector, especially in terms of stakeholder management. Both case studies adopted a standard practice that any community living near or operating businesses adjacent to the MRT line must be kept informed of construction activities. At the moment, no standard method or guideline for the engagement process has been used in a Malaysian infrastructure project. In New Zealand, the process has a better guideline and phases, with improved understanding of the system dispersed to stakeholders and the community. In Malaysia, for more complex projects, it is necessary to establish a new guideline for the engagement process, whereby the system should be more transparent, balanced and structured.

One of the challenges facing any infrastructure project is ensuring seamless information exchange and real-time collaboration with stakeholders, regardless of the

platform they are using. There is high probability for error if information is not well managed in a common data environment, especially for highly collaborative projects involving the government (such as the KVMRT). These types of errors can lead to construction delays and increased costs because of changing orders and reworking to rectify issues.

The more complex the project delivery, the more complex the stakeholder engagement process involved. It is believed that stakeholders, the community and the public should be engaged early and closely to obtain their feedback and use this feedback as part of the decision-making process. Moreover, the management and project team should provide transparent information to stakeholders and the community. A community report plan is a convenient way to disperse the necessary information to the public. This plan can enable stakeholders and management to improve their mutual understanding of the design concept, which can lead to a better stakeholder engagement process.

8.2.2 Internal early preparation and planning (method for stakeholder engagement and planning)

Based on the interviews with key stakeholders and documentation studies of M2PP, during the initial plan, fewer stakeholders were engaged with the project. The alliance team personnel thinking for the other alternative such as town hall meeting, newsletter and knocking from door to door, in which they learnt that having public engagement, project booths and expos are insufficient to engage with the community. The issue was rectified by holding more engagement sessions and door-knocks of the houses in the affected community. Learning from early experiences, stakeholder engagement with the community was expanded. The project owner implemented three stages of consultation, with the first phase managed by the NZTA. Stage 2 (preliminary design and options concepts) and Stage 3

(scheme assessment—testing and refinement) were fully managed by the M2PP alliance team.

The project owner confirmed that stakeholders were involved from day one, and arranged a series of meetings with stakeholders and the community. In addition, the project team owner wrote to the affected stakeholders and announced the project in the national media (national television station and newspaper). At this stage, the project owner offered the stakeholders information to help them understand the project, and informed the community and public about the project and affected area. The engagement process progressed smoothly throughout the initial process, especially in Stages 2 and 3, and has been recognised as a good practice approach that included significant levels of interaction with stakeholders at all required levels. Ongoing involvement from 2010 to 2013 and clear communication with relevant regulatory agencies were also implemented as part of the preparation of regulatory consent documentation.

Based on the case study interviews and observations, KVMRT had the same problem as M2PP, with fewer stakeholders engaged at the beginning stage of the project. This was attributable to the earlier process, where the transport agency managed the engagement process and before MRT Corp was established. The engagement process was strategised, starting from educating the community and other external stakeholders after the handover of the role to MRT. The agency developed connections with the community through programs they had formed. This included engagement with campaigns and events. This process aimed to promote awareness about the MRT project and educate the public about the need for MRT. One of the successful campaigns was the KVMRT logo competition and the ‘I Love MRT’ slogan. The agency also provided updates on the progress of the construction of the Sungai Buloh–Kajang line through social media, such as Facebook, Twitter and Instagram. This shows that the KVMRT project was more actively engaged with the community to raise

awareness about the benefits of the project. For example, the project owner, MRT Corp, approached public schools within the Klang Valley vicinity. This exercise helped develop awareness among schools and students of the importance of MRT as a public project.

The NZ and Malaysian cases developed a different range of approaches for engaging stakeholders and the community in the infrastructure projects. The case studies indicated that, during the initial process, it is vital to engage as many stakeholders as possible. Issues will develop if stakeholders affected by the project are overlooked. This relates to the sensitivity issues of the stakeholders both in M2PP and KVMRT Line 1, where they feel they are part of the project. The public and community should know what will occur in their area and if their land will be affected.

The project owner needs to ensure that stakeholders and the community are engaged early and closely with the project. Awareness campaigns involving the public and the community are needed. Such campaigns develop awareness and obtain feedback and opinions from the public on the project. Stakeholders and the community wish to be part of the project. It is essential that their opinions be heard and their ideas be developed in the expressway design. Therefore, it is vital to improve methods to engage the community and stakeholders to achieve project success. Throughout the cases, the public and community developed awareness and broader perceptions on the importance of building the public infrastructure.

8.2.3 Procurement: the procurement delivery system and the relationship with stakeholders.

In any infrastructure project, the project delivery system can influence the engagement process. A conventional procurement system is less complicated than the collaborative procurement system. In terms of stakeholder involvement, the process is less

complicated in conventional procurement than in collaborative procurement (Yang et al., 2009). One of the main differences in these delivery methods is the types of relationships between the project stakeholders and the timing of stakeholder engagement in the project (El Asmar, Hanna, & Loh, 2013, 2015; Konchar & Sanvido, 1998). Tang and Shen (2013) identified that, in PPP projects, the situation of stakeholders is more complicated. Further, the relationship between organisations in the public and private sectors, experience of undertaking PPP projects, engaging with stakeholders in the design and the bids assessment criteria for the project are perceived to be crucial to the success of PPP projects. In New Zealand, alliance procurement and PPP have been used extensively in infrastructure projects. PPP was proven as the reliable procurement method in project collaboration as supported by Chan (2003). Chan (2003) identified the benefits obtained from the use of partnering in PPP projects, including improved relationships and communication among project participants. Innovation in construction increases when moving from traditional procurement methods to more collaborative procurement methods. This is because the nature of the system becomes more complicated and key members and stakeholders have more influence at an organisation level.

In New Zealand, the engagement process occurred much earlier. The alliance gave the community a better idea of when the investigation, design and construction work on the expressway was likely to occur, what it would involve, and how they could participate. For the involvement, the alliance established a shop front in the Kapiti area, where the community was able to talk with a member of the project team and obtain the latest updates. In contrast, the project team for the Malaysian case studies only involved stakeholders and the community once the project was close to commencing. They should have involved stakeholders much earlier and provided an option to the community to choose the preferred alignment, as in the New Zealand case studies. The Malaysian cases could have involved and

consulted with stakeholders so the stakeholders could contribute to decision making in the project. Ensuring good project collaboration with stakeholder involvement will minimise risk regarding the community during construction. Stakeholder engagement and public participation exist to promote equity and fairness because individuals and groups who are excluded from the decision-making process are unlikely to have their needs and preference reflected in the project outcomes.

8.2.4 Project governance and stakeholders

In New Zealand, the project was governed by the NZTA as the asset owner. In the future, some of the expressways in New Zealand will likely be involved with alliancing. M2PP presents a good example of alliancing when dealing with NOPs in a project. The M2PP alliance structure involved the owner, local council and three NOP representatives, which included representatives from the main contractor, civil and structural contractor and civil infrastructure contractor. In terms of governance, a three-level structure comprised the PAB, AMT and wider alliance team. Unique in this governance was the appointment of the alliance manager from an independent consultant. The reason for employing an independent consultant as an alliance manager was to gain confidence from the NZTA for the project and fairly represent the alliance during public consultations with various interested stakeholders and the community, and equally attained the various interest of the NOP. The case study with the planning alliance offered a professional legal service during the early planning stage. Unlike the M2PP case study, the later stage of the Further North Alliance Expressway was procured by PPP. Engaging the legal firm in the planning alliance built innovation in the team culture and give opportunity to the team to approach practices differently.

In contrast, Malaysian KVMRT Line 1 and Line 2 projects had different approaches to project governance structure. The KVMRT projects were part of the national infrastructure agenda as stated in Malaysian Economic Transformation Programme. The MRT Corp implemented the projects and they were supervised by technical and executive committees and chaired by the Prime Minister. The supervising committee was the agency under the Prime Minister's Department. The government acted as both the contracting party and regulating authority.

8.2.5 Delivering values in the engagement process.

Buckley (2012) stated that, in large-scale resource projects and major transport infrastructure, it is important to build strong and effective relationships with local communities and other important stakeholders. The involvement of new types of stakeholders complicates the already complex construction process (Storvang & Clarke, 2014). The stakeholders involved have various interests, including supporting, opposing, partially supporting, partially opposing and holding a neutral stance in regard to the project. Engaging stakeholders with the project decreases the problems and risks that may arise during construction. It is important to consider stakeholders' behaviour during the engagement practice to identify the best ways to communicate with stakeholders. Determining the type of stakeholder and which communication method suits the stakeholder can lead to a better decision-making process.

The difference between the infrastructure projects in New Zealand and Malaysia included the structure of the stakeholder engagement process and the phases involving the stakeholders. The main issue here was how the stakeholders interacted with the project, how the stakeholders participated in the project and what issues might interest the stakeholders.

Stakeholder engagement should be enhanced to attain a positive relationship in the engagement process. As presented in Chapters 4 and 5, both New Zealand case studies used the IAP2 as the basis of stakeholder participation. The crucial period of gathering stakeholder input occurred during the 'inform' and 'consult' phases. The project team used numerous mediums of communication to reach stakeholders who were affected by the project. Most of the stakeholders affected were landowners, local businesses and the local community. The stakeholder behaviour during the engagement process indicated how the engagement should be implemented. By focusing on IAP2 as the basis of communicating with stakeholders, engagement focused on practical tools and best practice was made the primary resource for developing the public participation process. Rowe and Frewer (2005) stated that an international trend towards increased involvement with public participation has been recognised by governments, practitioners, regulators and academics. The NZTA has extensively used these engagement approaches as the primary resource to develop the public participation process in their infrastructure projects.

In contrast, in the Malaysian case studies, the development of stakeholder engagement was still elementary. Both case studies in Malaysia had a stakeholder management team, yet did not rely on any international standard of public participation (such as IAP2) as the basis for stakeholder participation. In fact, the project stakeholder teams from both case studies were unaware of the IAP2 standard. The activities involving stakeholders and public participation in Malaysia still lack wider stakeholder engagement practice input such as the correct method of engagement and stakeholder identification. Innes and Booher (2004) evaluated the flaws in participation methods in the United States, alongside cases of using the emerging model of collaborative participation from around the world. The spectrum of public participation (IAP2) can be a good practice for stakeholder engagement process in Malaysia infrastructure. Innes and Booher (2004) claimed that one of the purposes of public

participation is to promote equity and fairness because individuals and groups who are excluded from decision-making processes are unlikely to have their needs and preferences reflected in the outcomes.

It has been debated by Innes and Booher (2004) and Susskind (2008) whether it is wise to implement the IAP2 as the basis of the engagement process for every project. Susskind (2008) argued that the spectrum is generally theoretically accepted and has been used in many public participation activities. In the current research, considering both countries' case studies, the IAP2 could be a standard practice for their infrastructure projects, with small adjustments made to suit the nature of each project. Although research by Susskind (2008) stated that the IAP2 is not particularly helpful from a theoretical or practical standpoint, the findings in Chapter 4 stated that the IAP2 could be modified to enable public participation, but not as a general standard that can be used in any sector. Infrastructure projects involve multiple stakeholders with different power and interests can use tailored IAP2 and this spectrum of public participation can be good practice for stakeholder engagement process in Malaysia infrastructure.

Compared with other sectors, infrastructure projects have strong stakeholder interest. Ng et al. (2012) stated that projects of low and medium sensitivity may largely attract local residents' attention, while highly sensitive projects are usually of strategic significance and national/regional interest. More participation should be developed for highly sensitive projects to ensure appropriate engagement exercises, commensurate with the potential effects on the community (Civil Engineering and Development, 2009; Deegan & Parkin, 2011). The method of engagement in the IAP2 spectrum can be enhanced according to the nature of the project and sector. As a result of the complexity of the projects, some stakeholders can be overlooked who should be involved. The New Zealand case studies embraced the method of information dispersal at the start of the consultation, aligned with the inform level of the

IAP2 participation activities. These methods were used extensively by the stakeholder management project team to ensure that the stakeholders and community were aware of the project. The method of information dispersal gave insight to the community to participate in the consultation process. Although the dispersal technique was observed in the Malaysian case studies, the project owner did not provide any option to the stakeholders and wider community to choose the design of the proposed railways. The community were merely told that there would be a mega infrastructure project constructed in their area. Little awareness of stakeholder engagement activities during the construction can lead to many unidentified problems in the early stages of projects. However, the project team in Malaysia were good at resolving problem during the construction of the project. The responsive CMS was a good example used to deal with problems and stakeholder complaints regarding the project. The system was able to identify and rectify potential problems regarding safety, health issues and quality of work at the site.

8.2.6 Social effects on stakeholders

Cleland and Ireland (2002) agreed that project teams need to know the essentials for managing stakeholders. The project team responsible to inform, make aware of the stakeholders involve, should be knowledgeable on the stakeholder and community within the project surroundings area. Both New Zealand's expressway cases are good examples of stakeholder engagement process during the early planning stage, whereby they undertook door-knocking activities with landowners in the affected neighbourhood. The management team should reach out to people to ensure all affected landowners are aware of the project. Communities were crucially involved at the beginning of the engagement and during the consultation phase. In Malaysia, this method was not implemented. Instead, one-way

communication was the method of dispersing information to the community. It is difficult to identify stakeholder interest when the specific stakeholders involved with the project are not included. Although compensation was paid and affected owners were relocated, issues were still raised by the stakeholders. Ng et al. (2012) added that management must devise an implementation plan according to the identified participatory technique to ensure public opinions are effectively and efficiently collected. Proper planning should be undertaken to record stakeholder interest, concern and scope. The case studies in New Zealand and Malaysia had databases to record the stakeholders involved, but the New Zealand one was more sophisticated whereas in the Malaysian case studies, the stakeholder list was recorded in a traditional flat file database.

8.3 Practical Implication of Stakeholder's Engagement Process in Infrastructure Projects in New Zealand and Malaysia

This research's findings were interpreted to highlight the common features that could be improved during the process of engagement, especially during the earlier stages. Project teams have a responsibility in the engagement process to encourage meaningful engagement between the project team and stakeholders. Below are some common observations cross all the case studies.

8.3.1 Implication of engagement process for project success.

It is important to strengthen stakeholder and project manager/project owner coordination and collaboration during infrastructure projects through:

- a comprehensive and effective plan or framework to ensure two-way communication between the project team and stakeholders

- improving public awareness of the project during the preplanning stage to help manage public perception
- forming a task force for the engagement program before the planning phase begins to help monitor the process
- identify affected stakeholders and develop a relationship that can be included in the project decision making
- ensuring proper coordination of stakeholder identification to help the project team and key stakeholders minimise the discomfort that arises during the construction stage from both parties.

8.3.2 Managing uncertainty during the planning stage

It is important to manage the stakeholders and identify the stakeholders' uncertainty and risk during construction:

- The goal of stakeholder engagement for project success is to minimise risk upfront for the affected stakeholders and the public.
- If independent stakeholders, such as individual land owners, suddenly emerge when construction has started, this can affect the project.
- Using a geographic information system can identify any stakeholders/public within the project site.
- A stakeholder engagement plan by management is needed to enhance public engagement so they accept and are prepared for construction.
- Early publicising of the project through social media will help gain stakeholder attention. Door-to-door contact is a viable option.
- It is necessary to develop a standard operating procedure to identify:

- the type of stakeholder affected
- the domain of stakeholders affected, such as land owners and reserve land
- the area along or near the project alignment.
- It is important to determine the interests of each stakeholder—knowing that different stakeholders have different interests and needs.
- It is important to determine the affiliation of each stakeholder and respond to the issues as they arise on feedback during the consultation process.

8.3.3 Strategies from the management perspective to minimise issues with key stakeholders

It is necessary to develop a public engagement plan that should be implemented for infrastructure projects. This plan should include:

- self-assessment to ensure the level of engagement of stakeholders involved
- knowledge of the most affected group, and their acceptance towards the project
- an awareness program of community and public stakeholders and the process involved.

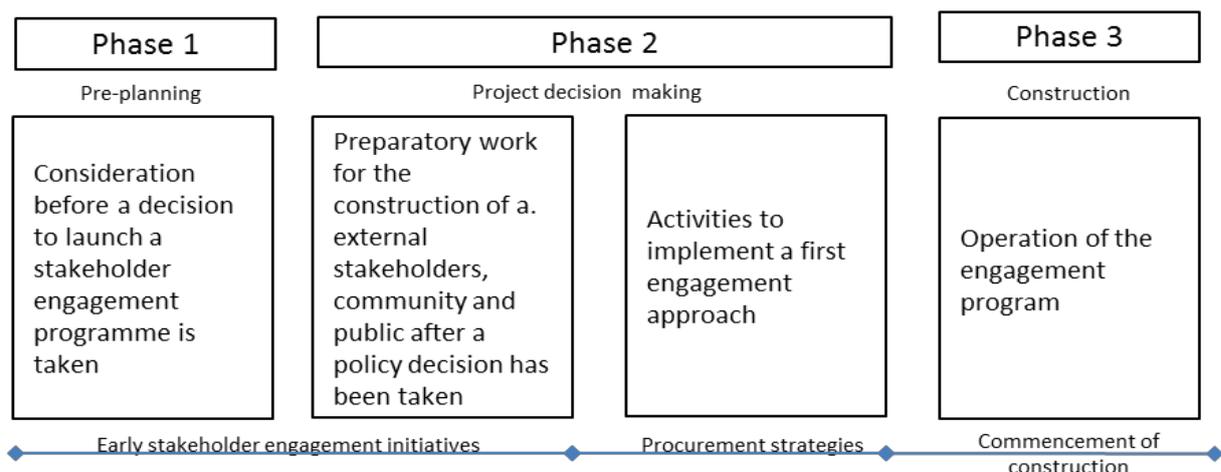


Figure 8.1. The process of engagement awareness program (Author's own).

It is also important to develop an early stakeholder engagement initiative, with the following features:

- The initiative should include the significance of the stakeholder communication plan and strategies.
- The establishment of a significant plan and strategies for stakeholder collaboration in the project should be developed according to the infrastructure project.
- The engagement process should be assessed by providing open channel communication to the public and educating them through the media.

8.3.4 Understanding the design concept

The engagement stage could be improved by each party gaining mutual understanding of the design concept of the project. The public would like consultation undertaken at the very beginning of the project. In Malaysia, the community held a protest on the land to be overtaken by the project because they felt they were not being properly consulted during that phase. The affected community expected clear answers regarding whether their property ownership rights would be jeopardised, with residents having to vacate their buildings before the project commenced. During the design option phase, the design should be presented to the stakeholders and public. Stakeholders can then make a decision based on the available options and the majority voice.

8.3.5 Implication for future studies on infrastructure projects.

The stakeholder and public engagement process highlighted that stakeholders and the community require careful consideration. The project owner should use sensitivity to acknowledging stakeholders of the project. Based on the case studies, certain aspects could

contribute to successful stakeholder engagement in infrastructure projects. During the initial planning stage of the project, the agency should decide on the right agency or organisation to handle the stakeholders, community and public. It has been understood that the project owner has control of the stakeholder issues. Project owners can access, map and analyse stakeholders for the project and notify the affected stakeholder regarding land acquisition. Forming the appropriate in-house team or organisation at the beginning could help solve the problem of ‘double-handling’ the stakeholders. This would also reduce management costs.

Moreover, during the engagement process, the project owner could classify stakeholders based on their respective levels of importance. The stakeholders include external and internal stakeholders, as well as the community and public as indirect stakeholders. Stakeholders’ level of importance can be identified by marking them with the level of intensity of the stakeholder involvement. These levels could be differentiated as:

- Level 1—high impact, which involves key and directly affected stakeholders
- Level 2—the community and landowners whose land will be devoted to the project
- Level 3—moderately affected stakeholders, such as NGOs, environmental agencies, residents’ associations, traders and the local council
- Level 4—the public directly and indirectly involved with the project.

Within these levels of importance, the stakeholder are known and appropriate engagement systems can be developed for each level. The tools and methods to be used at the early stage should comply with the level of intensity. The project owner must make a clear plan of what types of tools suit the level of importance. For instance, for Level 4 stakeholders, increased campaigns and advertising regarding the proposed project could be undertaken to show the whole picture of the project. In Malaysia, the need for engagement methods, such as BOI, should be considered. An independent board could exist to consider matters such as

submissions of arising issues, holding hearings and making final decisions regarding any important matters. This will increase the level of transparency and trust among the affected stakeholders.

Evaluation of project success will be more difficult in term of cost, time and quality because of the need to consider the perspectives of different stakeholder groups. There may be practical benefits to policy development to improve the way project success factors are assessed by stakeholders. Evaluating stakeholder engagement as one of the measures to project success.

8.4 Validation result

Following a validation procedure as suggested by Maxwell (2005), the reliability and validity of the data were ensured through the collection of multiple sources of evidence which were triangulated using interviewed data obtained from expert validators such as stakeholder manager, the project manager, engineer and selected interest group representative. The validation was undergoing stakeholder's observations and analysis of documents relevant to the case study of the infrastructure projects. Triangulation is one of the defining features of a case study. Triangulation refers to the collection of data through different methods or even different kind of data on the same phenomenon. These techniques are commonly applied in social science research to reduce errors and bias in studies and to provide credibility to the result (Yin, 2009). The use of multi-methods or triangulation is not new and can be traced back to Campbell and Fiske (1959) earlier research, who argue that to ensure validation one should use more than one method. In the case study method, it is particularly important as we need to check and validate the information we received from various resources and examine it from different angles (Ghauri and Gronhaug, 2002). For this study, the process of stakeholder engagement was deduced to check what are the current practice that been

implemented in infrastructure project through out the case study, stakeholders thoughts by interviewing them and study the formal documents through report, project report. In essence, triangulation was used to reduce the likelihood of misinterpretation. The research employed various procedures to increase the understanding and explanation of the study.

In this research, case data was build up through interviews from the preliminary case study, written documents and observation. When planning the interview for the preliminary case study, it is important to gather the information from many angles, so, in this study project stakeholders, internal and external stakeholders to get the multiple viewpoints. To support the interview, project documentations, project reports and stakeholders report was analysed. The numbers of reports written documents on each of the case studies ranged between 15-17 and incorporated such material as correspondences between the two firms, contract drafts as well as the final contract, technical specifications; and relevant government rules and regulations. It was therefore possible to compare data between the interviewees within the same project, between different projects, and in comparison with the written records of the each project. The comparison of archival data and interview data is not only option. In this research, the researchers made a connection with the experienced project personnel and the ultimate representative from each and every interest group to build on trust and mutual respect between the project personnel and the researcher, provided real insight into face-to-face situations and increased the understanding of the process of stakeholder engagement in infrastructure projects. There are problem with triangulation. Sometimes it can be done to judge the accuracy if the results from different types of project and resources are not consistent. It needs to be kept in mind that all research methods have advantages and disadvantages when it comes to different research problems. As such, triangulations or the usage of multi-method approach on the same study object can be useful even if we do not get

the same results. It led to a better understanding or to new questions that can be answered by later research.

8.5 Summary

The findings from the four case studies indicate the process and methods used during the early preparation and alignment of stakeholder issues. The case studies selected from New Zealand and Malaysia indicated the process of stakeholder engagement in the two different countries by comparing a developed and developing country. Themes were filtered according to the research and what could be learnt. The themes were grouped by the different sub-headings derived from cross-case synthesis of four case studies. Five themes has been identified which include; *a)* the stakeholders involved and how to identify the stakeholders, *b)* internal early preparation and planning, *c)* the procurement delivery system and the relationship with stakeholders, *d)* project governance and stakeholders, *e)* delivering values in the engagement process, and *f)* social effects on stakeholders. Later in the chapter highlighted practical implications for stakeholder engagement processes in infrastructure project in comparison with New Zealand and Malaysia. The practical implications highlighted the implication of stakeholder engagement towards project success, managing uncertainty during the planning stage, strategies of engagement from the management perspective, and implication of the engagement process for future studies. One of the main points in practical implication highlighted the stakeholder management is incorporated into project management and involves meticulous planning and strategic implementation.

CHAPTER 9

Best practice for Stakeholder Engagement Process as a Guideline for Infrastructure Projects

9.1 Introduction

Having completed four case studies examining stakeholder engagement, and compared them in Chapter 8, this chapter brings the research together to provide practical guidelines for stakeholder engagement on infrastructure projects. This chapter focusses on one of the key research questions in this thesis “What are the best practices that could be derived from the stakeholder engagement processes?” and uses the best practices derived from the case studies in New Zealand and Malaysia to provide answers. Although these countries are different in geography and politics, the implementation of stakeholder engagement in the cases show complementary processes and management of stakeholder needs. The best practices highlighted help establish a guideline for stakeholder engagement for future infrastructure projects. Only limited guidelines exist to indicate the optimal approach to engaging and managing stakeholder in complex infrastructure projects. This research helps close this gap by proposing five recommendations for key stakeholders, project owners, project developers and public agencies regarding how to improve the stakeholder engagement process, especially when using the collaborative procurement delivery system.

9.2 Best Practice Guidelines for Stakeholder Engagement for Infrastructure Project.

This research has developed an extensive set of usable guidelines, in accordance with the previously identified themes in Chapter 8. The guidelines developed from this research can be used as complementary guidance material for project developers of infrastructure projects who manage stakeholders and are involved with the engagement process. This research presents best practice guidelines derived from four infrastructure projects across New Zealand and Malaysia.

9.2.1 Best practice guidelines for process of stakeholder engagement

Item	Key Points	Descriptions
1	Pre-engagement process	<p>The project owner needs to evaluate benefits from the stakeholder engagement process by: (i) maintaining a clear scope, (ii) reducing risks for stakeholders, (iii) holding regular meetings and special interest group meetings and (iv) providing a platform to capture all ideas during the preplanning and planning process.</p> <p>The project owner needs to include innovation in the process of engagement by extending the mechanism of consultation (e.g. through social media and other networks, or by incorporating a geographical information system to identify the stakeholders in infrastructure projects).</p> <p>The project owner should reinforce the importance of stakeholder mapping as a process of identifying stakeholders.</p>
2	Community	<p>The project owner needs to involve the community in the early stage of the project.</p> <p>The stakeholders—especially the public and community—should be involved and informed to make them part of the decision making.</p> <p>Community-based activities should be held frequently to keep track of the day-by-day or time-to-time progress.</p> <p>The leader or representative of the community, special interest group or affected stakeholders should be invited to visit the project.</p>
3	Stakeholder concern and feedback	<p>The project owner needs to realise stakeholder interests and concerns before moving to the next phase.</p> <p>Stakeholders need to cooperate on the project phase, giving wider feedback on topic/interest/concern regarding the project.</p>
4	Landowner	<p>The project owner needs to engage directly and continuously with the parties whose land will be subject to purchase.</p>
5	'Inform' stages in the engagement process	<p>Phases of stakeholder engagement should provide the community and public with balanced and timely information to help them understand the project and approval of the project.</p>

6	ICT	The project owner should have a standard database and enter all the stakeholders who have reported or commented on the project. This will make it easy for the project owner to track the record.
7	Developing stakeholder database	The project owner needs to develop a systematic stakeholder database for the infrastructure project to index stakeholders' names, details, interests, stance, level of participation and level of awareness of the project.
8	Methods of engagement	The right methods must be used in the engagement program—(e.g., public hearings are a major engagement tool that needs to be implemented in any infrastructure project.) Tools should be developed which encourage the stakeholder voice in the public hearing session to the wider community to be heard.
9	Tools	The project owner needs to use tools, such as a series of project expos and information trucks, as the best option to reach communities. The stakeholders need to be kept updated.
10	Mitigating measures	The project owner needs to act transparently towards the affected stakeholders and by encounter any issues arising during the consultation meeting soon as possible. Project owner needs to take serious action in dealing with stakeholders whose felt their interest are being manipulated by the project owner, by explaining the process. The project owner needs to provide a platform of learning, understanding, informing and educating stakeholders. A continuous communicating process during construction helps maintain a good relationship between the project team and stakeholders.

9.2.2 Best practice for internal early preparation and planning

Item	Key Points	Descriptions
1	Early stakeholder engagement	The project owner needs to engage the stakeholders as early as the project definition phase of the project, so they are identified and involved in order to bring together construction and design options to the stakeholders and the community.
2	Sense of ownership	The project owner should identify stakeholder interest, concerns and scope early in the process. The project owner needs to work with landowners early, especially if relocation is required. Stakeholders should be given channels to speak. Stakeholders with influence on society and high expectations should be included in the project management process.
3	Manage complaints	The project owner needs to establish a system to manage complaints from stakeholders regarding the project (CMS) to accommodate any concerns regarding the project (such as noise, dust and land ownership). The project owner should establish dialogue and effective processes to address complaints and built trust.
4	IAP2 spectrum	The IAP2 spectrum can be a generic spectrum of participation involvement in infrastructure that can be a baseline for infrastructure projects.

5	Early start team	The project owner needs to set up an Early Start Team (EST) as a specialist team that has the ability to engage with stakeholders. The EST should implement a systematic approach to stakeholders to help them identify opportunities for positive outcomes.
6	Stakeholder management and communication plan	The project owner needs to prepare achievement milestones in the planning phase. Submitters should provide feedback at the very beginning of the investigation phase.
7	Ease of decision-making process	Decision making should be transparent and help minimise any social risk associated with early stakeholder engagement for poorly undertaken consultation and engagement. Experienced personnel with a human relations background should be added to the team.

9.2.3 Best practice for procurement delivery system and the relationship with stakeholders

Item	Key Points	Descriptions
1	Use of collaborative procurement	The key stakeholders need to be part of the collaboration exercise. There are numerous complex and unpredictable risks that cannot be readily quantified and easily allocated to only one party, and need to be managed collectively. Collaborative procurement improves stakeholder and community relationships. It is important to develop alliancing agreements (or collaborative agreements) that are agreed to in advance by potential alliance parties, including commercial and legal frameworks and dispute resolution procedures.
2	Key stakeholders	For infrastructure projects, it is good practice if the project owner is open to collaborative procurement (e.g., alliance or PPP) for consistent delivery of the output of various stakeholders involved. Through collaborative procurement, opportunities can be explored with other parties on agreed policy and services, which can shape the relationship as the key stakeholder of the project.
3	Independent parties	The project owner needs to assign an independent project developer/project manager to lead the public consultation with the community.
4	Collaborative procurement plan	The project owner needs to establish and implement a procurement plan to enhance collaboration and the other benefits of collaborative delivery, and in agreement with the reasons that the delivery method was chosen. The project owner needs to develop a ‘collaborative strategy’, where parties are working with the same team to further develop relationships, and each party becomes more comfortable with each other, thereby producing better results. The project owner could ensure there is a model outline for effective decision making (such as for developing a collaborative strategy).
5	Contract and	Contract and procurement strategies should help with stakeholder information promotion. Those strategies that have reasonable mechanisms

procurement strategies	for sharing risk, such as PPP or project alliancing, can act as innovation stimulants in infrastructure projects.
------------------------	---

9.2.4 Best practice for project governance and stakeholders or (governance approaches in managing the infrastructure projects)

Item	Key Points	Descriptions
1	Structure of project governance	The project owner needs to present the structure of project governance to the public to give a clear picture of how the decisions are made by the management, since the project governance provides accountabilities and responsibilities with the organisation capital investment.
2	As an influencer	The project owner must supply information to the stakeholders on the structure of the project governance.
3	Legal agency	It is important to involve a legal agency as part of alliancing/key stakeholders to enable better decision making and an effective legal documentation process.
4	Understand the objective	The project owner and stakeholders must understand the objectives and vision of a business to understand and appreciate the project governance framework.
5	Shared leadership	Successful project governance requires shared leadership between the project owner and government agency, which can eliminate inefficiencies.

9.2.5 Best practice for delivering value in the engagement process

Item	Key Points	Descriptions
1	Culture of care	Early involvement of the stakeholders or key participants is seen as one of the influencing factors in building a 'culture of care'.
2	Communication gap	With increasing digitisation of information, it is essential to provide timely and transparent data, such as through a website that is accessible to the public, consisting of easy to understand information regarding the project and stakeholders.
3	Pre-engagement process	The project owner needs to provide good service performance during the early planning of the project to maintain good relationship with the stakeholders.
4	Responsiveness	The project owner must maintain a 'customer focus' in the project to establish relationships through mutual understanding, and continuously improve.
5	Built trust	As a good management practice in collaborative procurement, the project owner needs to build up trust with stakeholders by providing truthful resources that are made available through numerous channels, such as

		websites, newsletters, and annual reports to report the activities and interests of broader stakeholders. Stakeholders must be well informed and made to feel as though they are engaged with the project.
6	Conflicting interest	The project owner needs to reduce misunderstandings by establishing systematic procedures for tackling most stakeholder concerns. Stakeholders need to give support to the projects to allow room for development.
7	Management skills	The project owner should have good management skills, not be defensive and trying to minimise the amount of interference.

9.2.6 Best Practices for social effects on stakeholders

Item	Key Points	Descriptions
1	Environmental issue	The environmental impact assessment should analyse whether it is practical to construct the project in that particular area. The project owner needs to allow more focus on strategic issues, such as environment, noise, safety and land issues. Issues that will arise—such as money issues, land acquisition and distribution of funding—should be managed by the project owner.
2	Comprehend with land acquisition law	Ensuring transparent and tested land acquisition laws and agreements between stakeholders over fair compensation plays an important role in the timely and successful completion of the project.
3	Report made available online	The environmental report should be made available to stakeholders, so the community have an idea of the current activities regarding the environment, health and safety aspects.
4	Sustainability in engagement process	Stakeholders should be prioritised according to the power matrix—i.e., who has the highest decision-making power; who contributes economically, socially and environmentally; and who is linked directly to the project.

CHAPTER 10

Conclusions and Recommendations

10.1 Introduction

This chapter concludes the thesis. This study addressed five main research objectives. These objectives were researched under the four phases of research process outlined in Chapter 1. The section below describes the findings from each objective. The limitations and implications of the study are addressed in this chapter, as well as future research opportunities. The overall aim of this thesis is to enhance the establishment of best practices and determine the implications of a stakeholder engagement process approach that is more suited to the complexity and uncertainty that characterise infrastructure projects. This research examined the improvement of the stakeholder engagement process during the early stage of construction projects, as a process to facilitate the early involvement of stakeholders in the context of infrastructure projects. In this chapter, the results from the literature review, content analysis, multiple case studies and interviews are drawn together and synthesised according to the research objectives. There are currently no comprehensive practices for arranging the stakeholder engagement process to maximise values for infrastructure projects. As such, there should be greater emphasis on value-adding activities and consideration of social wellbeing factors for stakeholders and the public and this is what the thesis has tried to do through the best practice approaches for stakeholder engagement.

The findings emphasised that one starting point for stakeholder involvement is to evaluate and understand the stakeholders from the perspective of the customer, and to determine their relevance to the project. In undertaking this analysis, questions were asked about the stakeholders' positions, interests, influence, interrelations, networks and other characteristics, with reference to their past and present positions and future potential.

The diagram below presents a theme outline of the overall thesis planning throughout the four main phases. Phases 1 and 2A of the thesis were achieved in Chapters 4 and 5, respectively. Phase 1 investigated the influence of the stakeholder engagement process on project collaboration. Phase 2A was explained in Chapter 5, which highlighted the process used in the infrastructure project in New Zealand. The project was taken as a preliminary case study, mainly to observe how a large infrastructure project procured in a collaborative delivery system was conducted. This chapter drew attention to the way the engagement process was prepared and arranged. Phase 2B emphasised the process of stakeholder engagement across countries. In this phase, another three case studies were used to examine the engagement process and collaboration with projects. Chapter 5 depicted the case study of an expressway in New Zealand, while Chapters 6 and 7 investigated the process in railway projects in Malaysia. The similarities and differences between the case studies were explained throughout the chapters, with recommendations made for New Zealand and Malaysian infrastructure projects to improve their use of stakeholder engagement.

In Chapter 8, Phase 3 explained the practical implications derived from the case studies. The first part of the chapter explained the research synthesis from the four case studies. The second part explained the key implications resulting from the case studies across New Zealand and Malaysia. In the last part of Phase 4, Chapter 9 examined the best practice guidelines for stakeholder engagement in infrastructure projects. As infrastructure projects involve various stakeholders, the outcomes were based on the perception and opinion of the

interviewed respondents. The four phases and outlines from Chapters 4 to 9 portrayed the shape of the thesis and highlighted the outcomes derived from stakeholder engagement during an early stage of the project. Figure 10.1 displays the flow of research.

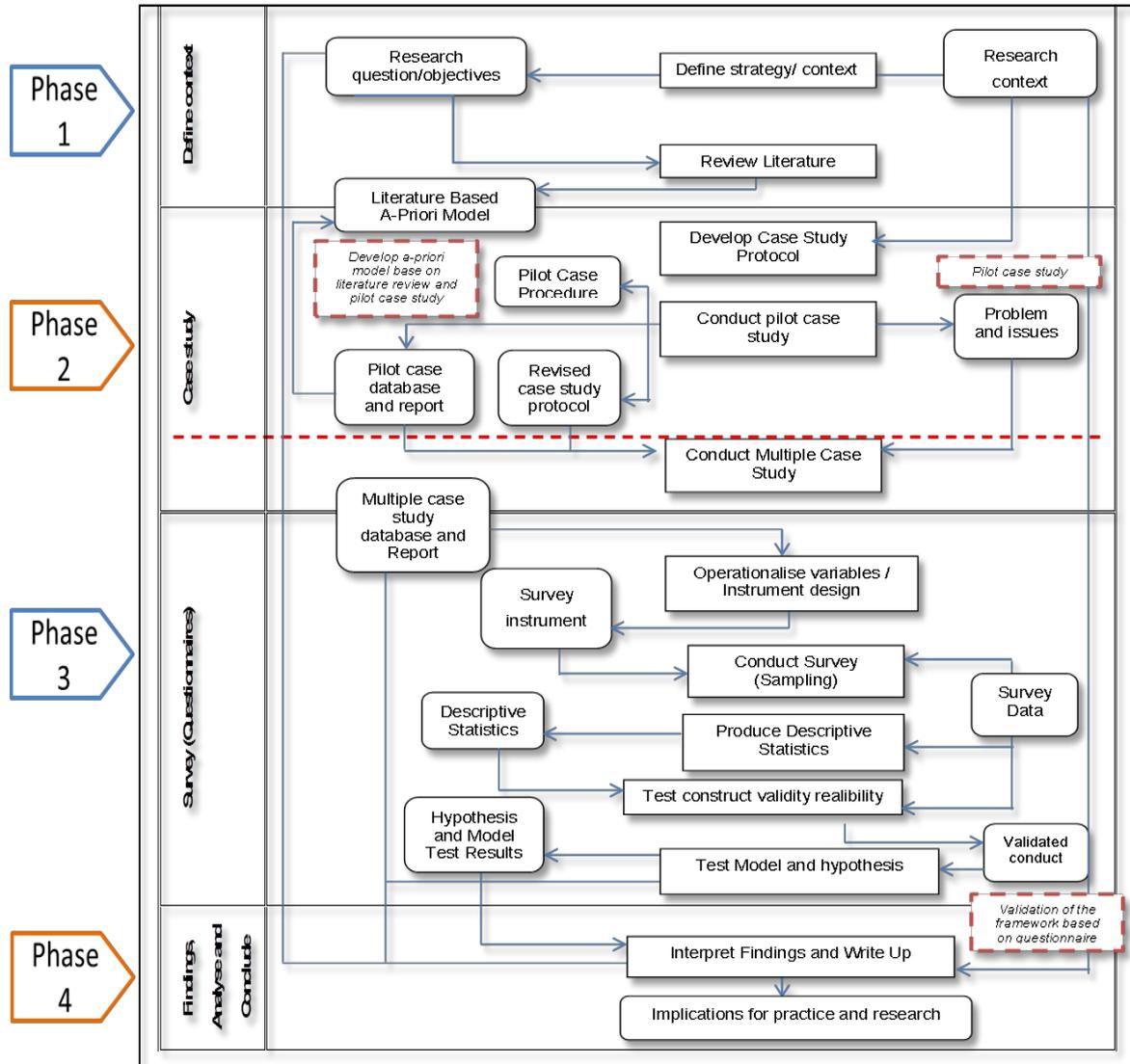


Figure 10.1. Research phases.

10.2 Review of Research Objectives

The results of this thesis indicated that changes in the construction industry have emphasised the need for more collaborative and interactive ways of engaging stakeholders, especially in infrastructure projects. Infrastructure projects are known for their complex construction, involving many stakeholders; therefore, the engagement process is challenging. Hundreds of stakeholders are involved and need to be resolved and managed. To enhance the quality of the project, there is a need to develop interpersonal skills in stakeholder engagement practices. Systematic planning of stakeholder identification and engagement processes must be undertaken early to provide value added to the project. The process of stakeholder engagement in different project delivery systems has resulted in fostering innovation throughout the project delivery in terms of engagement practices, interpersonal skills (communication, people and social skills) and community interaction. Further, the findings present enhanced best practice guidelines in terms of the quality of stakeholders' wellbeing.

The results of the investigation and analysis presented in the preceding chapters have answered the research questions in Chapter 1. The research questions were:

- *RQ1*: How does stakeholder engagement in infrastructure projects affect project collaboration?
- *RQ2*: What are the processes used for stakeholder engagement for a large infrastructure project in New Zealand?
- *RQ3*: How do the stakeholder engagement processes in New Zealand and Malaysia differ across infrastructure projects?

- *RQ4*: What are the key implications of using a stakeholder engagement method in infrastructure projects?
- *RQ5*: What are the best practices that could be derived from the stakeholder engagement processes?

10.3 Phase 1: Stakeholder Engagement and its Relation to Project Collaboration in Assisting Innovation in Infrastructure Projects

Phase 1 of the thesis began by exploring the stakeholder engagement process in the construction sector. The process considered the earlier stage of the construction phase, which is the planning phase. During this phase, this study related stakeholder engagement with the project delivery system to understand the project collaboration of the system and how the project collaboration could influence stakeholder engagement processes. The term ‘stakeholder engagement’ describes the action of communicating with others, as well as involving and developing relationships with stakeholders. Chapter 2 examined the conceptual knowledge of stakeholder engagement practices in infrastructure projects. Stakeholder issues were investigated according to different types of collaborative procurement systems.

10.3.1 Objective 1: To investigate the relationship between stakeholder engagement and collaboration in infrastructure projects.

The first research objective was addressed in Chapter 2 of this thesis. The initial objective of the thesis was to determine the conceptual idea of the stakeholder engagement process and its influence on project collaboration. The aim was to determine whether there was any gap in innovation for the stakeholder engagement process to enhance the effectiveness of mega infrastructure project delivery. This objective was achieved through a thorough literature review to identify a literature gap for the study. The literature review

encompassed academic research journals, books, articles, newsletters, proceedings papers, government manuals and conference articles obtained from websites. Document analysis was used to find the gaps in the existing research.

10.3.2 Major findings

The findings in Chapter 2 led to understanding of the need for early stakeholder involvement from the project inception phase to avoid redundancy of the work, reduce unnecessary costs and increase project productivity. Stakeholder engagement practices in different procurement strategies have an undeniable effect on project outcomes. Understanding the concepts that underlie stakeholder engagement is an essential step towards creating a strong involvement program that helps project owners and stakeholders to communicate effectively.

The findings highlighted that collaborative procurement allows more room for innovation processes in stakeholder engagement in the earlier project stages. Collaborative procurement involves multiple stakeholders, not only the project team—it involves groups such as financiers, councils, NGOs and other non-construction-based stakeholders. A review of the literature shows that the more innovative the procurement system, the more stakeholders will engage with the process. Collaborative procurement engages various types of external and internal stakeholders throughout the project phase. Collaborative procurement reduces costs, reduces project times, improves quality and improves client satisfaction. The innovative outcomes of the project delivery system are viewed as an ascending graph (see Figure 2.1 in Chapter 2) throughout the various schemes of project delivery system, ranging from traditional procurement methods to integrated, management and collaborative procurement.

Based on the first phase, the thesis enhances the input from the case studies chapters, based on the outcome of the first phase. Stakeholder engagement is increasingly becoming an integral part of construction project practice to deliver the desired project outcome. The main idea of Phase 1 encapsulated the reasons for the failures, delays and negative effects on infrastructure projects caused by stakeholder conflict because of different interests and concerns during the project. The findings in Chapter 2 highlighted time, cost, quality and project collaboration as an important feature of project success. The identification of cost-related risks, underlying drivers and impediments to effective management must be assessed in the context of three key stakeholders—clients, contractors and consultants. The research argues that the project team must develop high-quality relationships with the key stakeholders of the project to enhance the quality of the project. Therefore, this finding indicates the importance of knowing how stakeholder engagement practice will be implemented throughout the project and how project collaboration could sustain the project. The greater the collaboration among the key stakeholders, the higher the potential for innovation in stakeholder engagement.

10.4 Phase 2A Investigating Implementation of Stakeholder Engagement Approaches through Collaborative Procurement System - Preliminary case study

Phase 2 of this thesis comprised two research objectives using live case studies to understand real problems and solutions for stakeholder engagement practices. The first objective in Phase 2A was to investigate the implementation of the stakeholder engagement process in New Zealand, as the preliminary case study of the research. The second research objective in Phase 2B was to investigate the process of engagement in infrastructure projects

across countries. In this phase, the focus was more on how the process of engagement had been conducted in different projects. In Phase 2A, a single case study of an expressway in New Zealand was piloted and researched to identify the trend of stakeholder practices in large infrastructure projects. The tools and methods of the engagement process were also studied and analysed, which enabled classification of the outcomes of the engagement process.

10.4.1 Objective 2: To investigate the engagement processes for stakeholders used during a New Zealand infrastructure project.

Objective 2 in this research was addressed in Chapter 4. To explore what occurs during the engagement process in a real-life project, the selection of an infrastructure project in New Zealand was based on the significance of the project towards the research. The data were obtained using a qualitative study. The preliminary case study was conducted among the key stakeholders and external stakeholders for the case study of an expressway project in New Zealand. The stakeholder engagement process in M2PP was investigated throughout the process of IPAA. The methodology to achieve this objective involved using a single case study of an infrastructure project. A single case study was selected as the most appropriate approach to achieve the objective of this chapter. Semi-structured interviews were used to capture the different views of different stakeholders, including the owner participants and NOPS of the project. The interviews involved different external stakeholders, such as a non-governmental transport agency, a historic and cultural agency, community groups, district councils and an environmental group.

10.4.2 Major findings

The findings from the expressway case study of M2PP in New Zealand demonstrated the spectrum of multiple stakeholder interests and perceptions during the engagement process. The project was the first time in the New Zealand construction industry that an

alliance had been appointed prior to concept design and prior to public consultation for such a significant infrastructure megaproject. For this project, the NZTA made a unique decision to form an interim alliance in an effort to resolve the potentially difficult stakeholder relationships affected by the project. The case study provided insight to stakeholder management study based on the specific features of the alliance model during the IPAA, particularly regarding the ways the flexible governance structure in the alliance model could influence the integration of stakeholders involved in project delivery. The research answered the second objective of this study by looking on how a collaborative model offers a testing ground for stakeholder engagement initiatives during the IPAA phase (planning and consenting phase). In contrast, the findings from the case study indicated the influence of stakeholders on the level of participation spectrum. Based on the spectrum, the stakeholders classified as highly affected were included in the ‘inform’, ‘consult’ and ‘involve’ stages. The classification aimed to highlight which area of engagement involves major stakes. The classification act as an awareness that the project managers and project team should observe stakeholders’ behaviour and take action in an early stage of the project. This can enhance the ability of key stakeholders and the project manager in the engagement process, which can strengthen the engagement practice. The process requires appropriate tools to be assigned to each level of the participation spectrum. Among the five levels of the spectrum, the ‘inform’, ‘consult’ and ‘involve’ stages are agreed to be crucial and to result in engagement. During these stages, it is of utmost importance to engage the community, public and key stakeholders. Further, all issues related to stakeholders need to be appropriately addressed to avoid any discrepancies and unexpected events during the project.

Different communities and other different groups of stakeholders require different approaches. These approaches are not mutually elusive from one group to another stakeholder groups. As highlighted in Chapter 4, when the engagement program has worked

well for a project, it is critical to review and reassess before reapplying the same approach. Engaging stakeholders, the community and the public early in the project process can reduce the possibility of poor-quality project performance. The process of engagement eventually helps the project organisation develop good relationships with stakeholders. Proper internal preparation—such as identifying the affected stakeholders for the project during the planning phase—will likely reduce the risk of the consent change from the consultation phase until to a notified process of the stakeholders. This study concluded that, for the project team to ensure success in managing stakeholder complexity during an early project phase, three elements of best practice need to be considered: (i) building a culture of care, (ii) communicating beyond compliance and (iii) ensuring responsiveness.

10.5 Phase 2B Investigating the Stakeholder Engagement Process in Infrastructure Project across Countries

In Phase 2B, the stakeholder engagement process was further investigated across large infrastructure projects. This phase covered Chapters 5, 6 and 7 of different case studies in New Zealand and Malaysia. The findings from Chapter 4 were discussed and analysed in these chapters. Multiple case studies of mega infrastructure projects were researched to cultivate the meaning of the stakeholder engagement process in different projects. An expressway case study in New Zealand and two railway case studies in Malaysia were identified. The case studies were selected based on the unique features of the project control and engagement process. Chapter 8 synthesised a comparison of these case studies' features across infrastructure projects.

10.5.1 Objective 3: To investigate the ways in which New Zealand and Malaysia differ across infrastructure projects

Research Objective 3 answered Research Question 3 from Phase 2 of the study. This research objective was addressed in Chapters 5, 6 and 7 of this thesis. Three case studies were conducted and analysed to identify the similarities and differences across the processes. The case study and content analysis were used to obtain data analysis for the chapters. An in-depth analysis of the engagement process during the planning stage offered a clear understanding of the strategies used in the different infrastructure projects. The stakeholders were contacted through semi-structured interviews. In this phase, three infrastructure project case studies were analysed by examining the profile background of the project and the conduct towards the stakeholders involved. The findings highlighted that the process of engagement in Malaysia has no specific procedure and no steady strategies applied from the beginning of the project. The projects in Malaysia required more effective processes. The

absence of a clear stakeholder engagement process resulted in ambiguity regarding the stakeholders, and the wider community had no idea what to expect from the project—especially among the land and business owners. The Malaysian project presented an example of the traditional top-down process of consultation.

In comparison, in the New Zealand case study, the project was systematically managed from the beginning. The planning alliance formed during the planning phase intended for the preparation of the planning document and offer the professional services to the project. Based on the successful implementation of the alliance delivery system of M2PP and few more Auckland infrastructure projects, the Transport Agency moved a step forwards by applying the alliance model to the planning phase of the project. Thus, the planning alliance was formed and brought together a legal agency as an NOP to support the Transport Agency's application of environmental planning for any issues regarding land. The collaboration achieved success by meeting its timelines and giving flexibility to the project collaboration through key discussions, planning and changing scope to meet changing demand.

10.5.2 Major findings

The case study research findings identified that a strategy to enhance a clear engagement process must be established to give clear understanding of the project objectives to stakeholders. Improvements can be made by forming a stakeholder management team correctly at the beginning of the project, classifying stakeholders based on level of importance and using appropriate tools, especially for massive infrastructure projects. Purposive engagement must involve and engage stakeholders during the very early stages of the project. The flows of information should occur via a two-way interaction to allow stakeholders and the community to voice their concerns, offer creative opinions regarding the

project options and jointly agree on facts and solutions that best meet all interests. This approach is believed to have a significant influence on the decision-making process. The results show that the project owner should closely engage with the public, be transparent with information and understand the project design concept. These efforts can help develop long-term relationships, ensure fairness, and reduce time and costs among the project owner and stakeholders. The project owner can gain the credibility and trust of the stakeholders.

10.6 Phase 3: Understanding Keys Implication of Engagement Process Resulting from the Case Studies

An in-depth analysis of the key implications derived from the engagement process during the planning stage of each case study offered a clear understanding of the engagement outcomes. The analysis was synthesised using NVivo software to extract the themes resulting from the case studies. The four infrastructure project case studies were identified by examining the profile backgrounds of the projects and their behaviour towards the stakeholders involved in New Zealand and Malaysia. Document analysis was undertaken to attain a better understanding of the practice.

10.6.1 Objective 4: To identifying the practical implications of the stakeholder engagement process resulting from the case studies

This research objective answered Research Question 4, which was addressed in Chapter 8 of this thesis. The practical implications were derived from the best-case scenario from the case studies and the improvements that could be made to the process. The New Zealand case studies had a few practical implications that were best suited to mega infrastructure projects. In contrast, the Malaysian case studies best indicated the practical implications of the tools and techniques of engagement. Cross-case synthesis is a collective

term for a family of methods to summarise, integrate, combine and compare the findings of different studies on a specific topic. From the synthesis, six themes were identified and further discussed. The themes included: (i) the process of stakeholder engagement, (ii) internal early preparation and planning, (iii) business case scenario, (iv) project governance, (v) delivering values in engagement and (vi) policy and social effects.

10.6.2 Major findings

The findings from the case studies in New Zealand and Malaysia demonstrated effective engagement in large infrastructure projects. The major findings regarding the process of stakeholder engagement highlighted the need for systematic engagement to improve stakeholder understanding and decisions. In addition, to ensure seamless information exchange, real-time collaboration among stakeholders is necessary, regardless of the platform of engagement employed. Stakeholders should be engaged early and closely to obtain their feedback, and this feedback should be part of the project decision-making process. Hence, there is crucial need for an early stakeholder engagement plan for infrastructure projects. In internal early preparation, the major findings highlighted the need for an in-house project team, with the involvement of the stakeholder management team and the legal team, to ease the process of consultation and legal documents related to acquisition. The in-house team should be in the same location/building to enhance the task delivery.

Regarding engagement tools, the most efficient tool to reach stakeholders is social media, as people nowadays tend to have close access to technology. The business case scenario highlighted the findings on the innovative project delivery system used for large infrastructure projects. The flexibility of collaborative procurement influences the engagement and management of stakeholders. Project governance highlights the importance of involving an independent consultant in the project team or alliance to ensure the project

owners have the confidence to lead the consultation with stakeholders and the community, and fairly represent the various interests of the key stakeholders and NOPs. The whole engagement process in infrastructure projects delivers a systematic value such as better communication, transparency, responsiveness and good project governance and collaboration which can lead to the project success. Engaging stakeholders closely, rapidly responding to concerns, cultivating a culture of care and upholding a good communication style are the values required by the project owners of mega infrastructure projects.

Regarding the policy and social effects, the findings indicated the importance of the project owner devising an implementation plan to identify affected stakeholders, especially those whose land and businesses are affected by the project. The plan should comprise the whole process of land acquisition settlement and the rights of the landowners.

10.7 Phase 4 Developing Best Practices Approach for Stakeholder Engagement for Infrastructure Projects

This phase explained the best practice guidelines for the stakeholder engagement process in mega infrastructure projects, which are complex in nature and involve demanding stakeholders.

10.7.1 Objective 5: To establish a best practices guideline for stakeholder engagement in construction infrastructure projects.

This research objective was addressed in Chapter 9 of this thesis. This chapter captured the management and stakeholder best practice for the engagement process in the early stages of infrastructure projects. In contrast to other sectors, the best practice process in infrastructure megaprojects is moulded according to the needs and nature of the stakeholders involved. The findings from the building professionals and stakeholders in New Zealand and

Malaysia demonstrated the opinions and views regarding the project implementation. Best practice guidelines can be amended according to the needs and nature of the project. In the case studies, these guidelines would help management to strategise effective ways to engage and create an innovative approach. The best practice guidelines were broken down into six themes, based on the key implications: (i) process of stakeholder engagement, (ii) internal early preparation and planning, (iii) business case scenario, (iv) project governance, (v) delivering values in engagement and (vi) policy and social effects.

10.7.2 Major findings

The best practices exercises developed efficient practices to provide better quality service to stakeholders. The guidelines developed from this research can be used as complementary guidance material to project developers of infrastructure projects who manage stakeholders and are involved with the engagement practice. Each theme was broken into key points to enable reference.

10.8 Main Thesis Aim

The main thesis aim was:

To establish the best practices and features of the stakeholder engagement process approach that are suited to the complexity and uncertainty characterising mega infrastructure projects.

The aim of this study was achieved by addressing all five research objectives. Ways to improve the stakeholder engagement process during the early stage of construction projects were examined as a process to facilitate innovation in these projects. The stakeholder engagement process can be improved in the early stage of infrastructure projects by structuring the engagement process, strengthening the idea of collaborating with all key stakeholders and ensuring ongoing engagement.

The comparison study between infrastructure projects in New Zealand and Malaysia indicated that the project team must develop strategies to strengthen the relationship between the project team and stakeholders, especially the community and public. Strategies used to engage stakeholders include strengthening stakeholder and project manager coordination and collaboration in infrastructure projects. The stakeholders must be managed and identified to ensure their safety and security towards ongoing risk. These are a few strategies highlighted from the management perspective to minimise the discomfort between key stakeholders during the project.

10.9 Concluding Remarks

There are no comprehensive practices for arranging the stakeholder engagement process and maximising values and quality in infrastructure projects. Stakeholders seek different ways to interact with firms and define choices in a manner that reflects their views and values. There should be greater emphasis on value-adding activities and consideration of social wellbeing factors for stakeholders and the public. The findings from the chapters emphasised that one starting point for stakeholder involvement is to evaluate and understand the stakeholders from the perspective of the customer, and to determine their relevance to the

project. In undertaking this analysis, questions should be asked about the positions, interests, influence, interrelations, networks and other characteristics of the stakeholders, with reference to their past and present positions and future potential.

The findings of the case studies confirmed findings from previous studies that suggested that communication and interaction between the involved stakeholders is vital because an increased understanding about the other project stakeholders is more likely to result in enhanced interaction, information sharing and involvement among stakeholders. Other success factors include assuring benefits among the stakeholders, and building trust and commitment between the stakeholders. The results of this thesis indicate that the changes in the construction industry have emphasised the need for more collaborative and interactive ways of working in large projects.

10.10 Contribution to Body of Knowledge

The findings in this thesis contribute to the existing body of knowledge in understanding the relationship between the engagement process and collaboration in infrastructure projects and their benefits for project success. Evaluation of project success is difficult because of the need to consider the perspectives of different stakeholder groups. There may be practical benefits to policy development to improve the way project success factors are assessed by stakeholders. Evaluating stakeholder engagement as one of the measures of project success. The findings assist with establishing a stakeholder engagement model for large infrastructure projects. The findings extend previous research by creating guidelines for stakeholder engagement for large infrastructure projects.

10.11 Research Limitations

This study has provided a stakeholder engagement strategy that is intended to facilitate the early stakeholder engagement process. The level of stakeholder engagement practice was tested using case studies and interviews with the project owners, project personnel, key stakeholders and external stakeholders in New Zealand and Malaysia. Certain factors hindered the successful implementation of the engagement process in both countries. The researchers encountered limitations when obtaining information, especially in Malaysia. Government data are private and confidential, and some data had to be sensitised to obtain outcomes from the case study. Given that the Malaysian case study had no specific benchmark for the spectrum of public participation, in contrast to New Zealand, the parameters for comparison could not be identical.

The stakeholder involvement in the interviews was limited to investigating only a selected group of stakeholders who showed interest in the research. An external stakeholder was worried in the interview session because they thought that the project owner was investigating them, this shows the sensitive nature of this research. This limited the researcher to investigating the broader aspects of the case studies. Another research limitation was that the researcher was unable to cover every aspect regarding the stakeholder engagement process, since this process is broad and lengthy.

10.12 Recommendations for Future Research

Research is always limited in terms of scale, scope and boundaries. This research focused on enhancing the values that can enhance innovation towards project success from the stakeholder engagement perspective. Although this research contributes both theoretically

Conclusion and recommendation

and practically, there are several possibilities for further research and extension. Further research could focus on studying the influence of effective engagement to increase the level of stakeholder and team integration. In addition, it would be worth following the development of the project team during the construction process, and measuring the level of collaboration between the project team and stakeholders. Further, early engagement is a significant issue; thus, it would be valuable to study how and to what extent stakeholder involvement is undertaken after project completion. The most important areas for future research are connected to validation and improvement of the proposed framework through several studies. In particular, future studies should focus on the dynamic nature of stakeholder interactions and how these changes affect a project. Finally, the operational aspects of the guidelines created need to be formulated as a simple technical procedure to guide practitioners in its use.

References

- Aaltonen, K., & Kujala, J. (2010). A project lifecycle perspective on stakeholder influence strategies in global projects. *Scandinavian Journal of Management*, 26(4), 381–397.
- Aaltonen, K., Kujala, J., Havela, L., & Savage, G. (2015). Stakeholder Dynamics During the Project Front-End: The Case of Nuclear Waste Repository Projects. *Project Management Journal*, 46(6), 15-41.
- Aaltonen, K., & Kujala, J. (2016) Towards an improved understanding of project stakeholder landscapes. *International Journal of Project Management*, 34(8), 1537–1552.
- Aapaoja, A. (2014). *Enhancing value creation of construction projects through early stakeholder involvement and integration* (Doctoral dissertation). University of Oulu, Finland. Retrieved from herkules.oulu.fi/isbn9789526204628/isbn9789526204628.pdf
- Aapaoja, A., & Haapasalo, H. (2014). A framework for stakeholder identification and classification in construction projects. *Open Journal of Business and Management*, 2, 43–55.
- Aapaoja, A., Herrala, M., Pekuri, A., & Haapasalo, H. (2013). The characteristic of and cornerstones for creating integrated teams. *International Journal of Managing Projects in Business*, 6(4), 695–713.
- Aapaoja, A., Kinnunen, T., & Haapasalo, H. (2014). Stakeholder salience assessment for construction project initiation. *International Journal of Performance Measurement*.
- Al Nahyan, M. T., Sohal, A. S., Hawas, Y. E., & Fildes, B. (2014). Project management, infrastructure development and stakeholder engagement: A case study from the UAE. *Procedia Technology*, 16, 988–991.

- Altshuler, A., & Luberoff, D. (2003). *Mega-projects: The changing politics of urban public investment*. Washington, DC: Brookings Institution Press; Cambridge, MA: Lincoln Institute of Land Policy.
- Arnstein, S. R. (1969). A ladder of citizen participation. *Journal of the American Institute of planners*, 35(4), 216-224.
- Atkin, B., & Skitmore, M. (2008). Stakeholder management in construction. *Construction Management and Economics*, 26(6), 549–552.
- Austin, J. (2000). Strategic collaboration between non-profit and businesses. *Non-profit and Voluntary Sector Quarterly*, 29(1), 69–97.
- Ayuso, S., Ariño, M. A., Garcia-Castro, R., & Rodriguez, M. A. (2007). *Maximizing stakeholders' interests: An empirical analysis of the stakeholder approach to corporate governance*.
- Babbie, E. (2005). *The basics of research*. Belmont, CA: Thomson Wadsworth.
- Baharuddin, H. E. A., Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2017). Managing stakeholders through alliances: A case study of a megaproject in New Zealand. *Proceedings of the Institution of Civil Engineers—Management, Procurement and Law*, 170(4), 151–160.
- Baharuddin, H. E. A., Wilkinson, S., & Costello, S. (2013). Evaluating early stakeholder engagement (ESE) as a process for innovation. In S. Kajewski, K. Manley, & K. Hampson (Eds.), *Proceedings of the Conference of the 19th CIB World Building Congress 2013: Construction and Society*. Brisbane, QLD: Queensland University of Technology.
- Baharuddin, H. E. A., Wilkinson, S., & Costello, S. (2016). Improving early stakeholder engagement process for infrastructure projects. In K. Kähkönen & M. Keinänen (Eds.), *Proceedings of a Conference of the 20th CIB World Building Congress 2016*:

- Volume I—Creating built environments of new opportunities* (pp. 262–273). Finland: Tampere University of Technology.
- Bal, M., Bryde, D., Fearon, D., & Ochieng, E. (2013). Stakeholder engagement: Achieving sustainability in the construction sector. *Sustainability, 5*(2), 695–710.
- Barlow, J. (2000). Innovation and learning in complex offshore construction projects. *Research Policy, 29*(7–8), 973–989.
[http://dx.doi.org.ezproxy.auckland.ac.nz/10.1016/S0048-7333\(00\)00115-3](http://dx.doi.org.ezproxy.auckland.ac.nz/10.1016/S0048-7333(00)00115-3)
- Beach, S., Keast, R. L., & Pickernell, D. (2011). *Long range relations: Stakeholder engagement in Queensland road construction*.
- Beringer, C., Jonas, D., & Kock, A. (2013). Behavior of internal stakeholders in project portfolio management and its impact on success. *International Journal of Project Management, 31*(6), 830–846.
- Blayse, A. M., & Manley, K. (2004). Key Influences on construction innovations. *Construction Innovation: Information, Process, Management, 4*(3), 143–154.
doi:10.1108/14714170410815060
- Bloomberg, L. D., & Volpe, M. (2008). *Completing qualitative research: A roadmap from beginning to end*. SAGE Publishing.
- Botha, P. S., & Scheepbouwer, E. (2015). Christchurch rebuild, New Zealand: Alliancing with a difference. *Proceedings of the Institution of Civil Engineers—Management, Procurement and Law, 168*(3), 121–129.
- Bourne, L. (2007). *Avoiding the successful failure*. Retrieved from www.mosaicprojects.com.au/PDF_Papers/P046_Successful_Failure.pdf
- Bourne, L., & Walker, D. H. (2005). Visualising and mapping stakeholder influence. *Management Decision, 43*(5), 649–660.

- Bourne, L., & Walker, D. H. (2008). Project relationship management and the Stakeholder Circle™. *International Journal of Managing Projects in Business*, 1(1), 125–130.
- Bowen, F., Newenham-Kahindi, A., & Herremans, I. (2012). *Engaging the community: An executive briefing—A synthesis of academic and practitioner knowledge on best practices in community engagement*. Haskayne School of Business, University of Calgary. Retrieved from <http://nbs.net/wp-content/uploads/NBS-Executive-Report-Community-Engagement.pdf>
- Board of Inquiry into the Ara Tuhono – Puhoi to Wellsford (2014). *Ara Tuhono – Puhoi to Wellsford Road of National Significance: Puhoi to Warkworth Section: Final Report and Decision*. Wellington, New Zealand. NZTA. Retrieved from <https://www.nzta.govt.nz/assets/projects/puhoi-to-warkworth-application-to-the-environmental-protection-authority-epa/Puhoi-to-Warkwork-Board-of-Inquiry-conditions.pdf>
- Bower, D. (2003). *Management of procurement*. London, England: Thomas Telford.
- Bresnen, M., & Marshall, N., (2000). Partnering in construction: A critical review of issues, problems and dilemmas. *Construction Management and Economics*, 18, 229–237.
- Brian, A., & Martin, S. (2008). Stakeholder management in construction. *Construction Management and Economics*, 26(6), 549–552.
- Bruns, B. (2003, July 11–14). Water tenure reform: Developing an extended ladder of participation. Paper presented at *RCSD Conference—Politics of the commons: Articulating development and strengthening local practices*, Chiangmai, Thailand.
- Bryman, A. (2008). Of methods and methodology. *Qualitative Research in Organizations and Management: An International Journal*, 3(2), 159–168.
- Bryman, A. (2016). *Social research methods*. Oxford university press.

- Bryman, A., & Bell, E. (2015). *Business research methods*. US: Oxford University Press.
- Buckley, A. (2012). Best practice community engagement for infrastructure projects: Building community ties that dig deeper. *Public Infrastructure Bulletin*, 1(8), Article 3. Retrieved from <http://epublications.bond.edu.au/cgi/viewcontent.cgi?article=1045&context=pib>
- Carnevale, D. G., & Wechsler, B. (1992). Trust in the public sector individual and organizational determinants. *Administration & Society*, 23(4), 471–494.
- Centre for Civil Society and Governance. (2007). *From consultation to civic engagement: The road to better policy-making and governance in Hong Kong*. Hong Kong: Centre for Civil Society and Governance, The University of Hong Kong.
- Chan, A.P.C., Chan, D.W.M., Ho, K.S.K., 2003. An empirical study of the benefits of construction partnering in Hong Kong. *Construction Management and Economics*. 21, 523–533.
- Chan, C. W., Cheung, P. T. Y., Chan, E. Y. M., Lam, W. F., Lam, W. M., Lee, E. W. Y., & Chan, K. M. (2007). *From consultation to civic engagement: The road to better policy-making and governance in Hong Kong*. Hong Kong: Centre for Civil Society and Governance, The University of Hong Kong.
- Chandra, H. P., Putu Artama Wiguna, I., & Kaming, P. F. (2012). Model of stakeholder influence on project success, an important finding from construction project in East Java. *International Journal of Academic Research*, 4(2).
- Che Ibrahim, C. K. I., Costello, S. B., & Wilkinson, S. (2015). Development of an assessment tool for team integration in alliance projects. *International Journal of Managing Projects Business*, 8(4), 813–827.
- Chinyio, E. A., & Akintoye, A. (2008). Practical approaches for engaging stakeholders:

- Findings from the UK. *Construction Management and Economics*, 26(6), 591–599.
- Cicmil, S., & Marshall, D. (2005). Insights into collaboration at the project level: Complexity, social interaction and procurement mechanisms. *Building Research and Information*, 33, 523–535.
- Civil Engineering and Development. (2009). *Public consultation/engagement guidelines*. Hong Kong: Civil Engineering and Development Department.
- Clarkson, M. B. E. (1998). *The corporation and its stakeholders—Classic and contemporary readings*. University of Toronto Press.
- Clegg, S. R., Pitsis, T. S., Rura-Polley, T., & Marosszeky, M. (2002). Governmentality matters: Designing an alliance culture of inter-organizational collaboration for managing projects. *Organization Studies*, 23(3), 317–337.
- Cleland, D. I. (1995). Leadership and the project-management body of knowledge. *International Journal of Project Management*, 13(2), 83–88.
- Cornick, T., & Mather, J. (1999). *Construction project teams: Making them work profitably*. London, England: Thomas Telford.
- Cruzes, D. S., & Dybå, T. (2011). Research synthesis in software engineering: A tertiary study. *Information and Software Technology*, 53(5), 440–455.
- Cruzes, D. S., Dybå, T., Runeson, P., & Höst, M. (2015). Case studies synthesis: A thematic, cross-case, and narrative synthesis worked example. *Empirical Software Engineering*, 20(6), 1634–1665.
- Cuppen, E., Bosch-Rekvelde, M. G., Pikaar, E., & Mehos, D. C. (2016). Stakeholder engagement in large-scale energy infrastructure projects: Revealing perspectives using Q methodology. *International Journal of Project Management*, 34(7), 1347–1359.
- Damanpour, F., Walker, R. M., & Avellaneda, C. N. (2009). Combination effects of

innovation types and organisational performance: A longitudinal study of service organisations. *Journal of Management Studies*, 46(6). doi:10.1111/j.1467-6486.2008.00814.x

Davis, K. (2014). Different stakeholder groups and their perceptions of project success. *International Journal of Project Management*, 32(2), 189–201.

Deegan, B., & Parkin, J. (2011). Planning cycling networks: Human factors and design processes. *Proceedings of the Institution of Civil Engineering (ICE)-Engineering Sustainability*, 164(1), 85–93.

Devine-Wright, P. (2011). Public engagement with large-scale renewable energy technologies: Breaking the cycle of NIMBYism. *Wiley Interdisciplinary Reviews: Climate Change*, 2(1), 19–26.

Doloi, H. (2012). Cost overruns and failure in project management: Understanding the roles of key stakeholders in construction projects. *Journal of Construction Engineering and Management*, 139(3), 267–279.

e Costa, C. A. B., da Silva, F. N., & Vansnick, J. C. (2001). Conflict dissolution in the public sector: A case-study. *European Journal of Operational Research*, 130(2), 388–401.

El Asmar, M., Hanna, A. S., & Loh, W. Y. (2013). Quantifying performance for the integrated project delivery system as compared to established delivery systems. *Journal of Construction Engineering and Management*, 139(11), 04013012.

El Asmar, M., Hanna, A. S., & Loh, W. Y. (2015). Evaluating integrated project delivery using the project quarterback rating. *Journal of Construction Engineering and Management*, 142(1), 04015046.

El-Gohary, N. M., Osman, H., & El-Diraby, T. E. (2006). Stakeholder management for public private partnership. *International Journal of Project Management*, 24(2006), 595–604.

- Eskerod, P., & Vaagaasar, A. L. (2014). Stakeholder management strategies and practices during a project course. *Project Management Journal*, 45(5), 71-85.
- Fahri, J., Biesenthal, C., Pollack, J., & Sankaran, S. (2015). Understanding megaproject success beyond the project close-out stage. *Construction Economics and Building*, 15(3), 48–58.
- Fellows, R., & Liu, A. M. M. (2012). Managing organizational interfaces in engineering construction projects: Addressing fragmentation and boundary issues across multiple interfaces. *Construction Management and Economics*, 30(8), 653–671.
- Flyvbjerg, B. (2014). What you should know about megaprojects and why: An overview. *Project Management Journal*, 45(2), 6–19.
- Flyvbjerg, B., Bruzelius, N., & Rothengatter, W. (2003). *Megaprojects and risk: An anatomy of ambition*. New York, NY: Cambridge University Press.
- Foo, L. M., Asenova, D., Bailey, S., & Hood, J. (2011). Stakeholder engagement and compliance culture: An empirical study of Scottish private finance initiative projects. *Public Management Review*, 13(5), 707–729.
- Foster, D., & Jonker, J., (2005). Stakeholder relationships: The dialogue of engagement. *Corporate Governance*, 5(5), 51–57.
- Frankfort-Nachmias, C., & Nachmias, D. (1996). *Research methods in the social sciences* (5th ed.). London, England: Arnold.
- Freeman, R. E. (2010). *Strategic management: A stakeholder approach*. Cambridge University Press.
- Gable, G. G. (1994). Integrating case study and survey research methods: An example in information systems. *European Journal of Information Systems*, 3, 112–126.
- Gellert, P. K., & Lynch, B. D. (2003). Mega-projects as displacements. *International Social Science Journal*, 55(175), 15–25.

- Giezen, M. (2012). Keeping it simple? A case study into the advantages and disadvantages of reducing complexity in mega project planning. *International Journal of Project Management*, 30(7), 781–790.
- Greenwood, M., (2007). Stakeholder engagement: Beyond the myth of corporate responsibility. *Journal of Business Ethics*, 74, 315–327. doi:10.1007/s10551-007-9509-y
- Guo, F., Chang-Richards, Y., Wilkinson, S., & Li, T. C. (2014). Effects of project governance structures on the management of risks in major infrastructure projects: A comparative analysis. *International Journal of Project Management*, 32(5), 815–826.
- Hampson, K. D., & Kwok, T. (1997). Strategic alliances in building construction: A tender evaluation tool for the public sector. *Journal of Construction Procurement*, 3(1), 28–41.
- Harmsworth, G., Awatere, S., & Robb, M. (2016). Indigenous Māori values and perspectives to inform freshwater management in Aotearoa-New Zealand. *Ecology and Society*, 21(4).
- Ahmed, H., & Cohen, D. A. (2019). Stakeholder attributes and attitudes during privatisation: a New Zealand case study. *International Journal of Public Sector Management*, 32(2), 157-174.
- Hancock, B. (2002). *An introduction to qualitative research*. Trent Focus Group.
- Heravi, A., Coffey, V., & Trigunarsyah, B. (2015). Evaluating the level of stakeholder involvement during the project planning processes of building projects. *International Journal of Project Management*, 33(5), 985–997.
- Heravitorbati, A., Coffey, V., Trigunarsyah, B., & Saghatforoush, E. (2011). Evaluating the influences of stakeholder management on construction project quality. In *Proceedings of 1st International Construction Business & Management Symposium*. Kuala

Lumpur: University Teknologi Malaysia. Retrieved from

<http://eprints.qut.edu.au/41585/>

- Hine, D., & Carson, D. (Eds.). (2007). *Innovative methodologies in enterprise research*. Cheltenham, England: Edward Elgar.
- Holmberg, S. R., & Cummings, J. L. (2009). Building successful strategic alliances: strategic process and analytical tool for selecting partner industries and firms. *Long Range Planning*, 42(2), 164–193.
- Hooton, M., Chang, P., Carter, M., Chan, S. Y., Chu, C. K., & Wong, W. M. (2011). Cross Bay Link—Public engagement in planning urban infrastructure. *Procedia Engineering*, 14, 108–116.
- Howarth, C., Gillin, M., & Bailey, J. E. (1995). *Strategic alliances: Resource-sharing strategies for smart companies*. Melbourne. Pitman Publishing.
- International Association of Public Participation (IAP2) (2007). *Level of public participation spectrum*. Retrieved from www.iap2.org.au/resources/iap2s-public-participation-spectrum
- Innes, J. E., & Booher, D. E. (2004). Reframing public participation: Strategies for the 21st century. *Planning Theory & Practice*, 5(4), 419–436.
- International Finance Corporation. (2007). *Stakeholder engagement: A good practice handbook for companies doing business in emerging markets*. Retrieved from <http://www.ifc.org>
- Ivory, C. (2004). Client, user and architect interactions in construction: Implications for analysing innovative outcomes form user-producer interactions in projects. *Technology Analysis and Strategic Management*, 16(4), 495–508.
- Ivory, C. (2005). The cult of customer responsiveness: Is design innovation the price of a client-focused construction industry? *Construction Management and Economics*,

23(8), 861–870.

Jeffery, N. (2009). *Stakeholder engagement: A road map to meaningful engagement #2 in the Doughty Centre 'How to do Corporate Responsibility' series*. School of Management, Cranfield University. Retrieved from <https://dspace.lib.cranfield.ac.uk>

Jepsen, A. L., & Eskerod, P. (2009). Stakeholder analysis in projects: Challenges in using current guidelines in the real world. *International journal of project management*, 27(4), 335-343.

Kaatz, E., Root, D., & Bowen, P. (2005). Broadening project participation through a modified building sustainability assessment. *Building Research & Information*, 33(5), 441–454.

Kalof, L., Dan, A., & Dietz, T. (2008). *Essentials of social research*. Berkshire, England: McGraw-Hill Education.

Karlsen, J. T. (2002). Project stakeholder management. *Engineering Management Journal*, 14(4), 19–24.

Klang Valley Mass Rapid Transit Corporation (KVMRT Corp.) (2013). KVMRT Annual Report. Kuala Lumpur: SPAD. Retrieved from <http://www.spad.gov.my/land-public-transport/rail/klang-valley-mass-rapid-transit-kvmrt-project>

Kumaraswamy, M., & Dulaimi, M. (2001). Empowering innovative improvements through creative construction procurement. *Engineering Construction & Architectural Management*, 8(5/6), 325–335.

Kvale, S. (1994). Ten standard objections to qualitative research interviews. *Journal of Phenomenological Psychology*, 25(2), 147–173.

Lahdenpera, P. (2012). Making sense of the multi-party contractual arrangements of project partnering, project alliancing and integrated project delivery. *Construction Management and Economics*, 30(1), 57–79.

doi:<http://dx.doi.org/10.1080/01446193.2011.648947>

- Landin, A. (2000). *Impact of quality management in the Swedish construction process* (Doctoral dissertation). Department of Construction Management, Lund University. Retrieved from www.lth.se/fileadmin/byggnadsekonomi/research/doctoral_thesis/Landin_Anne.pdf
- Leach, S., Lowndes, V., Cowell, R., & Downe, J. (2005). *Meta-evaluation of the local government modernisation agenda: Progress report on stakeholder engagement with local government*. Office of the Deputy Prime Minister. Retrieved from <https://www.bipsolutions.com/docstore/pdf/9882.pdf>
- Lee, G. K. L., & Chan, E. H. W. (2008). The analytical hierarchy process (AHP) approach for assessment of urban renewal proposals. *Social Indicators Research*, 89(1), 155–168.
- Leung, M. Y., Liu, A. M., & Ng, S. T. (2005). Is there a relationship between construction conflicts and participants' satisfaction? *Engineering, Construction and Architectural Management*, 12(2), 149–167.
- Leung, M. Y., Ng, S. T., & Cheung, S.O., (2002). Improving satisfaction through conflict stimulation and resolution in value management in construction projects. *Journal of Management in Engineering*, 18(2), 68–75.
- Leung, M. Y., Yu, J., & Chan, Y. S. (2013). Focus group study to explore critical factors of public engagement process for mega development projects. *Journal of Construction Engineering and Management*, 140(3), 04013061(1 – 11).
- Li, H. (2013). *Modelling and evaluating multi-stakeholder multi-objective decisions during public participation in major infrastructure and construction projects*. The University of Hong Kong (HKU) Theses Online (HKUTO). Retrieved from <https://ascelibrary.org/doi/abs/10.1061/%28ASCE%29CO.1943-7862.0001066>
- Li, T. H. Y., Ng, S. T., & Skitmore, M. (2012). Conflict or consensus: An investigation of stakeholder concerns during the participation process of major infrastructure and

construction projects in Hong Kong. *Habitat International*, 36(2), 333–342.

doi:10.1016/j.habitatint.2011.10.012

Liamputtong, P., & Ezzy, D. (2005). *Qualitative research methods (Vol.2)*. Melbourne: Oxford University Press.

Lima, M. L., Moreira, S., & Marques, S. (2012). Participatory community involvement in planning processes of building project—A social psychological approach.

Umweltpsychologie, 16(1), 68–87.

Lloyd-Walker, B., & Walker, D. (2011). Authentic leadership for 21st century project delivery. *International Journal of Project Management*, 29(4), 383–395.

Lloyd-Walker, B., & Walker, D. (2016). *The Sugarloaf alliance case study: Governance and governmentality for projects—Enablers, practices, and consequences*. New York: Routledge.

Love, P., Davis, P., Baccarini, D., Wilson, G., & Lopez, R. (2009). Capital works procurement: the selection of a building procurement method. *Cooperative Research Centre for Construction Innovation, CRC Construction Innovation, Brisbane, Australia*, 17-18.

Love, P., Davis, P., Chevis, R., & Edwards, D. (2011). Risk/reward compensation model for civil engineering infrastructure alliance projects. *Journal of Construction Engineering and Management*, 137(2), 127–136.

Lukes, S. (2005). Power and the battle for hearts and minds. *Millennium-Journal of International Studies*, 33(3), 477–493.

Lundy, M., Gottret, M. V., & Ashby, J. (2005). *Learning alliances: An approach for building multi-stakeholder innovation systems*. Retrieved from

https://cgspace.cgiar.org/bitstream/handle/10568/70181/ILAC_Brief08_alliances.pdf?sequence=1&isAllowed=y

- Lynch, R. P. (1989). *The practical guide to joint venture & cooperative alliance*. New York, NY: John Wiley & Sons.
- Mandal, P., Love, P. E., & Irani, Z. (2003). Pre-alliance planning: Development of an information system infrastructure to support strategic alliance activities. *Management Decision*, 41(2), 132–140.
- Manley, K., & Blayse, A. (2003). *BRITE report 2003: Report 2001-012-A-07 case studies*. Retrieved from <https://eprints.qut.edu.au/7307/1/7307.pdf>
- Māori Crown Relations Unit (n.d). *Guidelines for engagement with Maori*. Tearawhiti, New Zealand Government. Retrieved on 05 May 2019 from
- Manowong, E., & Ogunlana, S. (2010). Strategies and tactics for managing construction stakeholders. In Ezekiel Chinyo and Paul Olomolaiye (Eds.), *Construction Stakeholder Management* (pp.121–137),Sussex, England: Wiley-Blackwell Publishing Ltd.
- Masurier, J. L., Wilkinson, S., & Shestakova, Y. (2006, April). An analysis of the alliancing procurement method for reconstruction following an earthquake. In *Proceedings of the 8th US National Conference on Earthquake Engineering* (pp. 18–22). San Francisco, California.
- Mathur, V. N., Price, A. D. F., & Austin, S. (2008). Conceptualizing stakeholder engagement in the context of sustainability and its assessment. *Construction Management and Economics*, 26(6), 601–609. doi:10.1080/01446190802061233
- Maxwell, J. A. (2005). *Qualitative research design: An interactive approach*. (2nd ed.). Thousand Oaks, CA: Sage.
- Miles, M., & Huberman, A. (1994). *Qualitative data analysis: A source of new methods*. Thousand Oaks, CA: Sage.
- Miller, G., Furneaux, G., Davis, P., Love, P., & O'Donnell, A. (2009). *Built environment*

procurement practice: Impediments to innovation and opportunities for change.

Curtain University of Technology. Retrieved from

http://eprints.qut.edu.au/27114/1/Furneaux_-BEIIC_Procurement_Report.pdf

Mitchell, R. (2013). Best practice stakeholder engagement begins at day 1. In *IAlA13 Conference Proceedings—Impact Assessment the Next Generation: 33rd Annual Meeting of the International Association for Impact Assessment*. Calgary, Canada.

Retrieved from www.iaia.org

Mok, K. Y., Shen, G. Q., & Yang, J. (2015). Stakeholder management studies in mega construction projects: A review and future directions. *International Journal of Project Management*, 33(2), 446–457.

Molenaar, K. R., and Gransberg, D. D. (2001). “Design-builder selection

Monczka, R., Handfield, R., Schannell T, Ragatz, G., & Frayer, D. (2000). *New product development—Strategies for supplier integration*. Milwaukee, WI: American Society for Quality.

Morwood, R., Scott, D., & Pitcher, I. (2008). *Alliancing a participant’s guide: Real life experiences for constructors, designers, facilitators and clients*. Brisbane, QLD: AECOM.

Moyne Shire Council. (2005). *Community engagement framework: A guide for Moyne Shire Council*. Victoria, Australia. Retrieved from

http://www.moyne.vic.gov.au/Files/MSC_CEF_Final_Dec07.pdf

New Zealand Transport Agency (NZTA) (2010). Mackays to Peka Peka (M2PP) alliance report. Wellington, NZ: NZTA.

New Zealand Transport Agency (NZTA) (2011). *NZ Transport Agency. Statement of intent 2011–2014*. Wellington, NZ: NZTA.

- Ng, S. T., Li, T. H., & Wong, J. M. (2012). Rethinking public participation in infrastructure projects. *Proceedings of the ICE-Municipal Engineer*, 165(2), 101–113.
- Ng, S. T., Wong, J. M. W., & Wong, K. K. W. (2013). A public private people partnerships (P4) process framework for infrastructure development in Hong Kong. *Cities*, 31(2013), 370–381.
- Ng, W. S., & Yusof, M. A. (2006). The success factors of design and build procurement method: a literature visit. In *Proceedings of the 6th Asia-Pacific Structural Engineering and Construction Conference (ASPEC 2006)*. pp. C1-C11. Universiti Teknologi Malaysia (UTM), Kuala Lumpur.
- Ochieng, E. G., Price, A. D. F., Ruan, X., Egbu, C. O., & Moore, D. (2013). The effect of cross-cultural uncertainty and complexity within multicultural construction teams. *Engineering, Construction and Architectural Management*, 20(3), 307–324.
- OECD. (2005). *Oslo manual* (3rd ed.). Paris, France/Luxembourg: OECD/Eurostat.
Retrieved from <http://www.oecd.org/innovation/innovationinsciencetechnologyandindustry/oslomanualguidelinesforcollectinga ndinterpretinginnovationdata3rdedition.htm>
- O’Haire, C., McPheeters, M., & Nakamoto, E. (2011). *Engaging stakeholders to identify and prioritize future research needs*. Retrieved from <http://www.ncbi.nlm.nih.gov/books/NBK62571/>
- Olander, S. (2007). Stakeholder impact analysis in construction project management. *Construction Management and Economics*, 25(3), 277–287. doi:10.1080/01446190600879125
- Olander, S., & Landin, A. (2005). Evaluation of stakeholder influence in the implementation of construction projects. *International Journal of Project Management*, 23(4), 321–328.

- Olander, S., & Landin, A. (2008). A comparative study of factors affecting the external stakeholder management process. *Construction Management and Economics*, 26(6), 553–561.
- Orkar, M. S. A. (2011). Stakeholder engagement as practiced in the UK construction industry: Investigating the possibility for a contingency theory of stakeholder engagement in construction. *Proceedings Editor*.
- Ozorhon, B. (2012). Analysis of construction innovation process at project level. *Journal of Management in Engineering*. Advance online publication.
doi:10.1061/(ASCE)ME.1943-5479.0000157
- Pajunen, K. (2006). Stakeholder influences in organisational survival. *Journal of Management Studies*, 43, 1261–1288. doi:10.1111/j.1467-6486.2006.00624.x
- Patel, M., Kok, K., & Rothman, D. S. (2007). Participatory scenario construction in land use analysis: An insight into the experiences created by stakeholder involvement in the Northern Mediterranean. *Land Use Policy*, 24(3), 546–561.
- Pishdad, P., & Beliveau, Y. (2010). Integrating multi-party contracting risk management (MPCRM) model with building information modelling (BIM). Paper presented at 27th International Conference on Applications of IT in the AEC Industry, Cairo, Egypt.
- PMI. (2008). *A guide to the project management body of knowledge* (4th ed.). Pennsylvania:Project Management Institute (PMI).
- Prell, C., Hubacek, K., Reed, M., Quinn, C., Jin, N., Holden, J., & Sendzimir, J. (2007). If you have a hammer everything looks like a nail: Traditional versus participatory model building. *Interdisciplinary Science Reviews*, 32(3), 263–282
- Priemus, H. (2009). Do design & construct contracts for infrastructure projects stimulate innovation? The case of the Dutch high speed railway. *Transportation Planning and Technology*, 32(4), 335–353.

- Productivity Partnership. (2012). *Collaboration leads to innovation*. Retrieved from <http://www.buildingvalue.co.nz/news-events/collaboration-leads-innovation>
- Randeree, K., & Faramawy, A. T. E. (2011). Islamic perspectives on conflict management within project managed environments. *International Journal of Project Management*, 29(1), 26–32.
- Reed, M. S. (2008). Stakeholder participation for environmental management: A literature review. *Biological Conservation*, 141(10), 2417–2431.
- Robichaud, L. B., & Anantatmula, V. S. (2011). Greening project management practices for sustainable construction. *Journal of Management in Engineering*, 27, 48–57.
- Rodriguez-Melo, A. & Mansouri, S. A. (2011). Stakeholder engagement: Defining strategic advantage for sustainable construction. *Business Strategy and the Environment*, 20, 539–552. doi:10.1002/bse.715
- Rose, T., & Manley, K. (2010). Motivational misalignment on an iconic infrastructure project. *Building Research and Information*, 38, 144–156.
- Rowe, G., & Frewer, L. J. (2000). Public participation methods: A framework for evaluation. *Science, Technology & Human Values*, 25(1), 3–29.
- Rowe, G., & Frewer, L. J. (2004). Evaluating public-participation exercises: A research agenda. *Science, Technology & Human Values*, 29(4), 512–556.
- Rowe, G., & Frewer, L. J. (2005). A typology of public engagement mechanisms. *Science, Technology & Human Values*, 30(2), 251–290.
- Rowlinson, S. (2006). *Successful project: What are the keys to a successful project?*
Retrieved from http://www.aecom.com/deployedfiles/Internet/Capabilities/Program,%20Cost,%20Consultancy/Cost/Procurement_SuccessfulProjects_10Feb06.pdf
- Rowlinson, S., & Cheung, F. Y. (2004). A review of the concepts and definitions of the

- various forms of relational contracting. In S. N. Kalidindi & K. Varghese (Eds.), *Proceedings of the International Symposium of CIB W92 on Procurement Systems* (pp. 227–236). Chennai, India.
- Rowlinson, S., & Cheung, Y. K. F. (2008). Stakeholder management through empowerment: Modelling project success. *Construction Management and Economics*, 26(6), 611–623.
- Rowlinson, S. (1997). “Procurement systems: the view from Hong Kong.” Proc., CIB W92 Procurement—A key to innovation, Univ. de Montreal, Montreal, 665–672.
- Rwelamila, P. D. (2010). Impact of procurement on stakeholder management. In Ezekiel Chinyo and Paul Olomolaiye (Eds.), *Construction stakeholder management* (pp. 193–215). Sussex, England: Wiley-Blackwell Publishing Ltd
- Saghatforoush, E., Trigunarsyah, B., Too, E., & Heravitorbati, A. (2010). Effectiveness of constructability concept in the provision of infrastructure assets. Paper presented at the *edDBE 2011 Conference Queensland University of Technology*, Brisbane, QLD.
- Sakal, M. W. (2005) Project alliancing: A relational contracting mechanism for dynamic projects. *Lean Construction Journal*, 2(1), 67–79.
- Sharma, R. (2008). *The 6 principles of stakeholder engagement*. Supply Chain Management Review. Retrieved from www.censeoconsulting.com/media/pnc/2/media.12.pdf
- Shenhar, A. J., Dvir, D., Levy, O., & Maltz, A. C. (2001). Project success: A multidimensional strategic concept. *Long Range Planning*, 34(6), 699–725.
doi:[http://dx. doi.org.ezproxy.auckland.ac.nz/10.1016/S0024-6301\(01\)00097-](http://dx.doi.org.ezproxy.auckland.ac.nz/10.1016/S0024-6301(01)00097-)
- Shepherd, A., & Bowler, C. (1997). Beyond the requirements: Improving public participation in EIA. *Journal of Environmental Planning and Management*, 40(6), 725–738.
- Silverman, D. (Ed.). (2016). *Qualitative research*. Sage.
- Slaughter, E. S. (1998). Models of construction innovation. *Journal of Construction*

Engineering and Management, 124(3), 226–231.

Smith, J., & Love, P. E. (2004). Stakeholder management during project inception: Strategic needs analysis. *Journal of Architectural Engineering*, 10(1), 22–33.

Steiner, G. (2008). Supporting sustainable innovation through stakeholder management: A systems view. *International Journal and Learning*, 5(6), 595–616.

Storvang, P., & Clarke, A. H. (2014). How to create a space for stakeholders' involvement in construction. *Construction Management and Economics*, 32(12), 1166–1182.

Sullivan, J., Asmar, M. E., Chalhoub, J., & Obeid, H. (2017). Two decades of performance comparisons for design-build, construction manager at risk, and design-bid-build: Quantitative analysis of the state of knowledge on project cost, schedule, and quality. *Journal of Construction Engineering and Management*, 143(6), pp. 04017009.

Sutterfield, J. S., Friday-Stroud, S. S., & Shivers-Blackwell, S. L. (2006). A case study of project and stakeholder management failures: Lessons learned. *Project Management Quarterly*, 37(5), 26.

Tam, V. W. Y., & Le, K. N. (2007). Quality improvement in construction by using a Vandermonde interpolation technique. *International Journal of Project Management*, 25(8), 815–823.

Tamburro, N., & Wood, P. (2014). Alliancing in Australia: Competing for thought leadership. *Proceedings of the Institution of Civil Engineers—Management, Procurement and Law*, 167(2), 75–82.

Tammer, M. D. (2009). Early stakeholder involvement in projects. *PM World Today*, 11(4). Retrieved from <http://www.pmworldtoday.net>

Ministry of Business, Innovation and Employment New Zealand (2014). *Best practice guidelines for engagement with Māori*. Te Rūnanga o Ngāti Ruanui Trust. ISBN: 978-0-473-29044-3. Retrieved from <https://www.nzpam.govt.nz/assets/Uploads/doing->

[business/engagement-with-maori-guidelines.pdf](#)

- Teo, M., & Loosemore, M. (2012). Effective community engagement for project success: building professionals as active participants during the construction phase of projects. In Proceedings of the 37th Annual Conference of Australasian University Building Educators Association (AUBEA). The University of New South Wales.
- Gustavsson, T. K., Gohary, H., (2012) "Boundary action in construction projects: new collaborative project practices", *International Journal of Managing Projects in Business*, Vol. 5 Issue: 3, pp.364-376, <https://doi.org/10.1108/17538371211235272>
- Turner, R., & Zolin, R. (2012). Forecasting success on large projects: Developing reliable scales to predict multiple perspectives by multiple stakeholders over multiple time frames. *Project Management Journal*, 43(5), 87–99.
- FHWA, U.S. Department of Transportation (2009). Design–Build Effectiveness Study. Retrieved from <http://www.fhwa.dot.gov/reports/designbuild/designbuild.pdf>. On May 2019
- University of Victoria (2012). *Engaging with our neighbour: A community engagement framework for campus land use planning & development projects*. University of Victoria Campus Planning and Sustainability; Canada. Retrieved from: https://www.uvic.ca/assets2012/docs/pdfs/UVic-Engagement-Framework-Dec-13-2012_v1.pdf
- Van Marrewijk, A., Clegg, S. R., Pitsis, T. S., & Veenswijk, M. (2008). Managing public–private megaprojects: Paradoxes, complexity, and project design. *International Journal of Project Management*, 26(6), 591–600.
- Voss, C., Tsirikris, N., & Frohlich, M. (2002). Case research in operations management. *International Journal of Operations & Production Management*, 22(2), 195–219.
- Walker, A. (2002). *Project management in construction*. Oxford, England: Blackwell

Science Ltd.

Walker, D., & Hampson, K. (Eds.). (2003). *Procurement strategies: A relationship based approach*. Oxford, England: Blackwell Science Ltd.

Walker, D., & Rowlinson, S. (2007). *Procurement systems: a cross-industry project management perspective*. Routledge.

Walker, D. (2008). Sustainability: Environmental management, transparency and competitive advantage. *Journal of Retail & Leisure Property*, 7(2), 119–130.

Wang, X., & Huang, J., (2006). The relationship between key stakeholder's project performance and project success: Perceptions of Chinese construction supervising engineers. *International Journal of Project Management*, 24(3), 253–260.

Ward, S., & Chapman, C. (2008). Stakeholders and uncertainty management in projects. *Construction Management and Economics*, 26(6), 563–577.

Williams, E. K., Watene-Rawiri, E. M., & Tipa, G. T. (2018). Empowering indigenous community engagement and approaches in lake restoration: an Aotearoa-New Zealand perspective. In *Lake Restoration Handbook* (pp. 495-531). Springer, Cham.

Woodward, J., & Purdy, R., (2013). *How a multi-faceted approach and alliance principles can improving planning practice—Perspectives from causeway alliance*. Retrieved

from

http://www.planning.org.nz/Folder?Action=View%20File&Folder_id=269&File=PU_RDY_Rachel.pdf

- Yang, J., Shen, G. Q., Ho, M., Drew, D. S., & Chan, A. P. C. (2009b). Exploring critical success factors for stakeholder management in construction projects. *Journal of Civil Engineering and Management*, 15(4), 337–348. doi:10.3846/1392-3730.2009.15.337-348.
- Yang, J., Shen, Q., & Ho, M. (2009a). An overview of previous studies in stakeholder management and its implications for the construction industry. *Journal of Facilities Management*, 7(2), 159–175. doi:10.1108/14725960910952532
- Yang, J., Shen, G. Q., Bourne, L., Ho, C. M. F., & Xue, X. (2011). (2011). A typology of operational approaches for stakeholder analysis and engagement. *Construction Management and Economics*, 29(2), 145–162.
- Yin, R. K. (2009). *Case study research: Design and methods* (3rd ed.). London, England: SAGE Publications.
- Young, B. K., Hosseini, A., & Lædre, O. (2016). Project alliances and lean construction principles. In *Proceedings of a Conference of the 24th International Group for Lean Construction* (pp. 33–42). Boston, MA.
- Young, T. L. (2006). *Successful project management* (2nd ed.). UK: Kogan Page.
- Zhang, C., Canning, L., Dubois, L., & Vipham, M. (2011). Multi-stakeholder engagement for sustainable bridge delivery. *Proceedings of the ICE-Engineering Sustainability*, 164(3), 197–211.
- Zhang, Y., & Wildemuth, B. M. (2009). *Unstructured interviews*. In B. Wildemuth (Ed.), *Applications of social research methods to questions in information and library science* (pp. 222–231). Westport, CT: Libraries Unlimited.
- Zwikael, O., Shimizu, K., & Globerson, S. (2005). Cultural differences in project management capabilities: A field study. *International Journal of Project Management*, 23(6), 454–462.

Appendices

Appendix 1: Participants Information Sheet (Participants)

Appendix 2: Participants Information Sheet (Project Client)

Appendix 3: Consent Form (Project Client)

Appendix 4: Consent Form (Participants)

Appendix 5: Transcriber Confidentiality Agreement

Appendix 6: Semi-Structured Interview Questions



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING

Telephone: 64 9 373 7599 ext. 83820
Facsimile: 64 9 373 7462

The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand

PARTICIPANT INFORMATION SHEET (PIS)
(Participant)

Project title : Evaluating Early Stakeholder Engagement (ESE) as a Process for Innovation
Name of Researcher : HAR EINUR AZRIN BAHARUDDIN
Degree : PhD in Civil Engineering
Department : Civil and Environmental Engineering
Research Supervisors : Assoc. Prof. Dr. Suzanne Wilkinson and Dr. Seosamh B. Costello

Researcher introduction

This research is conducted by Har Einur Azrin Baharuddin, a doctoral student of the Department of Civil and Environmental Engineering, Faculty of Engineering, The University of Auckland. The student is currently enrolled in a degree of PhD in Civil Engineering under supervision of Assoc. Prof. Dr. Suzanne Wilkinson and Dr. Seosamh B. Costello.

Project description and invitation

The early involvement of stakeholders could identify any potential problems early-on and continue providing input throughout the construction phase. Therefore, there is a need to engage the stakeholder in the project as early as possible to determine the need and capture stakeholder inputs in such projects. No major studies have so far been completed that examine in depth how early stakeholder engagement influences the innovation process. Therefore it is crucial to identify the potential external and internal factors of early stakeholder engagement intentionally to promote, validate and measure the practicality towards meaningful stakeholder engagement. The following research questions are raised: What are the common factors that arise from the stakeholder engagement process? What are the factors that could make the early stakeholder engagement successful and what factors could make it fail? What are the methods used to engage the stakeholder? What are the possible impacts, if stakeholders are gathered from the early stage of the project? What are short term and long term benefits if the stakeholder could be engaged at an earlier stage? How the early stakeholder engagement can facilitate the innovation of the project? How to measure the factors identified? How to ensure that these factors could lead to the success of other project? Thus, in order to answer these questions, it is vital to understand the overview concept of stakeholder engagement and the early stakeholder engagement process.

This research aims to establish a performance measure for early stakeholder engagement during the early stages of construction projects, as a process to facilitate innovation in construction. The findings of the research can be applied to provide lessons learned and as a common platform for discussion among the client, project manager and the other key stakeholders in the construction project, thus, helping to improve quality and productivity of the project.

Your selection as a participant is selected on the basis of your knowledge and experience in stakeholder engagement and/or your involvement as a key stakeholder of the project. Since the research is to be conducted with project team members and key stakeholders, this Participant Information Sheet (PIS) has also been provided to the Project Client (or other suitably authorised chief of the project) to seek their permission/authorisation to provide access to you and the relevant project documentation and information.

A major part of this investigation is to gather information on the overview of stakeholder engagement in the project. It is intended to identify external and internal factors of early stakeholder as a driver for innovation in construction. For this purpose, your participation including your project's personnel and key stakeholders will be a vital contribution to the successful outcome of this research.

Interested participants shall make direct contact with the researcher. Upon consent from the participants, the questionnaire survey will be sent via email, fax, or postage depending on participant's preferences. While the interview questions will be sent by email to the selected experienced project personnel based on the recommendation from project manager or other suitably authorised manager. The purpose of sending the interview questions before the interview session is to give a time for the participants to answer all the questions accordingly.

Project Procedures

This is a qualitative and quantitative nature of study, where interviews and questionnaire surveys will be adopted as the method of data collection. The participants involved will number approximately 30-50 project personnel and key stakeholders involved in the project.

In this study, following an initial pilot survey, a web based and face-to-face questionnaire survey will be used to gain relevant data. The survey will last approximately 20 minutes. The web based questionnaire will be sent via email and the link of www.surveymonkey.com will be attached. If the participants are unable to reach by email, the questionnaire will be sent to the participants via fax, or postage depending on participant's preference. Your participation is entirely voluntarily. Interested participants shall make direct contact with the researcher. It is confirmed by the authorized project personnel that your participation or non-participation will not affect your project or organisation status. For questionnaire via postage the cost of postage will be reimbursed by the researcher.

The next stage, interview will be conducted among the key stakeholders of the project. This includes senior and middle management of the project such as project manager, stakeholder manager, project engineer, general manager, and external stakeholders. The participants will be selected on the basis of their knowledge and experience in managing and involvement as a stakeholder of the project.

An interview survey will be used to gain relevant data and it will take approximately one (1) hour to fill in all the questions. The procedure begins with confirming the interviewee's date and time first. Then, the interview questions will be sent via email to the selected participant of key stakeholders to ensure that they have ample time to answer all questions. The process will improve the quality of the interviews.

For the interview, interview sessions with the participants will be recorded using digital voice recorder. The audio recording will be transcribed and the data will be used for the purpose of this research. The audio recording transcribed by the researchers will be kept confidentially by the researcher. The researcher will seek the participant's permission upon the audio recording. If you decline to do so, the researchers will take notes during the interview session. Recorded interviews of this type cannot be shared with third parties. If this is intended it must be clearly documented for all concerned.

Data storage/retention/destruction/future use

All raw data (soft copy and hard copy) will be kept confidential and stored in a secured authorized access only by the researcher and supervisors via hard disk drives, data store websites, and locked cabinet within university premises. These data will be stored with the researcher for six (6) years, after which will be destroyed permanently by deleting the saved files from all storage, and hard copies will be cleared up by appropriate means of incineration, destroyed by shredding and sent for recycling.

The storage for the audio recording only can be accessible by the researcher and her supervisors only. After the study completed, the softcopy of audio recording will be deleted from the researcher's hard disk and computer. Participants have the right to discard or annul any data and request for their transcripts with the consent of the researcher at least within one (1) month commencing from the date the survey is sent out. Furthermore, participants have the right to keep the transcript of your response confidential from your employer and your Project Client (or other suitably authorised chief of the project) or other members within the organisation or project.

Rights to Withdraw from Participation

This questionnaire and interviews has been given permission from the University of Auckland Human Participants Ethics Committee (UAHPEC). Authorisation has been acquired that your participation or non-participation will not affect your employment status. Although, your Project Client (or other suitably authorised chief of the project) has given permission, you are permissible to decide whether to participate or not in this research survey. Participants have the right to withdraw from participation at any time they wish. Withdrawal of data provided can be done up to one (1) month after undertaking the survey.

Anonymity and Confidentiality

All data will be used only for the purpose of this research and subsequent publications in academic journals. For both purposes, all data from participants will be analysed and presented in a way that does not identify the source either by name or inference. All results will appear in a generalised form. In addition to this, the organisation/name will be kept confidential. Participant's identity will not be revealed. A draft of any kind of document containing the data will be made available for review to ensure all information reported is satisfactory. A draft of summary findings will be made available upon request.

Contact Details and Approval Wording

Researcher	:	Har Einur Azrin Baharuddin
Mobile	:	+64 021 0229 6865
Email	:	hbah574@aucklanduni.ac.nz
Supervisor	:	Assoc. Prof. Dr. Suzanne Wilkinson
Phone	:	+64 9 3737599 ext. 88184
Email	:	s.wilkinson@auckland.ac.nz
Supervisor	:	Dr. Seosamh B. Costello
Phone	:	+64 9 3737599 ext. 88164
Email	:	s.costello@auckland.ac.nz
Head of the Department	:	Prof. Pierre Quenneville
Phone	:	+64 09 3737599 ext 87920
Email	:	p.quenneville@auckland.ac.nz

Chair contact details: "For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142. Telephone 09 373-7599 extn. 87830/83761. Email: humanethics@auckland.ac.nz."

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON **4th March 2013** for (3) years, Reference Number **9224**.



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING

Telephone: 64 9 373 7599 ext. 83820
Facsimile: 64 9 373 7462

The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand

PARTICIPANT INFORMATION SHEET (PIS)
(Project Client)

Project title : Evaluating Early Stakeholder Engagement (ESE) as a Process for Innovation
Name of Researcher : HAR EINUR AZRIN BAHARUDDIN
Degree : PhD in Civil Engineering
Department : Civil and Environmental Engineering
Research Supervisors : Assoc. Prof. Dr. Suzanne Wilkinson and Dr. Seosamh B. Costello

Researcher introduction

This research is conducted by Har Einur Azrin Baharuddin, a doctoral student of Department of Civil and Environmental Engineering, Faculty of Engineering, The University of Auckland. Currently, enrolled in a degree of PhD in Civil Engineering and under supervision of Assoc. Prof. Dr. Suzanne Wilkinson and Dr. Seosamh B. Costello.

Project description and invitation

The early involvement of stakeholders could identify any potential problems early-on and continue providing input throughout the construction phase. Therefore, there is a need to engage the stakeholder in the project as early as possible to determine the need and capture stakeholder inputs in such projects. No major studies have so far been completed that examine in depth how early stakeholder engagement influences the innovation process. Therefore it is crucial to identify the potential external and internal factors of early stakeholder engagement intentionally to promote, validate and measure the practicality towards meaningful stakeholder engagement. The following research questions are raised: What are the common factors arise from the stakeholder engagement process? What are the factors that could make the early stakeholder engagement successful and what factors could make it fail? What are the methods used to engage the stakeholder? What are the possible impacts, if stakeholders are gathered from the early stage of the project? What are short terms and long term benefits if the stakeholder could be engaged at the earlier stage? How the early stakeholder engagement can facilitate the innovation of the project? How to measure the factors identified? How to ensure that these factors could lead to the successful of other project? Thus, in order to answer these questions, it is vital to understand the overview concept of stakeholder engagement and early stakeholder engagement process.

This research aims to establish the performance measure of the early stakeholder engagement during earlier stage of the construction project, as a process to facilitate innovation in construction. The findings of the research can be applied to provide a lesson learn and as a common platform for discussion among the client, project manager and the other key stakeholders in the construction project, thus, help to improve quality and productivity of the project.

The purpose of this Participant Information Sheet (PIS) is to ask for your consent to invite the project personnel and key stakeholders of the project to participate in the interview and questionnaire survey for this research. In addition, it is also to inform you on the ethics, data storage and anonymity upon your participation.

A major part of this investigation is to gather information on the overview of stakeholder engagement in the project. It is also to seek for the important external and internal factors of early stakeholder as a driver for innovation in construction. For this purpose, your participation including your project's personnel and key stakeholders will be a vital contribution to the successful outcome of this research.

Interested participants shall make direct contact with the researcher. Upon consent from the participants, the questionnaire survey will be sent via email, fax, or postage depending on participant's preferences. While the

interview questions will be sent by email to the selected experience project personnel based on the recommendation from project manager or other suitably authorised manager. The purpose of sending the interview questions before the interview session is to give a time for the participants to answer all the questions accordingly.

Project Procedures

This is a qualitative and quantitative nature of study, where interviews and questionnaire surveys will be adopted as the method of data collection. The participants involved approximately 30-50 project’s personnel and key stakeholders involved in the project.

In this study a web based and face-to-face questionnaire survey will be used to gain relevant data. The survey will last approximately 20 minutes. The web based questionnaire will be sent via email and the link of www.surveymonkey.com will be attached. If the participants are unable to reach by email, the questionnaire will sent to the participants via fax, or postage depending on participant’s preferences. The participation is entirely voluntarily. Interested participants shall make direct contact with the researcher. The participation or non-participation in the survey will not in any way affect the project or organisation status. For questionnaire via postage the cost of postage will be reimburse by the researcher.

The next stage, interview will be conducted among the key stakeholders of the project. This includes senior and middle management of the project such as project manager, stakeholder manager, project engineer, general manager, and external stakeholders. The participants will be selected on the basis of their knowledge and experience in managing and involvement as a stakeholder of the project.

An interview survey will be used to gain relevant data and will take approximately one (1) hour to fill in all the questions. The procedure begins with confirming the interviewee’s date and time first. Then, the interview questions will be sent via email to the selected participant of key stakeholder to ensure that they have ample time to answer all questions. The process will improve the quality of the interviews.

For the interview, interview session with the participants will be recorded using digital voice recorder. The audio recording will transcribe and the data will be used for the purpose of research. The audio recording transcribed by the researchers will be kept confidentially by the researcher. The researcher will seek the participant’s permission upon the audio recording. If they decline to do so, the researchers will only take notes during the interview session. Recorded interviews of this type cannot be shared with third parties. If this is intended it must be clearly documented for all concerned.

Data storage/retention/destruction/future use

All raw data (soft copy and hard copy) will be kept confidential stored in a secured authorized access only by the researcher and supervisors via hard disk drives, data store websites, and locked cabinet within university premises. These data will be stored with the researcher for six (6) years, after which will be destroyed permanently by deleting the saved files from all storage, and hard copies will be cleared up by appropriate means of incineration, destroyed by shredding and sent for recycling.

The storage for the audio recording only can be accessible by the researcher and her supervisors only. After the study completed, the softcopy of audio recording will be deleted from the researcher’s hard disk and computer. Participants have rights to discard or annual any data and request for their transcripts with the consent of the researcher at least within one (1) month commencing from the date the survey is sent out. Furthermore, participants will retain the right to keep their response transcripts restricted from access/review by other members in your project or organisation.

Right to Withdraw from Participation

This questionnaire and interviews has been given permission from the University of Auckland Human Participants Ethics Committee (UAHPEC). The participants have the right to withdraw from participation at any time they wish. Withdrawal of data provided can be done up to one (1) month after undertaking the survey. Participation or non-participation, will not affect the employment status of the participants. Your endorsement will be relayed to the key stakeholders who are invited to participate in this research, but they will still retain their right to decide whether or not to participate.

Anonymity and Confidentiality

All data will be used only for the purpose of this doctoral research and subsequent publications in academic journals. For both purposes, all data from participants will be analysed and presented in a way that does not identify

the source either by name and inference. All results will appear in a generalised form. In addition to this, the organisation/name will be kept confidential. Participant's identity will not be revealed. However, only the organisation/institution name will be mentioned. A draft of any kind of documents containing the data will be made available for review to ensure all information reported is satisfied. A draft of summary findings will be made available upon request.

Contact Details and Approval Wording

Researcher : Har Einur Azrin Baharuddin
Mobile : +64 021 0229 6865
Email : hbah574@aucklanduni.ac.nz

Supervisor : Prof. Dr. Suzanne Wilkinson
Phone : +64 9 3737599 ext. 88184
Email : s.wilkinson@auckland.ac.nz

Supervisor : Dr. Seosamh B. Costello
Phone : +64 9 3737599 ext. 88164
Email : s.costello@auckland.ac.nz

Head of the : Prof. Pierre Quenneville
Department
Phone : +64 09 3737599 ext 87920
Email : p.quenneville@auckland.ac.nz

Chair contact details: "For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, The University of Auckland, Research Office, Private Bag 92019, Auckland 1142. Telephone 09 373-7599 extn. 87830/83761. Email: humanethics@auckland.ac.nz."

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON 4th March 2013 for (3) years, Reference Number **9224**.



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING

Telephone: 64 9 373 7599 ext. 83820
Facsimile: 64 9 373 7462

The University of Auckland
Private Bag 92019
Auckland, New Zealand

CONSENT FORM
(Project Client)

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title : Evaluating Early Stakeholder Engagement (ESE) as a Process for Innovation
Name of Researcher : HAR EINUR AZRIN BAHARUDDIN
Degree : PhD in Civil Engineering
Department : Civil and Environmental Engineering
Research Supervisors : Assoc. Prof. Dr. Suzanne Wilkinson and Dr. Seosamh B. Costello

I have read the Participant Information Sheet; have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research.
- I give assurance that the decision of giving the project personnel and key stakeholders for this project to participate in the interviews and questionnaire survey to support this research. I understand that any such information will be treated confidentially and any reported information will appear in a general form.
- I understand all data will be kept confidential stored in a secured authorized access only by the researcher and supervisors via hard disk drives, data store websites, and locked cabinet within the university premises.
- I understand that the participants have the right to withdraw their participation in this research at any time up to one (1) month after undertaking the survey.
- I understand that participation and non-participation will not in any way affect employment status of the key stakeholder.
- I agree / do not agree to be audiotaped.
- I wish / do not wish to receive the summary of findings.
- I understand that data will be kept for 6 years, after which they will be destroyed.
- I understand that project personnel and key stakeholders for this project will retain the right to keep their survey response confidential from me and other members of my project/organisation.

Name _____ Date _____

Company/Organisation name: _____

Correspondence address : _____

Telephone: _____ Mobile phone: _____

Fax: _____ Email: _____

Signature _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON **4th March 2013** FOR (3) YEARS REFERENCE NUMBER **9224**.



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING

Telephone: 64 9 373 7599 ext. 83820
Facsimile: 64 9 373 7462

The University of Auckland
Private Bag 92019
Auckland, New Zealand

CONSENT FORM
(Participants)

THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS

Project title : Evaluating Early Stakeholder Engagement (ESE) as a Process for Innovation
Name of Researcher : HAR EINUR AZRIN BAHARUDDIN
Degree : PhD in Civil Engineering
Department : Civil and Environmental Engineering
Research Supervisors : Assoc. Prof. Dr. Suzanne Wilkinson and Dr. Seosamh B. Costello

I have read the Participant Information Sheet; have understood the nature of the research and why I have been selected. I have had the opportunity to ask questions and have them answered to my satisfaction.

- I agree to take part in this research.
- I give assurance that the decision of giving the project personnel and key stakeholders for this project to participate in the interviews and questionnaire survey to support this research. I understand that any such information will be treated confidentially and any reported information will appear in a general form.
- I understand all data will be kept confidential stored in a secured authorized access only by the researcher and supervisors via hard disk drives, data store websites, and locked cabinet within the university premises.
- I understand that the participants have the right to withdraw their participation in this research at any time up to one (1) month after undertaking the survey.
- I understand that participation and non-participation will not in any way affect employment status of the key stakeholder.
- I agree / do not agree to be audiotaped.
- I wish / do not wish to receive the summary of findings.
- I understand that data will be kept for 6 years, after which they will be destroyed.
- I understand that project personnel and key stakeholders for this project will retain the right to keep their survey response confidential from me and other members of my project/organisation.

Name _____ Date _____

Company/Organisation name: _____

Correspondence address : _____

Telephone: _____ Mobile phone: _____

Fax: _____ Email: _____

Signature _____

APPROVED BY THE UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE ON **4th March 2013** FOR (3) YEARS REFERENCE NUMBER **9224**.



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING

Telephone: 64 9 373 7599 ext. 83820
Facsimile: 64 9 373 7462

The University of Auckland
Private Bag 92019
Auckland, New Zealand

TRANSCRIBER CONFIDENTIALITY AGREEMENT
(Project Client)

Project title : Evaluating Early Stakeholder Engagement as a Process for Innovation
Name of Researcher : HAR EINUR AZRIN BAHARUDDIN
Degree : PhD in Civil Engineering
Department : Civil and Environmental Engineering
Research Supervisors : Prof. Dr. Suzanne Wilkinson and Dr. Seosamh B. Costello

I agree to transcribe the audiotapes/videotapes for the above research project. I understand that the information contained within them is confidential and must not be disclosed to, or discussed with, anyone other than the researcher and his/her supervisor(s).

Name _____ Date _____
Company/Organisation name: _____
Correspondence address : _____
Telephone: _____ Mobile phone: _____
Fax: _____ Email: _____
Signature _____



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
FACULTY OF ENGINEERING

Telephone: 64 9 373 7599 ext. 83820
Facsimile: 64 9 373 7462

The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand

EVALUATING EARLY STAKEHOLDER ENGAGEMENT AS A PROCESS FOR INNOVATION

To whom it may concern,

I am undertaking doctoral research in the area of construction management focusing on evaluating early stakeholder engagement (ESE) as a process for innovation in construction. The expected outcome of the research is as a performance measure of the engagement of stakeholder at the early stage of the project and the impact towards the project success.

I am writing to seek your support to participate in this research. I intend to collect empirical information on the current practice of engaging stakeholder in the project.

This interview questions will take approximately 1 hour of your time to complete. I wish to reassure you that all information obtained from this survey will be confidential and will be used only to provide information for the purpose of this research. Please find more information regarding this research on the enclosed Participant Information Sheet (PIS).

I look forward to hearing from you. If you require clarification and any further information, please do not hesitate to contact me.

Thank you in anticipation of your valuable assistance.

Yours sincerely,

Har Einur Azrin Baharuddin
Doctoral Candidate
Department of Civil and Environmental Engineering
Faculty of Engineering, The University of Auckland
Private Bag 92019
Auckland 1142, New Zealand
Mobile No.: +64(0) 2102296865(NZ) or +6012 242 1917 (Malaysia)
Email: hbah574@aucklanduni.ac.nz or hareinurazrin@gmail.com



Semi Structured Interview

The objective of this interview is to understand the process of early stakeholder engagement, internal and external factors involving the engagement in the construction project and understanding the benefits and pitfalls of the early engagement.

Your support in answering this interview questions is highly appreciated to ensure that this research successful and meet its objective.

DEMOGRAPHIC INFORMATION

1. Participant's background:

Name: _____
Current position: _____
Company/Institution/Agency: _____
Phone No.: _____
Email: _____

Interview questions:

Part A: Background of study

- 1) Could you tell about yourself and the organisation or agency that you represent to?
- 2) Could you tell more about the project?
- 3) What are the various interests of project stakeholders and what influence might this have on the project?

Part B: Stakeholder engagement

Identifying stakeholder

- 4) How does your agency identifying the stakeholders or those affected by the project?
- 5) How does your agency approach the stakeholders? Do you think this approach is effective?
- 6) How the stakeholder being notify about the project? Are they being engaged regularly?
- 7) How many stages did your agency 'meet and greet' with the community? Do you feel that they are well informed and consult at this stage?
- 8) What are the approached used by the agency to maintain the engagement with the stakeholder of the project?

Methods use for engaging stakeholder

- 9) Which of these consultation methods used in stakeholder engagement will be most effective? (Brochures and postcards, expo, information centre, project website, individual meetings, project phone-line, media releases, email, feedback form, stakeholder letter, advertising, focus group workshop, etc.).
- 10) How frequent the agency engaged with the community during the engagement process?
- 11) Do you feel that all relevant stakeholder groups were able to be engaged? Is there any specific group that missed out?
- 12) Describe your experience in during the engagement.
- 13) What stakeholder engagement events were your organisation conducted so far?

Improvement of the stakeholder engagement

- 14) What are the barriers during the engagement process that effect you directly or indirectly?
- 15) What is the likely timeframe for consultation and discussion will be most effective?
- 16) What was the value of engagement? Did it really lead to better decision making process?

Part C: Early stakeholder engagement

Perspective on the process of engaging stakeholders in decision making at the early stage of the project and how satisfied with the outcome of the project.

- 17) At the start of the project (during inception, planning), were there any conflicts of interest?
- 18) Comment on the effectiveness of the engagement process.
 - i. Transparent
 - ii. Openness
 - iii. Availability
 - iv. Respectful
 - v. Informative
 - vi. Timely
 - vii. Active follow up on concern/submission/conflicts

- 19) How satisfied were you with the level of stakeholder involvement in the decision making process? Was it effective or ineffective?
- 20) How satisfied you with the outcome of the engagement? How comfortable the relationship with the stakeholders so far?
- 21) At which level of IAP2 Spectrum (Inform – Consult – Involve – Collaborate – Empowerment) affect the stakeholder engagement so far?
- 22) From your opinion, how important the early stakeholder engagement to the project success? How early do you think stakeholder should be involved?
- 23) Do you think early stakeholder engagement can affect or give positive feedback to the construction?
- 24) From your opinion, is early stakeholder engagement giving a direct effect to the procurement system?

Comment:.....
.....
.....

Factors involving early stakeholder engagement in construction

(This question requires interviewee opinion on the internal and external factors that could influence the early engagement of the stakeholder in the project and factors of productive engagement)

1) Please indicate your level of agreement to the following statement relating to the internal and external factor influencing the early stakeholder engagement in construction project.

1	2	3	4	5
Strongly Disagree (SD)	Disagree (D)	Neutral / No Opinion (N)	Agree (A)	Strongly Agree (SA)

Item	Factors	SD	→				SA
		1	2	3	4	5	
	Internal Factors						
1	Developing trust						
2	Dialogue						
3	Early stakeholder identification						
3	Sense of ownership						
4	Transparency						
5	Early identification of constraints						
6	Social Influences						
7	Regulatory conflicts						
8	Higher levels acceptance						
9	Organisational culture						
10	Shared risk						
11	Project team response						
12	Undertake pre and post lodgement consultation						
13	Appropriate mitigation measures						
14	Draft of consent condition						
15	Prepare a project design and philosophy						
16	Employ the national consenting process						
17	Submit an outline plan						
18	Conduct public hearing						
	External Factors						
19	Environmental impacts						
20	Cultural landscape						
21	Change in stakeholder's influence and interest						
22	Creative proposition						
23	Ownership issue						
24	Economic performance						
25	Political influence						
26	Corporate social responsibility						
27	Social/Community interest						
28	Assessment of environmental effects						

2) Please indicate your level of agreement to the following statement relating to *the factors influencing the effective engagement process*:

Item	Factors	SD	→				SA
		1	2	3	4	5	
1	Transparency						
2	Accountability						
3	Send message that companies value the input of communities						
4	Identify their own representatives						
5	Protecting health and safety of the stakeholder						
6	Involve stakeholder in design and implementation of the proposed project						
7	Politically acceptability						
8	Resource implication (time, cost etc.)						
9	Openness and inclusivity						
10	Clarity of documentation and intention						
11	Respect community and landowners right						
12	Support the capability of external stakeholders to participate in opportunities provided						
13	Provide lasting benefits of local communities						
14	Be responsive to community priorities, needs and interests through all stages of development						
15	Comply with all laws and regulations in each zone where the project run						
16	Recognise and respect the unique role, contribution and concerns or Maori/ indigenous community						
17	Respect human rights						
18	Proactively seeking, engaging and supporting dialogue						
19	Working with the community interest						
20	Realistic						
21	Flexible in charging way in which stakeholder dialogue is conducted with different stakeholders						
22	Allow time to build trust						
23	Demonstrate clarity of the purpose						
24	Prepared for change to your project as result of stakeholder dialogue						
25	Engage key stakeholders which may include "difficult" stakeholders						

Comment:.....

