

TABLE OF CONTENTS

Abstract.....	iii
<i>Abstrak</i>	v
Acknowledgement.....	vii
Table of Contents.....	viii
List of Figures.....	xv
List of Tables.....	xix
List of Symbols and Abbreviations.....	xxiii
List of Appendices.....	xxvi
CHAPTER 1: INTRODUCTION.....	1
1.1 Background Of the Study.....	1
1.2 Scenario of Housing in Malaysia.....	5
1.3 Background of the Research Area.....	9
1.4 Problem Statement.....	13
1.5 Research Question.....	15
1.6 Aim and Objectives of the Research.....	16
1.7 Research Methodology.....	17
1.7.1 Literature Review (Content Analysis).....	17
1.7.2 Pilot Study.....	18
1.7.3 Focus Group Interview.....	18
1.7.4 Quantitative – Questionnaire (Phase One And Phase Two).....	18
1.7.5 Site Experimentation.....	19
1.8 Limitations of Research.....	19
1.9 Significance of the Research.....	20

1.10	Conceptual Framework of the Research.....	21
1.11	Thesis Structure.....	24

CHAPTER 2: SELF HELP HOUSING.....26

2.1	Introduction.....	26
2.2	The History of Housing In Malaysia.....	26
2.3	Implementation of Housing Policies.....	29
2.3.1	British Colonial Administrative Housing Policy (1948 – 1960).....	30
2.3.2	Democracy in Home Ownership Housing Policy (1961 – 1970).....	31
2.3.3	New Economic Policy (1971 – 1990).....	34
2.3.4	Public and Private Sector Collaboration (Early 1980s).....	36
2.4	Public Housing Programs.....	39
2.4.1	Jabatan Perumahan Negara (JPN) – National Housing Department.....	39
2.4.2	Syarikat Perumahan Negara Berhad (SPNB) – National Housing Company).....	42
2.4.3	1 Malaysia Development Berhad (1MDB).....	44
2.4.4	Ministry of Rural and Regional Development.....	46
2.5	Guidelines for House Pricing Implementation.....	48
2.6	Criticism and Issues in Housing.....	50
2.7	Forming An Understanding of Self Help Housing.....	59
2.8	Global Practice on Self Help Housing.....	67
2.8.1	Types Of Self Help Housing.....	69
2.8.2	The Components Involved In Self Help Housing.....	74
2.8.3	Main Stages In Self Help Housing.....	75
2.9	Technology Of Self Build Houses.....	82
2.10	Chapter Summary.....	94

CHAPTER 3: METHODOLOGY.....	97
3.1 Introduction.....	97
3.2 Purpose of Study.....	97
3.3 Research Design.....	99
3.4 Pilot Survey.....	105
3.5 Population and Sampling.....	106
3.5.1 The Public.....	111
3.5.2 Selected Organisations.....	112
3.6 Instrument Design And Development.....	113
3.6.1 Selection Of Enumerators.....	115
3.6.2 Ethical Considerations.....	115
3.7 Survey Administration.....	117
3.7.1 The Interview Survey With Selected Organisations.....	118
3.7.2 The Actual Survey.....	118
3.8 Data Analysis Strategy.....	120
3.9 Chapter Summary.....	121
CHAPTER 4: PHASE 1: DATA ANALYSIS AND FINDINGS.....	123
4.1 Introduction.....	123
4.2 Interview with Selected Organisations Involved in Housing Provision.....	124
4.2.1 Housing Loan Scheme Division (Bahagian Skim Pinjaman Perumahan – SPP).....	124
4.2.2 Kedah Region Development Board (KEDA).....	129
4.2.3 Construction Industry Development Board (CIDB).....	135
4.3 Description of Households and House Status in Baling and Padang Terap.....	137
4.4 Characteristics of Rural Low-Income Profile and The Need Of House.....	140

4.5	Investigating Relationship Between Level of Satisfaction Towards House Existing Condition and Their Profile.....	142
4.6	Investigating Relationship Between Self Build House Concept Awareness and Their Profile.....	145
4.7	Identify Rural Low-Income Affordable Range of Property.....	147
4.8	Investigating Relationship Between Ease of Renovation and the Need for Additional Space.....	148
4.9	Identify Problems (Other Than Technical) to Renovate Existing House.....	149
4.10	Identify Renovation Choices.....	151
4.11	Investigating Relationship Between Involvement and Willingness to Join Mutual Help.....	152
4.12	Identify Reasons for Willingness to Join Mutual Help.....	153
4.13	Identify Rural Low-Income Owning a House.....	154
4.14	Identify Level of Acceptance Towards Self Build House.....	154
	4.14.1 Results of Factor Analysis.....	155
4.15	Identify Characteristics of Choice of Property.....	157
4.16	Investigating Relationship Between Skills and Experience in Constructions.....	159
4.17	Identify Types of Training Needed.....	159
4.18	Identify Ability to Read House Plan.....	159
4.19	Identify Construction Items That are Easy to Work with and Affordable.....	160
4.20	Identify Factors That Determine Demand of House.....	161
	4.20.1 Results of Factor Analysis.....	161
	4.20.2 Exploring Characteristics of Data.....	164
4.21	Identify Factors That Affect The Housing Demand According To Their Profile.....	165

4.21.1	District.....	166
4.21.2	Age Group.....	167
4.21.3	Affordability.....	169
4.22	Chapter Summary.....	171

CHAPTER 5: DEVELOPMENT OF READY-TO-ASSEMBLE (RTA)

SELF BUILD HOUSING SYSTEM.....174

5.1	Introduction.....	174
5.2	The Segal Method.....	177
5.2.1	The Principles.....	177
5.2.2	The Procurement.....	180
5.2.3	Accessibility.....	189
5.3	Similarities of Segal Approach to Malay Traditional Construction.....	190
5.4	The Advantages of Prefabrication in Self Build Housing	193
5.5	The Design Process of Ready-To-Assemble (RTA) Self Build Housing System Prototype.....	196
5.5.1	The Grid.....	197
5.5.2	The Structural Framing: Post and Beam.....	198
5.5.3	The Modular Wall.....	199
5.5.4	The Modular Floor.....	200
5.5.5	The Simplified Roof Truss.....	201
5.5.6	The Connectors.....	202
5.5.7	The Schedule of Materials.....	203
5.6	Comparison of RTA Self Build Housing System to Other Modular Systems.....	205
5.7	Strength of RTA Self Build Housing System.....	211

5.7.1	Consistency.....	211
5.7.2	Availability.....	213
5.7.3	Flexibility.....	213
5.7.4	Affordability.....	215
5.7.5	Accessibility.....	216
5.7.6	Ease of Construction.....	217
5.8	Chapter Summary.....	219

**CHAPTER 6: READY-TO-ASSEMBLE (RTA) SELF BUILD HOUSING
SYSTEM: THE TESTING AND ANALYSIS221**

6.1	Introduction.....	221
6.2	RTA Self Build System Experimentation on Site.....	221
6.2.1	Methodology (Summary from Chapter 3)	222
6.2.2	Selection of Site.....	222
6.2.3	Selection of Respondents.....	223
6.3.4	Development of Questionnaire.....	224
6.3	Phase 2 Analysis.....	225
6.3.1	Descriptions of Respondents.....	226
6.3.2	Investigating the Understanding of Technical Topics on RTA Self Build System.....	226
6.3.3	Investigating the Ease of Assembly in RTA Self Build System.....	228
6.3.4	Investigating the Factors That Influence Aesthetics Value in the Design of RTA Self Build System.....	230
6.3.5	Investigating the Factors That Influence Flexibility in The Design of RTA Self Build System.....	231

6.3.6	Investigating Issues Related In The Process Of Self Build Using The RTA System.....	232
6.3.7	Identifying The Strength And Weaknesses Of RTA Self Build Housing System.....	233
6.3.8	Identifying Reasons To Participate In Self Help Housing Through RTA Self Build Housing System.....	235
6.4	Analysis From Observation.....	236
6.5	Chapter Summary.....	240
CHAPTER 7:	CONCLUSION AND RECOMMENDATIONS.....	243
7.1	Introduction.....	243
7.2	The Impact Of Self Help Housing In Rural Area.....	245
7.3	The Impact Of RTA Self Build Housing System.....	247
7.4	Contribution To The Body Of Knowledge.....	251
7.5	Recommendations And Future Research.....	258
7.5.1	Recommendations.....	258
7.5.2	Future Research.....	261
7.6	Acknowledgements.....	262
	References.....	263
	List of Publications and Papers Presented.....	277
	Appendix.....	280

LIST OF FIGURES

Figure 1.1:	Location of Kedah in Relation to Peninsular of Malaysia.....	10
Figure 1.2:	Districts in Kedah.....	11
Figure 1.3:	Percentage of Population According to Ethnicity.....	12
Figure 1.4:	The Conceptual Framework of the Research.....	23
Figure 2.1:	Before and After the Restoration of the House.....	44
Figure 2.2:	The Branch of Study Involved in Self Help Housing.....	83
Figure 2.3:	Local Earthen Construction Practice was Improved to Protect Against Rain and Rising Damp. The External Walls are Left While Internal Walls are Plastered with Clay Plaster with Light-Coloured White Mud.....	84
Figure 2.4:	Community Centre at St. Annes, Nottingham.....	85
Figure 2.5:	Community Centre at St. Annes, Nottingham Departed from Segal's Approach. Construction at the Balcony Using Bolts and Nuts.....	85
Figure 2.6:	The Finished Interior of Loofah-Recyclable Plastic Panels and Testing Colours on the Panel.....	86
Figure 3.1:	Development of Research Questions in relation to Research Objectives.....	98
Figure 3.2:	Methodology Flow Chart.....	100
Figure 3.3:	Flow Chart Showing the Methodological Framework of the Research.....	104
Figure 3.4:	SPP Applications from 1976 – November 2006. Source: NHD, SPP Division (2006)	107
Figure 3.5:	SPP Applications from Kedah State. Source: NHD, SPP Division (2006)	108
Figure 3.6:	KEDA Categorisation Level of Poverty is Based on the Family Monthly Income.....	294
Figure 3.7:	Types of Questionnaires (Adapted From Saunders Et. Al., 2007), Gray, 2009.....	294

Figure 4.1:	Number of Houses Newly Built and Ugraded.....	130
Figure 4.2:	Summary of Structure Organisation Indicating the Relation Of Village Committees in the State Government.....	131
Figure 4.3:	Number of Household Distribution in Baling District.....	133
Figure 4.4:	Reasons of Satisfaction on Current House.....	145
Figure 4.5:	Range of Price Affordable to the Low-Income Household.....	148
Figure 4.6:	Percentage of Respondents That Encounter Problems to Renovate.....	150
Figure 4.7:	KMO and Bartlett's Test Result.....	155
Figure 4.8:	Ability to Read House Plan.....	160
Figure 4.9:	KMO and Bartlett's Test Result.....	161
Figure 5.1:	Walter Segal.....	175
Figure 5.2:	Walter Segal First Lightweight Timber Structure.....	176
Figure 5.3:	Housing Development at Segal Close, Honor Oak Park, Lewisham....	179
Figure 5.4:	Tartan Grid is Implemented to Separate Structure and Wall Components.....	181
Figure 5.5:	Self Build Group in Action.....	182
Figure 5.6:	Pad Foundation Used for Self Build Housing at Segal Close.....	183
Figure 5.7:	Flat Roof Construction.....	184
Figure 5.8:	Self Build House, Segal Close.....	185
Figure 5.9:	Modular panels on walls and windows.....	185
Figure 5.10:	Staircase Construction.....	186
Figure 5.11:	Verandah With Pergola.....	186
Figure 5.12:	A Series of Illustrations on Stages of Self Build Under Segal Methods.....	187
Figure 5.13:	Tartan Grid Framing.....	198
Figure 5.14:	Basic Modular Plan is Important Where Multiplicity is Easily Applied for Personalisation and Ease of Construction.....	198
Figure 5.15:	Steel Brackets Located at Upper Column to Receive Roof Beams.....	199

Figure 5.16:	Steel Brackets Located at Floor Beams to Receive Floor Joists.....	199
Figure 5.17	Steel Brackets Located at Lower Column to Receive Floor Beams.....	199
Figure 5.18	Variety of Wall Panels With A Standard Size of 4' X 8'.....	200
Figure 5.19:	Flexibility in Choosing the Wall Panels Based on the Floor Plan.....	200
Figure 5.20:	Detail of Floor Module.....	201
Figure 5.21:	The Placement of the Floor Module as Seen from Below.....	201
Figure 5.22:	The Placement of The Floor Module as Seen from Above.....	201
Figure 5.23:	Roof Trusses Connections.....	202
Figure 5.24:	Roof Battens are Placed Accordingly to the Brackets Pre-Fixed on the Trusses.....	202
Figure 5.25:	Corrugated Metal is Just One of the Materials That can be Used in This Construction.....	202
Figure 5.26:	Connectors for Column/Roof Beam.....	203
Figure 5.27:	Connectors for Roof Batten on Trusses.....	203
Figure 5.28:	Connectors for Roof Trusses.....	203
Figure 5.29:	The Variety of Designs in Wall Modules That can be Chosen to Suit Financial Capacity and Facade Design.....	205
Figure 5.30:	Shop Drawings That are Needed in Manufacturing Production.....	212
Figure 5.31:	Manufacturing Prototype of RTA Components in a Local Carpenter's Workshop.....	214
Figure 5.32:	Possible spatial layout that meet the needs of each family and their budget.....	215
Figure 5.33:	Possible Elevations That Provide Flexibilities and Varieties in Design.....	215
Figure 5.34:	Possible Materials That can be Used to Produce Varieties of Preferences.....	216
Figure 5.35:	Stacking the Panels as Means of Storing and Delivering.....	217
Figure 5.36:	Series of Illustrated Manual as a Guideline to Assemble a Module Using RTA Self Build System.....	219

Figure 6.1:	Panels are Stacked as Storage for Ease of Transportation.....	223
Figure 6.2:	Site 1 – Concrete-Surface Ground.....	224
Figure 6.3:	Site 2 – Green Area with Soft Ground That may Require Levelling Work.....	224
Figure 6.4:	Briefing on RTA Self Build System Expectation Before Site Experimentation.....	225
Figure 6.5:	Power Point Slides Presentation to Respondents.....	226
Figure 6.6:	Question 23 Investigating opinions on RTA self build system in comparison to conventional houses.....	226
Figure 6.7:	Identifying Characteristics of RTA That is Unsatisfactory.....	234
Figure 6.8:	Identifying Characteristics of RTA That is Unsatisfactory.....	235
Figure 6.9:	Identifying Reasons for Wanting to Join Self Help Housing Activites.....	236
Figure 6.10:	The RTA Self Build Prototype Assembly Progress of Team 1.....	237
Figure 6.11:	The RTA Self Build Prototype Assembly Progress of Team 2.....	238
Figure 6.12:	The RTA Self Build Prototype Assembly Progress of Team 3.....	238
Figure 6.13:	The RTA Self Build Prototype Assembly Progress of Team 4.....	239
Figure 7.1:	The Key Ingredients for Self Help Housing.....	260

LIST OF TABLES

Table 1.1:	Current Construction Cost for Low-cost Housing in Klang Valley.....	7
Table 1.2:	Current Construction Cost for Low-cost Housing in Other Towns.....	7
Table 1.3:	List of Districts and the Area.....	11
Table 1.4:	Number of Poorest Families in Kedah According to Districts.....	12
Table 1.5:	Number of Participants that Received PPRT According to Districts.....	13
Table 1.6:	The Thesis Framework.....	25
Table 2.1:	Malaysia Housing Timeline – Colonial Period & Early Independence.....	33
Table 2.2:	Malaysia Housing Timeline – First Outline Perspective Plan.....	35
Table 2.3:	Malaysia Housing Timeline – Second Outline Perspective Plan.....	37
Table 2.4:	Malaysia Housing Timeline – Third Outline Perspective Plan.....	38
Table 2.5:	The Features of Housing Offered Under the Public Housing Programs (KPKT, 2002).....	41
Table 2.6:	Rates for New Construction.....	47
Table 2.7:	Rates for Repair Works.....	47
Table 2.8:	New Pricing for Low Cost Housing Based on Area, Targeted Group and Type of Dwelling. Source: (KPKT 2002).....	48
Table 2.9:	Selling Price for PAKR and PPR (owned) Housing Units Source: (KPKT 2002).....	49
Table 2.10:	The Highlighted Rows are Comparing the Revision Made in 1998 (before and after) in Terms of House Pricing and the Income of the Targeted Group.....	54
Table 2.11:	The Shortage of Houses Built Against the Earlier Planned Housing Projects From 6 th – 9 th Malaysia Plan.....	54
Table 2.12:	Government Housing Schemes.....	57
Table 2.13:	Participation Matrix – the Matrix Illustrates Various Levels of Participation at Different Stages of a Project, Wates (2006), pp. 10.....	60

Table 2.14:	Alexander's Response When Explaining His Principles.....	62
Table 2.15:	Self Help Approaches Between Abrams (1950s) and Turner (1970s).....	64
Table 2.16:	Summary of Self Help Housing Category.....	73
Table 3.1:	The Four-point Likert Scale.....	101
Table 3.2:	The Four-point Likert Scale.....	102
Table 3.3:	KEDA Categorisation Level of Poverty is Based on the Family Monthly Income.....	109
Table 4.1:	Comparison of Requirements for Self Build Houses and Buying Existing Houses.....	127
Table 4.2:	Schedule of Payment Based on Progress.....	127
Table 4.3:	Research Priority Areas by CIDB.....	135
Table 4.4:	Definition of Level of Poverty.....	138
Table 4.5:	Demographic Characteristics of Rural Low Income Earners.....	139
Table 4.6:	Characteristics of Rural Low-Income Profile and the Need of a House.....	141
Table 4.7:	Summary Result of Chi-Square Test of Association.....	143
Table 4.8:	Cross-Tabulation of Level of Satisfaction and District.....	144
Table 4.9:	Cross-Tabulation of Level of Satisfaction and Type of House.....	144
Table 4.10:	Summary Result of Chi-Square Test of Association.....	146
Table 4.11:	Cross-Tabulation of Level of Awareness and District.....	147
Table 4.12:	Cross-Tabulation of Level of Awareness and Education.....	147
Table 4.13:	Summary Result of Chi-Square Test of Association.....	149
Table 4.14:	Cross Tabulation of Ease to Renovate and the Need for Additional Spaces.....	149
Table 4.15:	Ranking of Renovation Problem.....	150
Table 4.16:	Ranking of Choices of Spaces to be Renovated.....	152

Table 4.17:	Summary Result of Chi-Square Test of Association.....	153
Table 4.18:	Cross Tabulation of Involvement and Willingness to Join MutualHelp.....	153
Table 4.19:	Reason for Willingness to Join Mutual Help.....	153
Table 4.20:	Option of Owning House.....	154
Table 4.21:	Factor Loading.....	155
Table 4.22:	Characteristics of Property.....	157
Table 4.23:	Summary Result of Chi-Square Test of Association.....	158
Table 4.24:	Cross Tabulation of Skills and Experience in Constructions.....	158
Table 4.25:	Type of Training Needed.....	159
Table 4.26:	Type of Construction Items.....	160
Table 4.27:	Factor Loading.....	162
Table 4.28:	Custom Name of the Factor.....	163
Table 4.29:	Summary of Reliability Coefficients.....	164
Table 4.30:	Summary of Results of Kolmogorov-Smirnov Test.....	165
Table 4.31:	Summary of Result of the Kruskal-Wallis Test.....	166
Table 4.32:	Mean Rank of the Factors Affecting the Demand of the House Between Districts.....	166
Table 4.33:	Summary of Result of the Kruskal-Wallis Test.....	167
Table 4.34:	Mean Rank of the Factors Affecting the Demand of the House Between Age Group.....	168
Table 4.35:	Summary of Result of the Kruskal-Wallis Test.....	169
Table 4.36:	Mean Rank of the Factors Affecting the Demand of the House Between Affordable Amounts.....	170
Table 5.1:	Prefabrication in Physical Elements of a House.....	190
Table 5.2:	Comparison of Basic Principles.....	191

Table 5.3:	Classic Modular Construction Schedule Illustrating Time Saving Attributed to Onsite Construction in Parallel to Offsite Component Fabrications.....	195
Table 5.4:	An Example: Schedule of Materials.....	204
Table 5.5:	Summary of Prefab Houses Designed in Most Self Build-Practiced Countries.....	205
Table 6.1:	Frequency and Percentage in Skills and Experience in Construction.....	227
Table 6.2:	The Four-Point Likert Scale.....	227
Table 6.3:	Response on Technical Issues of RTA Self Build System.....	228
Table 6.4:	The Four-Point Likert Scale.....	229
Table 6.5:	Identifying ease of assembly components of RTA Self Build System.....	229
Table 6.6:	Identifying Preferences in Design Aspects of RTA Self Build System.....	230
Table 6.7:	Identifying Preferences in Flexibility Aspects of RTA Self Build System.....	231
Table 6.8:	Identifying Issues in Self Build Process Using RTA Self Build System.....	232
Table 6.9:	Background of Respondents in Team 1.....	237
Table 6.10:	Background of Respondents in Team 2.....	237
Table 6.11:	Background of Respondents in Team 3.....	238
Table 6.12:	Background of Respondents in Team 4.....	238
Table 6.13:	Summary of Comparison Time Completion on Different Assembly Stages Among the Teams.....	239
Table 7.1:	Comparisons of Basic Principles between Segal Method and Malay Traditional House.....	248

LIST OF SYMBOLS AND ABBREVIATIONS

CIDB	:	Construction Industry Development Board
DARA	:	<i>Lembaga Kemajuan Pahang Tenggara</i> South-East Pahang Development Authority
FELCRA	:	<i>Lembaga Persatuan dan Pemulihan Tanah Persekutuan</i> Federal Land Consolidation and Rehabilitation Authority
FELDA	:	<i>Lembaga Pembangunan Tanah Persekutuan</i> Federal Land Development Authority
FUPROVI	:	<i>Fundacion Promotora de Vivienda</i>
IBS	:	Integrated Building System
JAKOA	:	<i>Jabatan Kebajikan Orang Asli</i> Department of Orang Asli Welfare
JKKK	:	<i>Jawatan Kuasa Kecil Kampung</i> Village Committee
JKR	:	<i>Jabatan Kerja Raya</i> Ministry of Works
JPN	:	<i>Jabatan Perumahan Negara</i> National Housing Department
KEDA	:	<i>Lembaga Kemajuan Wilayah Kedah</i> Kedah Region Development Board
KEJORA	:	<i>Lembaga Kemajuan Johor Tenggara</i> Southeast Johor Development Board
KESEDAR	:	<i>Lembaga Kemajuan Kelantan Selatan</i> South Kelantan Development Board
KETENGAH	:	<i>Lembaga Kemajuan Terengganu Tengah</i> Central Terengganu Development Board (also known as LKTT)

KPKT	:	<i>Kementerian Perumahan dan Kerajaan Tempatan</i> (currently known as <i>Kementerian Kesejahteraan Bandar, Perumahan dan Kerajaan Tempatan</i>) Ministry of Housing and Local Authority
LCH	:	Low-Cost Housing
LCHRF	:	Low-Cost Housing Revolving Fund
LKJT	:	Lembaga Kemajuan Johor Tenggara <i>Southeast Johor Development Board</i>
LTAT	:	<i>Lembaga Tabung Angkatan Tentera</i> Armed Forces Fund Board
PAJ	:	<i>Program Amal Jariah</i> <i>Social Responsibility Program</i>
MAHSURI	:	<i>Penempatan Manusia dan Bandar Malaysia</i> Malaysian Human Settlement and Urbanisation
MC	:	Modular Coordination
MOF	:	<i>Kementerian Kewangan</i> Ministry of Finance
NEP	:	<i>Dasar Ekonomi Baru</i> New Economic Policies
PAKR	:	<i>Program Awam Kos Rendah</i> Low-Cost Public Program
PBR	:	<i>Program Bantuan Rumah</i> Home Aid Program
PKEN	:	<i>Perbadanan Kemajuan Ekonomi Negeri</i>
SEDC	:	State Economic Development Corporation
PPMR	:	<i>Program Perumahan Mesra Rakyat</i> People-friendly Housing Program
PPP	:	<i>Program Peningkatan Pendapatan</i> Income Improvement Program
PPR	:	<i>Program Perumahan Rakyat</i>

		People Housing Program
Bersepadu	:	Integrated
Dasar Baru	:	New Policy
Dimiliki	:	Owned
Disewa	:	Rented
PPRT	:	<i>Program Perumahan Rakyat Termiskin</i> Hardcore Poor Housing Program
PR1MA	:	<i>Perumahan Rakyat 1 Malaysia</i> 1 Malaysia People's Housing
RDA	:	<i>Lembaga Kemajuan wilayah</i> Regional Development Authority
REHDA	:	<i>Persatuan Kemajuan Perumahan Hartanah</i> Real Estate Housing Development Association
RISDA	:	<i>Pihak Berkuasa Kemajuan Kebun Kecil Perusahaan Getah</i> Rubber Industry Smallholders' Development Authority
RMM	:	<i>Rumah Mampu Milik</i> Affordable Housing
SPNB	:	<i>Syarikat Perumahan Negara Berhad</i> National Housing Company
SPP	:	<i>Bahagian Skim Pinjaman Perumahan</i> Housing Loan Scheme Division
TPPPT	:	<i>Tabung Pemulihan Projek Perumahan Terbengkalai</i> Rehabilitation of Abandoned Housing Fund
1MDB	:	<i>Lembaga Pembangunan Satu Malaysia</i> One Malaysia Development Board

LIST OF APPENDICES

Appendix A :	Questionnaire Pilot Study.....	280
Appendix B :	Questionnaire Phase 1.....	286
Appendix C :	Questionnaire Phase 2.....	293
Appendix D :	ACAD Drawings of RTA Self Build Housing System Prototype.....	296
Appendix E :	Briefing to Participants on 6 th June 2010.....	311
Appendix F :	Guidebook to Installation of Ready-To-Assemble (RTA) Self Build Housing System.....	315
Appendix G :	Patent and Draft Report.....	324