



University of HUDDERSFIELD

University of Huddersfield Repository

Yumarni, Tri

Gender Maistreaming and Sustainable Post-Disaster Reconstruction: Earthquake Regions in Indonesia

Original Citation

Yumarni, Tri (2017) Gender Maistreaming and Sustainable Post-Disaster Reconstruction: Earthquake Regions in Indonesia. Doctoral thesis, University of Huddersfield.

This version is available at <http://eprints.hud.ac.uk/id/eprint/34525/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

<http://eprints.hud.ac.uk/>

**GENDER MAINSTREAMING AND SUSTAINABLE
POST-DISASTER RECONSTRUCTION:
EARTHQUAKE REGIONS IN INDONESIA**

TRI YUMARNI

Ph.D. Thesis

2017

**GENDER MAINSTREAMING AND SUSTAINABLE
POST-DISASTER RECONSTRUCTION:
EARTHQUAKE REGIONS IN INDONESIA**

TRI YUMARNI

A thesis submitted to the University of Huddersfield
in partial fulfilment of the requirements for
the degree of Doctor of Philosophy

The University of Huddersfield

December 2017

Copyright statement

- i. The author of this thesis (including any appendices and/or schedules to this thesis) owns any copyright in it (the "Copyright") and s/he has given The University of Huddersfield the right to use such copyright for any administrative, promotional, educational and/or teaching purposes.
- ii. Copies of this thesis, either in full or in extracts, may be made only in accordance with the regulations of the University Library. Details of these regulations may be obtained from the Librarian. This page must form part of any such copies made.
- iii. The ownership of any patents, designs, trademarks and any and all other intellectual property rights except for the Copyright (the "Intellectual Property Rights") and any reproductions of copyright works, for example graphs and tables ("Reproductions"), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property Rights and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property Rights and/or Reproductions.

TABLE OF CONTENTS

COPY RIGHT STATEMENT	3
TABLE OF CONTENTS	4
LIST OF TABLES	10
LIST OF FIGURES	13
ACKNOWLEDGEMENT	16
DECLARATION	17
LIST OF ABBREVIATION AND TERMINOLOGY	18
ABSTRACT	20
Chapter 1	
Introduction	21
1.1 Background of the study	21
1.2 Justification of the research	22
1.3 Research aim and objectives	23
1.4 Contribution to knowledge and practices	24
1.5 Research method	24
1.6 Chapters organization	26
1.7 Summary of the chapter and the links	27
Chapter 2	
Disaster and its impact on gender in developing countries	28
2.1 Introduction	28
2.2 Disasters in developing countries: trends, patterns, and impacts	28
2.2.1 The definition of disasters	28
2.2.2 Increased disasters and their drivers	31
2.2.3 Impact of disasters	33
2.2.4 Disasters in developing countries	34
2.2.5 Situation in Indonesia	37
2.3 Women and disasters in developing countries	42
2.4 Situation of women and disasters in Indonesia	47
2.5 Summary of the chapter and links	51
Chapter 3	
Gender, vulnerability, and sustainability of post-disaster reconstruction	52
3.1 Introduction	52
3.2 The origin of gender	52
3.3 The gendered nature of disasters	57
3.3.1 Disasters and gender vulnerabilities	60
3.3.2 Disasters and gender capacities: women as an agent of development	66
3.4 Gender equality, post-disaster reconstruction and sustainable development	71
3.4.1 Post-disaster reconstruction as a window opportunity for sustainable development	71
3.4.2 The concept of sustainability and sustainable development	75
3.4.3 Measuring sustainability of post-disaster reconstruction	79
3.4.4 Issues of sustainability of post-disaster reconstruction across disaster affected countries	82
3.4.5 Gender equality and sustainability of reconstruction	84
3.4.6 Balancing vulnerability and resilience approach: reducing vulnerability,	92

promoting capacity	
3.5 Summary of chapter and links	95
Chapter 4	
Gender mainstreaming and sustainability of post-disaster reconstruction	96
4.1 Introduction	96
4.2 What is gender mainstreaming?	96
4.3 Gender mainstreaming as a strategy to achieve sustainable post-disaster reconstruction	98
4.3.1 Gender mainstreaming as a strategy to achieve social sustainability	99
4.4.2 Gender mainstreaming as a strategy to achieve economic sustainability	100
4.4.3 Gender mainstreaming as a strategy to achieve environmental sustainability	101
4.4 Integrating of gender mainstreaming within post-disaster reconstruction	102
4.5 Mainstreaming gender within post-disaster reconstruction: why it works and does not work?	105
4.6 Indonesia national gender mainstreaming policy	108
4.6.1 Gender and post-disaster reconstruction policy	110
4.6.2 Institutional framework of gender mainstreaming within post-disaster reconstruction	112
4.7 Post-earthquake reconstruction as unique conditions for mainstreaming gender	114
4.8 Knowledge gaps: the need of gender mainstreaming strategies for enhancing sustainability of post-disaster reconstruction	116
4.9 Summary of the chapter and links	118
Chapter 5	
Research method	120
5.1 Introduction	120
5.2 Establishment of the research problem	120
5.2.1 The researcher's area of interest	120
5.2.2 Literature review	121
5.2.3 Research problem	123
5.2.4 Research aim, objectives, and research questions	124
5.3 Research focus	125
5.4 Research methodology framework	126
5.4.1 Research philosophy	126
5.4.1.1 Ontology	127
5.4.1.2 Epistemology	127
5.4.1.3 Axiology	128
5.4.2 Research approach and strategy	128
5.4.3 Case study design	129
5.4.4 Theory building from case studies	129
5.4.5 Selection of case study	134
5.4.6 Research choices	135
5.4.7 Time horizon	135
5.4.8 Research techniques	136
5.4.8.1 Research techniques for data collection	136
5.4.8.1.1 Interviews	137
5.4.8.1.1.1 Interviews with policy makers	137
5.4.8.1.1.2 Interviews with policy implementers	138

5.4.8.1.1.3 Interviews with beneficiaries	140
5.4.8.1.1.4 Interviews with experts	141
5.4.8.1.2 Questionnaires	142
5.4.8.1.3 Documents and archival records	144
5.4.9 Research techniques for data analysis	145
5.4.9.1 Content analysis	147
5.4.9.2 Cognitive mapping	147
5.4.9.3 Data analysis using <i>NVivo</i>	147
5.4.9.4 Analysis of questionnaire survey	148
5.4.10 Establishing the quality of research	149
5.5 Summary of the chapter and links	149
Chapter 6	
Research framework	150
6.1 Introduction	150
6.2 The need for a conceptual framework	150
6.3 Key issues	150
6.3.1 The prominence roles of post-disaster reconstruction	151
6.3.2 The concept of sustainable development and sustainable post-disaster reconstruction	151
6.3.3 The significance of gender mainstreaming for achieving sustainable post-disaster reconstruction	153
6.3.4 The need of gender mainstreaming strategies to achieve sustainable post-disaster reconstruction	153
6.4 The development of a conceptual framework	154
6.4.1 The main concepts and its relationship	154
6.4.2 Research boundary	154
6.5 The conceptual framework of the study	154
6.6 Summary of the chapter and links	156
Chapter 7	
Case study 1 : Gender mainstreaming and sustainable post-earthquake reconstruction at Bantul District	157
7.1 Introduction	157
7.2 Socio economic background of Bantul district	158
7.2.1 Bantul after the earthquake in 2006	160
7.2.2 Bantul post-earthquake reconstruction 2006	164
7.3 Qualitative data analysis	170
7.3.1 Gender vulnerabilities and capacities within post-earthquake Reconstruction at Bantul district	170
7.3.1.1 Gender vulnerabilities	170
7.3.1.2 Gender capacities	174
7.3.2 Institutional framework and strategies of gender mainstreaming at Bantul district	177
7.3.2.1 Institutional framework for mainstreaming gender	178
7.3.2.2 Gender mainstreaming strategies for sustainable post-earthquake reconstruction	180
7.3.2.2.1 Strategies to reduce gender vulnerabilities	182
7.3.2.2.2 Strategies to strengthen gender capacities	187
7.3.3 The benefits of mainstreaming gender into sustainable post-earthquake	

reconstruction at Bantul district	194
7.3.3.1 Economic sustainability	198
7.3.3.2 Environmental sustainability	200
7.3.3.3 Social sustainability	206
7.3.4 Constraining/enabling factors of mainstreaming gender into sustainable post post-earthquake reconstruction at Bantul district	209
7.3.4.1 Constraining factors	209
7.3.4.1.1 Traditional bureaucracy culture	209
7.3.4.1.2 Low capacity of bureaucrats	211
7.3.4.2 Enabling factors	212
7.3.4.2.1 Women participation	212
7.3.4.2.2 Women leadership	214
7.3.4.2.3 Support from multi-stakeholders	216
7.3.4.2.4 Rich social capital	217
7.3.4.2.5 Head of district government commitment	219
7.3.4.2.6 Availability of gender policy framework	221
7.3.4.2.7 Adequacy of gender expertise	222
7.4 Quantitative data analysis of case study 1 : Gender mainstreaming and sustainable post-earthquake reconstruction at Bantul district	223
7.4.1 Gender vulnerabilities and capacities within post-earthquake reconstruction at Bantul district	224
7.4.1.1 Gender vulnerabilities	224
7.4.1.2 Gender capacities	227
7.4.2 Benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district	229
7.4.3 Constraining and enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district	234
7.4.3.1 Constraining factors	235
7.4.3.2 Enabling factors	236
7.5 Summary of the chapter and links	238
Chapter 8	
Case study 2 : Gender mainstreaming and sustainable post-earthquake reconstruction at Sleman district	239
8.1 Introduction	239
8.2 Socio economic background of Sleman district	239
8.2.1 Sleman after the earthquake 2006	241
8.2.2 Sleman post-earthquake reconstruction 2006	244
8.3 Qualitative data analysis	253
8.3.1 Gender vulnerabilities and capacities within post-earthquake reconstruction at Sleman district	253
8.3.1.1 Gender vulnerabilities	253
8.3.1.2 Gender capacities	257
8.3.2 Institutional framework and strategies of gender mainstreaming at Sleman district	261
8.3.2.1 Institutional framework for mainstreaming gender	261
8.3.2.2 Gender mainstreaming strategies into sustainable post-earthquake reconstruction	264
8.3.2.2.1 Strategies to reduce gender vulnerabilities	266
8.3.2.2.2 Strategies to strengthen gender capacities	271

8.3.3 The benefits of mainstreaming gender into sustainable post-earthquake reconstruction in Sleman district	279
8.3.3.1 Economic sustainability	282
8.3.3.2 Environmental sustainability	283
8.3.3.3 Social sustainability	286
8.3.4 Constraining/enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction in Sleman district	288
8.3.4.1 Constraining factors	289
8.3.4.1.1 Low capacity of bureaucrats	289
8.3.4.1.2 Traditional bureaucracy culture	290
8.3.4.2 Enabling factors	291
8.3.4.2.1 Women participation	291
8.3.4.2.2 Women leadership	293
8.3.4.2.3 Support from multi-stakeholders	294
8.3.4.2.4 Rich social capital	296
8.3.4.2.5 Head of district government commitment	298
8.3.4.2.6 Availability of gender policy framework	299
8.3.4.2.7 Adequacy of gender expertise	300
8.4 Quantitative data analysis of case study 2 : Gender mainstreaming and sustainable post-earthquake reconstruction at Sleman district	302
8.4.1 Gender vulnerabilities and capacities within post-earthquake reconstruction at Sleman district	302
8.4.2.1 Gender vulnerabilities	302
8.4.2.2 Gender capacities	305
8.4.2 Benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district	307
8.4.3 Enabling and constraining factors of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district	312
8.4.3.1 Constraining factors	312
8.4.3.2 Enabling factors	313
8.5 Summary of the chapter and links	315
Chapter 9	
Cross cases analysis and validation	316
9.1 Introduction	316
9.2 Cross cases analysis	316
9.2.1 Gender vulnerabilities and capacities within post-earthquake reconstruction	316
9.2.1.1 Gender vulnerabilities	316
9.2.1.2 Gender capacities	322
9.2.2 Gender mainstreaming strategies within post-earthquake reconstruction	326
9.2.3 Benefits of mainstreaming gender into sustainable post-earthquake reconstruction	328
9.2.4 Constraining/enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction	335
9.3 Validation	339
9.3.1 Gender vulnerabilities and capacities within post-earthquake reconstruction	340
9.3.2 Gender mainstreaming strategies within post-earthquake reconstruction	

reconstruction	345
9.3.3 Benefits of mainstreaming gender into sustainable post-earthquake reconstruction	347
9.3.4 Constraining/enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction	349
9.4 Summary of the chapter and links	351
Chapter 10	
Findings	352
10.1 Introduction	352
10.2 Gender vulnerabilities and capacities within post-earthquake reconstruction	352
10.2.1 Gender vulnerabilities	352
10.2.2 Gender capacities	354
10.3 Strategies for mainstreaming gender into sustainable post-earthquake reconstruction	356
10.4 Benefits of mainstreaming gender into sustainable post-earthquake reconstruction	360
10.5 Key enabling and constraining factors of mainstreaming gender into sustainable post-earthquake reconstruction	362
10.6 Overall research findings	366
10.7 Summary of the chapter and links	368
Chapter 11	
Conclusion and recommendations	369
11.1 Introduction	369
11.2 Summary of research aim and objectives	369
11.3 Summary of key findings	370
11.3.1 First research objective: To investigate types of gender vulnerabilities which may affect the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia	370
11.3.2 Second research objective: To investigate types of gender capacities which may contribute to the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia	370
11.3.3 Third research objective: To elaborate strategies of mainstreaming gender which is purposed to contribute to enhancing the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.	371
11.3.4 Fourth research objective: To identify benefits of mainstreaming gender for achieving sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia	371
11.3.5 Fifth research objective: To identify constraining and enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia	372
11.4 Contribution to theory and practice	373
11.4.1 Contribution to theory	373
11.4.2 Contribution to practice	374
11.5 Study limitations	375
11.6 Recommendations	375
11.6.1 Practice of post-disaster reconstruction	376
11.6.1.1 The need of gender analysis for identifying gender vulnerability and	376

gender capacity within post-disaster reconstruction activities	
11.6.1.2 The need for introducing balance approach for mainstreaming gender into sustainable post-disaster reconstruction	376
11.6.1.3 The need to pay attention of key enabling and constraining factors for mainstreaming gender into sustainable post-disaster reconstruction	376
11.6.2 Future research	376
11.6.2.1 Conducted research in the different contexts of reconstruction project	376
11.6.2.2 Conducting the same study separately for different districts	377
11.6.2.3 Considering the views of men and women separately	377
11.7 Final note	377
References	378
Appendix A. Semi structure interview guide	394
Appendix B. Questionnaire for beneficiaries	401
Appendix C. Questionnaire for policy makers/implementers	407

LIST OF TABLES

Table 2.1	Number of disasters worldwide 1900-2015	32
Table 2.2	Total death caused by disasters in developing and developed countries	35
Table 2.3	Total economic lost resulted from disasters in developing and developed countries (in '000 US\$)	35
Table 2.4	Distinctions in the impact of disasters between developed and developing countries	36
Table 2.5	Disasters frequency and its impact in Indonesia 1900-2015	40
Table 2.6	Some indicators of women and men welfare 1990 and 2010	42
Table 2.7	Selective reviews of the women losses from recent natural disasters in developing countries	45
Table 2.8	Total disasters and its death toll in Indonesia 1900-2012	48
Table 3.1	Gender issues within disaster management phases	59
Table 3.2	Types of gender vulnerabilities in disaster contexts	62
Table 3.3	Women capacities in built environment and disaster reduction	67
Table 3.4	Post-disaster reconstruction opportunities for creating sustainability of development of disaster affected areas	73
Table 3.5	Indicators of sustainable post-disaster reconstruction	81
Table 3.6	Type of gender inequalities within post-disaster reconstruction	89
Table 3.7	The different between vulnerability and resilience approach	94
Table 4.1	Four pillars programs and gender mainstreaming focus within post-disaster reconstruction policies in Indonesia	111
Table 4.2	Top ten causes of fatalities from natural disaster in Indonesia in the last 30 years	114
Table 5.1	Research objectives, research questions and expected results	124
Table 5.2	Profile of policy makers' interviewed in Bantul and Sleman district	137
Table 5.3	Profile of policy implementers' interview in Bantul and Sleman district	139
Table 5.4	Profile of beneficiaries' interview in Bantul and Sleman district	140
Table 5.5	Profile of experts' interviewed	142
Table 5.6	Likert scales used within questionnaire and values assigned	143
Table 5.7	The description of respondents	143
Table 5.8	List of documents collected in this study	144
Table 5.9	Research objectives and data collection techniques used in this study	146

Table 7.1	Demographic summary of Bantul district	159
Table 7.2	Bantul district domestic earning 2005 and 2006	159
Table 7.3	Donor contributions Java Reconstruction Fund	164
Table 7.4	Bantul district before and after earthquake	197
Table 7.5	Types of gender vulnerabilities within post-earthquake reconstruction based on women beneficiaries' responses at Bantul district	225
Table 7.6	Types of gender vulnerabilities within post-earthquake reconstruction based on men beneficiaries' responses at Bantul district	226
Table 7.7	Types of gender capacities within post-earthquake reconstruction based on women beneficiaries' responses at Bantul district	228
Table 7.8	Types of gender capacities within post-earthquake reconstruction based on men beneficiaries' responses at Bantul district	229
Table 7.9	Women beneficiaries' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district	230
Table 7.10	Men beneficiaries' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district	231
Table 7.11	Women policy makers' and implementers' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district	232
Table 7.12	Men policy makers' and implementers' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district	233
Table 7.13	Constraining factors of mainstreaming gender into sustainability of reconstruction as perceived by women policy makers and implementers at Bantul district	235
Table 7.14	Constraining factors of mainstreaming gender into sustainability of reconstruction as perceived by men policymakers and implementers at Bantul district	235
Table 7.15	Enabling factors of mainstreaming gender into sustainability of reconstruction as perceived by women policy makers/implementers at Bantul district	236
Table 7.16	Enabling factors of mainstreaming gender into sustainability of reconstruction as perceived by men policy makers/implementers at Bantul district	237
Table 8.1	Sleman domestic earning 2005 and 2006	241
Table 8.2	Relief food and non-food distributed in Sleman district during earthquake	245
Table 8.3	<i>Ngelepen</i> before and after earthquake	281
Table 8.4	Types of gender vulnerabilities within post-earthquake reconstruction based on women beneficiaries' responses at Sleman district	303
Table 8.5	Types of gender vulnerabilities within post-earthquake reconstruction based on men beneficiaries' responses at Sleman district	304
Table 8.6	Types of gender capacities within post-earthquake reconstruction based on women beneficiaries' responses at Sleman district	305
Table 8.7	Types of gender capacities within post-earthquake reconstruction based on men beneficiaries' responses at Sleman district	306
Table 8.8	Women beneficiaries' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district	307
Table 8.9	Men beneficiaries' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district	309

Table 8.10	Women policy makers' and implementers' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district	310
Table 8.11	Men policy makers' and implementers' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district	311
Table 8.12	Constraining factors of mainstreaming gender into sustainability of post-earthquake reconstruction as perceived by women policy makers/implementers at Sleman district	312
Table 8.13	Constraining factors of mainstreaming gender into sustainability of post-earthquake reconstruction as perceived by different men policy makers/implementers at Sleman district	313
Table 8.14	Enabling factors of mainstreaming gender into sustainability of post-earthquake reconstruction as perceived by women policy makers/implementers at Sleman district	314
Table 8.15	Enabling factors of mainstreaming gender into sustainability of post-earthquake reconstruction as perceived by different men policy makers/implementers at Sleman district	315
Table 9.1	Types of women vulnerabilities in Bantul and Sleman district	317
Table 9.2	Types of men vulnerabilities in Bantul and Sleman district	318
Table 9.3	Gender vulnerabilities based on women beneficiaries' responses in Bantul and Sleman districts	319
Table 9.4	Gender vulnerabilities based on men beneficiaries' responses in Bantul and Sleman district	320
Table 9.5	Types of gender vulnerabilities in Bantul and Sleman district based on women and men beneficiaries' responses	321
Table 9.6	Types of women capacities in Bantul and Sleman district	322
Table 9.7	Types of men capacities in Bantul and Sleman district	323
Table 9.8	Gender capacities according to women beneficiaries' responses in Bantul and Sleman district	324
Table 9.9	Gender capacities according to men beneficiaries' responses in Bantul and Sleman district	325
Table 9.10	Types of gender capacities within post-earthquake reconstruction based on women and men beneficiaries' responses in Bantul and Sleman district	325
Table 9.11	Gender mainstreaming strategies in Bantul and Sleman district	327
Table 9.12	Benefits of gender mainstreaming strategies in Bantul and Sleman district	329
Table 9.13	Comparison of quantitative analysis of women beneficiaries' perception of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district	330
Table 9.14	Comparison of quantitative analysis of men beneficiaries' perception of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district	331
Table 9.15	Comparison of quantitative analysis of women policy makers/ implementers perception of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district	332
Table 9.16	Comparison of quantitative analysis of men policy makers/implementers perception of the benefits of mainstreaming gender in sustainable reconstruction in Bantul and Sleman district	333

Table 9.17	Women and men beneficiaries' perception of the benefits of mainstreaming gender on sustainable reconstruction at Bantul and Sleman district	334
Table 9.18	Women and men policy makers'/implementers' perceptions of the benefits of mainstreaming gender into sustainable post-disaster reconstruction in Bantul and Sleman district	335
Table 9.19	Constraining and enabling factors of mainstreaming gender based on the responses of key informants in Bantul and Sleman district	336
Table 9.20	Constraining and enabling factors of mainstreaming gender based on women policy makers'/implementers' responses in Bantul and Sleman district	336
Table 9.21	Constraining and enabling factors of mainstreaming gender based on men policy makers'/implementers' responses in Bantul and Sleman district	337
Table 9.22	Constraining factors of mainstreaming gender into sustainable reconstruction as perceived by women and men policymakers/implementers at Bantul and Sleman district	338
Table 9.23	Enabling factors of mainstreaming gender into sustainable reconstruction as perceived by women and men policymakers/implementers at Bantul and Sleman district	339
Table 10.1	Key gender mainstreaming strategies to address gender vulnerabilities	357
Table 10.2	Key gender mainstreaming strategies to strengthen gender capacities	359
Table 10.3	Key enabling and constraining factors of mainstreaming gender within each phase of post-earthquake reconstruction	364

LIST OF FIGURES

Figure 2.1	Geographic distributions of various of natural and man-made disasters in Indonesia 2001-2012	38
Figure 2.2	Number people killed by disasters in Indonesia 2006-2010	41
Figure 2.3	Gender inequality across the world 2013	44
Figure 2.4	Gender development index across region in Indonesia 2013	50
Figure 3.1	The existing gender discrimination from individual to state level	55
Figure 3.2	Progress toward gendered vulnerability	64
Figure 3.3	Three pillars of sustainable development	76
Figure 3.4	Gender equality and three dimensions of sustainable post-disaster reconstruction	91
Figure 4.1	Gender mainstreaming strategies within sustainable post-disaster reconstruction	99
Figure 4.2	Gender mainstreaming strategies within sustainable post-disaster reconstruction stages	103
Figure 4.3	Structural organization of gender mainstreaming within disaster management in Indonesia	113
Figure 5.1	The onion model	126
Figure 5.2	Research positioning within philosophies	127
Figure 5.3	The linkage between inductive and deductive approaches in the research	131
Figure 5.4	The linkage of case studies, other supporting interviews and expected data from empirical evidences	133
Figure 6.1	The conceptual framework of the research	155

Figure 7.1	Map of Bantul district	158
Figure 7.2	Post-earthquake reconstruction issues in Bantul district	161
Figure 7.3	Number of death caused by Yogyakarta earthquake 2006	162
Figure 7.4	Damage of housing and public infrastructures resulted from Bantul earthquake	163
Figure 7.5	Aids emergency to housing reconstruction at Bantul district	167
Figure 7.6	Earthquake reconstruction process in Bantul district from emergency shelter, transitional shelter to permanent shelter	168
Figure 7.7	Gender vulnerabilities within post-earthquake reconstruction in Bantul district	171
Figure 7.8	Gender capacities within post-earthquake reconstruction in Bantul district	174
Figure 7.9	Organizational structure of district women empowerment in Bantul district	179
Figure 7.10	Gender mainstreaming strategies within post-earthquake reconstruction in Bantul district	181
Figure 7.11	Women and men participation in planning, decision making and implementing safe, clean water and sanitation programs in Bantul district	183
Figure 7.12	<i>Posyandu</i> in Bantul district during post-earthquake reconstruction district	187
Figure 7.13	Women work in a house reconstruction and small-scale business in Bantul district	189
Figure 7.14	Women and participatory mapping during post-earthquake reconstruction in Bantul district	193
Figure 7.15	Progress toward sustainable reconstruction in Bantul district	196
Figure 7.16	Micro, small, and medium enterprises in Bantul district after earthquake reconstruction	200
Figure 7.17	Organic farming, clean water system, evacuation route and housing construction in Bantul after reconstruction	202
Figure 7.18	Education and health services in Bantul after earthquake reconstruction	207
Figure 7.19	Constraining and enabling factors of mainstreaming gender within post-disaster reconstruction in Bantul district	209
Figure 7.20	Gender experts help stakeholders during reconstruction planning at Bantul district	223
Figure 8.1	Map of Sleman district	240
Figure 8.2	Post-earthquake reconstruction issues in Sleman district	242
Figure 8.3	Damage of housing and public infrastructure resulted from Sleman earthquake	243
Figure 8.4	Transitional shelters in Sleman district	246
Figure 8.5	The <i>Dome Houses</i> situation after the reconstruction was finished in April 2007	248
Figure 8.6	Public facilities at <i>Ngelepen Dome House</i> reconstruction	250
Figure 8.7	Original Javanese housing	251
Figure 8.8	Gender vulnerabilities within post-earthquake reconstruction in <i>Ngelepen Dome House</i> , Sleman district	254
Figure 8.9	Gender capacities within post-earthquake reconstruction in Sleman district	257
Figure 8.10	Structure of organization in Sleman women empowerment and children protection agency	261
Figure 8.11	Institutional framework for mainstreaming gender in Sleman district	263
Figure 8.12	Gender mainstreaming strategies within post-earthquake reconstruction in Sleman district	265

Figure 8.13	Social safety net program during post-disaster reconstruction at Sleman district	267
Figure 8.14	<i>Posyandu</i> activities in Sleman district during post-earthquake reconstruction	270
Figure 8.15	Various activities to improve economic sustainability at Sleman district	273
Figure 8.16	Women and men participation in reconstruction in <i>Ngelepen Dome House</i> Sleman district	274
Figure 8.17	Women and men participation in earthquake response simulation in Sleman district	278
Figure 8.18	Sustainability performance at <i>Ngelepen Dome House</i> Sleman district	280
Figure 8.19	Economic activities at <i>Ngelepen Dome House</i> after the earthquake	283
Figure 8.20	Green areas and organics farming in <i>Ngelepen</i> after reconstruction	285
Figure 8.21	Education and health services in Sleman district after earthquake reconstruction	287
Figure 8.22	Constraining and enabling factors of mainstreaming gender within post-disaster reconstruction in Sleman district	288
Figure 8.23	<i>Gotong royong</i> involving women and men in many activities at Sleman district	297
Figure 9.1	Women vulnerabilities within post-earthquake reconstruction	340
Figure 9.2	Men vulnerabilities within post-earthquake reconstruction	342
Figure 9.3	Women capacities within post-earthquake reconstruction	343
Figure 9.4	Men capacities within post-earthquake reconstruction	345
Figure 9.5	Gender mainstreaming strategies for sustainable post-earthquake reconstruction	346
Figure 9.6	Benefits of mainstreaming gender into sustainable post-earthquake reconstruction	348
Figure 9.7	Enabling and enabling factors of mainstreaming gender within sustainable post-earthquake reconstruction	350
Figure 10.1	Types of gender vulnerabilities within post-earthquake reconstruction	353
Figure 10.2	Types of gender capacities within post-earthquake reconstruction	355
Figure 10.3	Benefits of mainstreaming gender into sustainable post-earthquake reconstruction	360
Figure 10.4	Key constraining factors of mainstreaming gender into sustainable post-earthquake reconstruction	362
Figure 10.5	Key enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction	363
Figure 10.6	Overall research findings in connection to conceptual framework	367

ACKNOWLEDGEMENT

First of all, thank God giving me the spirit and power to write this thesis. My supervisor and co-supervisor, Dilanthi Amaratunga and Richard Haigh for their support throughout my study of the doctoral program. Dilanthi has given me supervision in many respects. She has given me enormous assistance in understanding and thinking disaster management science. You are the best supervisor.

The members of the Global Disaster Resilience University of Huddersfield have contributed to the completion of this work. I am especially grateful to Sharon, Rachel and friends, for their assistance and support since the beginning of my study at Huddersfield. To all my Ph.D. colleagues, many thanks for all your friendship and constant helps. It is hard to imagine how I would have managed to complete my thesis without your suggestions and companionship.

I must also express my gratitude to Indonesian government for my scholarship. It would have been impossible to come to a smooth completion of the research project without its grant assistance. My debt is owed to the University of Jenderal Soedirman for their work in financial administration. I also thank the Centre for Women Studies University of Jenderal Soedirman for giving me an opportunity working in this institution as a gender policy analyst. Working in the university gives me a chance to assist and to change the life of many women in my areas.

I would like to thank my family members for all their love: for my parents who choose me with care and love; for my husband, Jarwo, and my son, Danish, for their love, support, and encouragement. A special acknowledgment goes to my late father who was always taking care of my family but very sorrowfully passed away before the completion of the doctoral thesis. I hope you were proud of what I have done in my life...I do it in honour of both of you...I always love you. Finally, my appreciation goes to all women and men who participate in this research. I dedicated this to them.

DECLARATION

This thesis submitted under the University of Huddersfield requirements for the award of a PhD degree by research. Some research findings were published in refereed journal and as refereed conference papers prior to the submission of the thesis during the period of PhD studies.

1. Yumarni, T., and Amaratunga, D. (2017). Ten years later: economic resilience of small scale enterprise following earthquake in Bantul Yogyakarta. *The 7th International Conference on Building Resilience* (Forthcoming).
2. Yumarni, T. and Amaratunga, D. (2017). Resource capability for local government in mainstreaming gender into disaster risk reduction: Evidence from Bantul Indonesia. *Journal of Regional and City Planning*, 28(2).
3. Yumarni, T., Amaratunga, D., and Haigh, R. (2014). Assessing gender vulnerability within post-earthquake reconstruction: case study from Indonesia. *Procedia Economics and Finance*, 18, 763-771.
4. Yumarni, T., and Amaratunga, D. (2015). Resource capability for local government in mainstreaming gender into disaster risk reduction: evidence from Indonesia. *Research Report*. UNISDR.
5. Yumarni, T., Amaratunga, D., and Haigh, R. (2013). Gender Mainstreaming and Sustainable Post Disaster Reconstruction. *Proceedings of the ANDROID Doctoral School*.
6. Yumarni, T. (2015). Women capacity, community resilience and sustainable post disaster reconstruction: case study from Indonesia. *Jurnal Ilmiah Administrasi Publik*, 1(1).
7. Yumarni, T., Amaratunga, D., and Haigh, R. (2014), Women capacity, community resilience, and sustainable post-disaster reconstruction: case study from Indonesia, 2nd ANDROID Residential School, 8-10 September, Media City UK, the University of Salford, UK the proceeding available at <http://www.disaster-resilience.net/images/Outputs/WP3/rds2014/annex%203.8.5.compressed.pdf>
8. Yumarni, T., Amaratunga, D., and Haigh, R. (2013), Gender mainstreaming and post-disaster reconstruction policy in Indonesia, *International Conference on Building Resilience 2013: Individual institutional and societal coping strategies to address the challenges associated with disaster risk*, 17-19 September, Ahungalla, Sri Lanka
9. Yumarni, T., Amaratunga, D., and Haigh, R. (2013), Gender mainstreaming and sustainable post-disaster reconstruction: a literature review, *International Postgraduate Research Conference (IPGRC) 2013*, 8-10 April, Media City, University of Salford, UK

The researcher declares that no portion of the work referred to in the thesis has been submitted in support of an application for another degree of qualification to the University of Huddersfield or any other institution.

Tri Yumarni

LIST OF ABBREVIATION AND TERMINOLOGY

ADB	Asian Development Bank
APBD	Provincial/local government annual budget
APBN	National Annual Budget
BAKORNAS-PB	National Coordination Board for Disaster Management
<i>Bappenas</i>	National Development and Planning Agency
BKM	A small credit organization in the village
BNPB	National Disaster Management Agency
BPBD	Local Disaster Management Agency
BPD	Village assembly
BPR	Formal small scale financial credit in the village
BPS	Statistics Indonesia
BUKP	<i>Badan Usaha Kredit Pedesaan</i> , Village Financial Credit Association
<i>Bupati</i>	Regent, the leader of a district
CBO	Community Based Organization
CEDAW	Convention to Eliminate All Forms of Discrimination Against Women
CRED	Centre for Research on the Epidemiology of Disasters
DAC	Development Assistance Committee
DESA	Rural area, village; it's sometimes interchangeable with <i>Kelurahan</i>
<i>Desa wisata</i>	Tourism village centre
DFTW	Domes for The World
DFID	Department for International Development
DRR	Disaster Risk Reduction
ECOSOC	Economic and Social Council
GAD	Gender And Development
GAR	Global Assessment Report
GBHN	Indonesian: Broad Outline of State's Policy
GDI	Gender Development Index
GII	Gender Inequality Index
GDP	Gross Domestic Product
GOI	Government of Indonesia
<i>Gotong royong</i>	Village labor
IDR	Indonesia's Rupiah
ILO	International Labor Organization
INGO	International Non-Governmental Organization
IOM	International Organization for Migration
JRF	Java Reconstruction Fund
<i>Kabupaten</i>	District; a province usually consists of several districts.
<i>Kecamatan</i>	Sub-district; a district consists of several sub-districts.
<i>Kejar paket A, B, C</i>	An informal education system in Indonesia
<i>Kelurahan</i>	Neighbourhood; a sub-district consist of several neighbourhood
<i>Kerja bhakti</i>	Voluntary Labor
<i>Kodrat dan martabat</i>	Natural talents and proclivities as a women
Kota	City, town.

MCK	Clean water and sanitation infrastructures
MDF	Multi Donor Fund
MDGs	Millennium Development Goals
MFIs	Micro Finance Institutions
<i>Mitra sejajar</i>	Harmonious gender partnership between women and men
NGO	Non-Government Organization
OECD	Organization for Economic Co-operation and Development
<i>Padat karya</i>	Labor intensive approach for reconstruction
<i>Peran ganda</i>	Women's dual role as a housewife and a mother
PDR	Post-disaster Reconstruction
PKK	Family Planning Welfare
PMI	Indonesia's Red Cross
<i>Podes</i>	Village Potential Census
<i>Posyandu</i>	Village Health Post
<i>Provinsi</i>	Province; now Indonesia has 33 provinces (similar to states).
<i>Rekompak</i>	Community Based Settlement Rehabilitation and Reconstruction
<i>Ronda</i>	Non paid obligatory for village security services
<i>Rumah teletabis</i>	Teletubbies house
ROSCA	Rotating and saving credit association
SAR	Search and Rescue
<i>Satgas</i>	Task forces
<i>Satpam</i>	Security Guard
<i>Siskamling</i>	Village Community Policing Group
SMEs	Small and Medium Enterprises
TOGA	Herbal plantations within family
UKM	Small scale and medium enterprises
UN	United Nations
UNED	United Nations Environment Programme
UNDP	United Nations Development Programme
UNHSP	United Nations Human Settlements Programme
UNISDR	United Nations International Strategy for Disaster Reduction
USA	United States of America
USD	United State Dollar
UUD	The 1945 Constitution of the Republic of Indonesia
WANGO	World Association of Non Governmental Organization

ABSTRACT

Mainstreaming gender within reconstruction is vital to enhance sustainable development in disaster affected regions. Promoting needs and concerns of women and men as well as their experience and knowledge in all process of reconstruction can fulfill sustainable post-disaster reconstruction. Studies have found that failure to address gender issues in post-disaster reconstruction will hinder the opportunities of reconstruction to achieve sustainable development. Yet, many cases of reconstruction activities across developing countries failed to promote gender mainstreaming. This research aims to provide policy-relevant findings regarding strategies for mainstreaming gender with the aim of achieving sustainability in post-earthquake reconstruction in Indonesia.

The case of gender mainstreaming issues at post-disaster reconstruction at Bantul and Sleman Yogyakarta Indonesia were examined. Multiple case studies were applied to achieve the aim and objectives of the study. Accordingly, the sequential mixed-method approach was used with the primary data collection methods are semi-structure interviews and questionnaires. For analyzing the qualitative data, the study chooses content analysis technique along with descriptive and inferential statistics that be used for quantitative data analysis.

This study confirms that women are not only more vulnerable but also have a larger number of vulnerabilities. Women face all dimensions of gender vulnerability during reconstruction. Among the most vulnerable groups are pregnant women, women with disabilities and older women. Despite their vulnerability, women can make a difference during reconstruction through their economic, social and environmental capacities. This study shows that women's capacities in the economic, social and environmental dimensions not only substantially reduce their families' and communities' vulnerability but also enhance the sustainability of their families and communities following an earthquake. This study further shows that gender mainstreaming strategies within sustainable reconstruction should incorporate not only strategies for protecting against gender vulnerabilities but also strategies for promoting gender capacities. Both are fundamental to the achievement of sustainable reconstruction. Further, this study presents key enabling and constraining factors in the mainstreaming gender into sustainable post-disaster reconstruction. These stem from government, non-government organizations, and society. The key enabling factor on the part of government is strong women's leadership, while the key enabling factor from society is support from active roles for women's groups. This study shows that adequate technical and financial supports are the key factors from non-government organizations. The key constraining factor from the government is resistance from senior bureaucrats, whereas key constraining factors on the part of society are resistance from religious leaders and patriarchal culture within society.

Keywords: gender mainstreaming, strategies, sustainable post-disaster reconstruction, earthquake, Indonesia.

Chapter 1

Introduction

1.1. Background of the study

The growing number of natural disasters in South East Asia countries in last decades has affected women severely. Researchers and International donors highlighted that women are the most vulnerable groups following Aceh, Thailand, and Sri Lanka tsunami 2004 (see, for example, Enarson and Chakrabarti, 2009, CRED, 2011; UNDP, 2013). The severe impact of natural disaster on women has deepened along with endemic issues of gender inequality in these countries (UNDP, 2013). UNDP (2013) identified various gender issues revealed before, during and after natural disaster across South East Asia countries. Before Tsunami and Earthquake strike, there is a lack of efforts from government and communities to address women needs and their capacity in disaster risk reduction (Enarson and Chakrabarti, 2009; World Bank, 2012). During tsunami and earthquake, women death were substantially higher than men. For example, the percentage of women death following Aceh tsunami was at 70-80% (Oxfam, 2005). After the disasters, it was found that women were marginalized to access the benefits of reconstruction programs. Smyth and Sweetman (2015) reported an increasing women poverty at affected communities across Sri Lanka, Thailand, and Indonesia following tsunami and earthquake. They show how lack access to basic services and livelihood recovery program threatens women to recover from poverty following disasters in those countries (Smyth and Sweetman, 2015). All of this evidence highlights the need for addressing gender issues in those disaster affected countries.

The fundamental argument of this study is that disasters are gendered constructed. The gendered construction of natural disasters results from unequal relationships between women and men in society, and these lead in turn to women's vulnerability. Therefore, socially constructed roles often place women more vulnerable to disasters. As Enarson (2012, p.9) writes, "...gender shapes the social worlds within which natural disaster occurs." Hence, a "gender blind" reconstruction policies and programs will lead to an increasing women vulnerability, widening gender disparities and creating an unsustainable development of affected communities (Yonder *et al.*, 2005). Studies found that failure to address gender issues within post-disaster reconstruction policies and programs will hinder the opportunities of

reconstruction to achieve community resilience and sustainable development (see, for example, Drolet *et al.* 2015). Thus, gender mainstreaming which taking into account women needs and concerns in all process of reconstruction is vital to achieving sustainable development through reconstruction (Enarson, 2012).

1.2. Justification of the research

Gender and built environment literature highlight that gender mainstreaming is vital for achieving sustainable post-disaster reconstruction (see, for example, Ariyabandu and Wickramasinghe, 2003; Childs, 2006; Ginige *et al.*, 2014). Childs (2006) points out that though many reconstruction policies are purposed to give equal benefits for women and men, in practice men often receive more benefits from the policies. Enarson and Chakrabarti (2009) reported how reconstruction across India, Sri Lanka, Thailand and Indonesia left women more vulnerable as they have little access to houses, health services, jobs and financial supports. On the other hand, studies found that women capacity and leadership are necessary to achieve an effective reconstruction and sustainable development (Drolet *et al.* 2015). They explain that once women are empowered, they will have capacity to improve their lives and families as well as their communities both in a short and long term development (Childs, 2006; Ginige *et al.*, 2014).

The Indonesia's government and International donors also have concern to integrate gender mainstreaming strategies within post-disaster reconstruction. The massive damage of tsunami and earthquake raised a significant number of vulnerable women (Jauhola, 2010). Therefore, integrating gender mainstreaming into post-disaster reconstruction activities will bring various opportunities to rebuild better communities and to achieve sustainable development. As Jauhola (2010) point outs that gender mainstreaming have become widely implemented following the 2004 Aceh tsunami as humanitarian aids have concern to promote this issue in their activities. Java Reconstruction Fund (2011) found that engaging women participation in all process of the community-based housing project at Bantul district, Yogyakarta province contributes to achieving sustainable reconstruction. However, in other affected communities in the country, increasing women vulnerability during reconstruction are found. For example, UN-HABITAT (2006) documented that low participation of women in Nias and Aceh during reconstruction lead to poor housing reconstruction. Thus, more effective strategies of gender mainstreaming are needed to achieve sustainable reconstruction across affected regions in the country.

Moreover, research gaps exist on gender and built environment research. Aboobacker and Nakray (2011) explain that while gender is widely recognized as an important consideration in development theory and practice, the integration of gender mainstreaming into thinking and practices in post-disaster reconstruction is just beginning. Gender and development scholars have also shown that the acknowledgment of women's capacities and strengths in development policy is important to enhance the sustainability of development (Alston, 2014; Enarson, 2014; Bradshaw, 2015; Coles *et al.* 2015). However, little studies in post-disaster reconstruction explore how women's capacities and strengths should be integrated into policy decisions and in all formal arrangements related to recovery and reconstruction (Yonder *et al.*, 2005). This area is still underexplored and thus demands an investigation as to how gender mainstreaming is linked to post-disaster reconstruction and how it could help policy makers to design better policies and frameworks for the sustainability of post-disaster reconstruction. Hence, this study is purposed to address this research gap.

1.3 Research aim and objectives

The main aim of this research is to provide policy-relevant findings regarding strategies for mainstreaming gender in order to achieve sustainable post-disaster reconstruction. The case of post-disaster reconstruction at Bantul and Sleman Yogyakarta Province Indonesia is examined to demonstrate various gender mainstreaming strategies as well as to consider the questions of why and how they are integrated within post-disaster reconstruction. In doing so, this research has set the following objectives:

1. To investigate types of gender vulnerabilities which may affect the sustainability of post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
2. To investigate types of gender capacities which may contribute to the sustainability of post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
3. To elaborate strategies of mainstreaming gender which is purposed to contribute to achieving sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
4. To identify benefits of mainstreaming gender for achieving sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
5. To identify constraining and enabling factors for mainstreaming gender into sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.

1.4 Contribution to knowledge and practices

The findings of this study contribute to both theory and practice of gender mainstreaming, sustainable development and built environment. Firstly, this study was based on theories that proposed the use of strategic approach in gender and development within disaster management discourse. This study identifies that few studies that examine on how strategies to mainstreaming gender within the context of post-disaster reconstruction. Therefore, the main theoretical contribution of this study is that it substantially adds gender mainstreaming theory into sustainable post-disaster reconstruction through establishing comprehensive strategies of mainstreaming gender into three pillars (i.e. economic, social and environmental) of sustainable development. Moreover, it also explains theoretical understanding by which gender mainstreaming strategies lead to sustainable post-disaster reconstruction. In doing so, this research has identified gender vulnerabilities and gender capacities that may affect the sustainability of post-disaster reconstruction as well as various enabling and constraining factors to integrate gender mainstreaming strategies to achieve sustainable post-disaster reconstruction.

On the other hand, this study contributes to the practice of gender mainstreaming and post-disaster reconstruction by introducing a conceptual framework and guidance which can be used by policy makers to mainstreaming gender into post-disaster reconstruction policies. The conceptual framework and guidance help policy makers in identifying what gender mainstreaming strategies and how the integration of these strategies will enhance the sustainability of post-disaster reconstruction. Moreover, the findings may also benefit relevant policy makers to improve policy performance of gender mainstreaming in the affected communities. This research also provides a source that can be used by policy makers to develop policy dissemination strategies in mainstreaming gender in the Indonesia's disaster management context.

1.5 Research method

The research is an exploratory multiple case study which is concentrated in the districts of Bantul and Sleman district, which are located in one of the worst earthquake-affected regions in Indonesia. These two districts were the most impacted areas following the Yogyakarta (Central Java) earthquake in 2006. A mixed method approach was used, utilizing qualitative and quantitative research methods that optimize primary and secondary data sources in understanding the circumstances of mainstreaming gender within post-disaster reconstruction

management in both districts. Data were gathered through semi-structured interviews and questionnaire surveys for policy makers, implementers, and beneficiaries. Data related to gender vulnerabilities and capacities, gender mainstreaming strategies, benefits of mainstreaming gender and enabling/constraining factors of mainstreaming gender into sustainable post-disaster reconstruction were collected through interviews with the key informants. The informants were representatives of the Bantul and Sleman districts, community leaders, Non-Government Organizations (NGOs) and experts from universities involved during and after the earthquake and beneficiaries. The names of those selected were collected from the government reports or recommended by other participants. The names of NGO representatives were gathered from the profile and directory of disaster risk reduction organizations in Indonesia, published by the National Agency for Disaster Management, Indonesia. Interviews are done using a semi-structured guide of an interview. This sought to answer questions related to gender mainstreaming in addressing sustainability issues in post-earthquake reconstruction.

To support the qualitative findings, the policy makers' and beneficiaries' surveys were conducted using policy makers' and beneficiaries' questionnaires. The policy makers' questionnaires were distributed to the main policy makers and implementers at Bantul and Sleman district governments. The beneficiaries' questionnaires have been circulated in both districts where two villages of Bantul and one village of Sleman were selected. The three villages were selected because of the substantial number of life loss and property fatalities in these areas. The key informants across three villages also faced different issues of reconstruction. Since the author lived in the area where the earthquake struck, she had a particular ability to understand the situation and to construct appropriate interview guidelines for the research. Interviews and survey were used to collect primary data, while secondary data were collected from documents related to the topic of this study and published by government and non-government organizations about the 2006 earthquake in Yogyakarta Province. However, although the research does utilize mixed methods, the qualitative data were principally used to pursue the research questions while quantitative data were used to support the research findings. Data analysis for the research findings was mainly done using *NVivo* for qualitative data; Stata software 11.2 was used to analyze quantitative data. Details of the methodology of this research are presented in chapter five.

1.6 Chapters organization

This research consists of eleven chapters. The present chapter, chapter one, outlines an introduction to the entire report including background that helped to inform the initiation of the study, the research justification, aim and objectives, the study's contribution to knowledge, research methods, and chapter organization.

Chapters two, three and four comprise a detailed literature review on theory and approaches to explain the gendered nature of the disaster, the concept of and strategies in gender mainstreaming, a definition of sustainable post-disaster reconstruction, and enabling and constraining factors affecting the mainstreaming of gender within post-disaster reconstruction. Knowledge gaps addressed by this study have been discussed in this chapter.

Chapter five focuses on the research method and give information in detail about the research method used in this the study. This chapter mainly discusses the derivation of the aim, objectives and research questions, and research focus. In this chapter, the researcher also discusses the philosophy standpoint of the research, approach and techniques used, and how to enhance research validity.

Chapter six presents the conceptual framework of the study to conceptualize the phenomenon on which the study is based. The conceptual framework presents the key concepts of the study, their relationships, and the boundary of the study.

Chapters seven and eight depict case studies one and two. In both chapters, results from interviews with key informants from policy makers, implementers, and beneficiaries, are analyzed using content analysis. Subsequently, results from policy makers/implementers' questionnaires and beneficiaries' questionnaires are analyzed using *t*-statistical analysis.

Chapter nine presents the cross-case analysis which highlights the similarities and differences of qualitative and quantitative findings from both case studies. This chapter also combines data from case study one and two to establish the general state of gender mainstreaming and sustainability of reconstruction in the two districts combined. Meanwhile, the analysis of validation on the findings is carried out using interviews with experts. The purpose of this section is to triangulate the findings from the case studies.

Chapter ten presents the findings from the empirical analysis, providing empirical evidence of the benefits of gender mainstreaming into sustainable post-disaster reconstruction, providing

the gender vulnerability and capacity assessment, identifying gender mainstreaming strategies to reduce gender vulnerability and to promote gender capacity, and mapping enabling and constraining factors of gender mainstreaming into sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Indonesia.

Finally, chapter eleven summarizes the study by way of concluding remarks, key research findings, a description of the research's contribution, policy recommendations, limitations of the research and proposals for further research.

1.7 Summary of the chapter and the links

In summary, this chapter highlights the research problems which is stated in the background and the thesis structure from chapter one to the final chapter. The next chapter will describe a literature review that relevant to the study starting with review on disasters and its impact on gender in developing countries.

Chapter 2

Disasters and its impact on gender in developing countries

2.1 Introduction

Having introduced the research in the previous chapter, chapter two intends to present an overview of disasters in detail and thereby a comprehensive literature synthesis on disaster and its impacts on gender. Therefore, this chapter consists of a series of literature with the structure as follows. Firstly, an overview of disasters, with a gradual move towards natural disasters and their effects on societies encompassing the situation about developing countries in general and Indonesia in particular. Secondly, an overview of the impacts of the disaster on women and men in developing countries and the current situation of women and men and disaster Indonesia is discussed. Summary of the chapter and links are presented in the last section.

2.2 Disaster in developing countries: trends, patters, and impacts

This section presents an overview of a disaster, its drivers and its impacts across developing countries and the current situation in Indonesia. It helps to identify general conditions of disaster and those impacts on gender across developing countries in particular in Indonesia as the contexts of this study.

2.2.1 *The definition of disasters*

The disaster is traditionally understood by its consequences on human society. Earthquakes, floods, tornadoes, and hurricanes fail to qualify as disasters if they do not involve people. They are purely natural phenomena and regarded as natural hazards that constitute one type of 'trigger agents' to disasters. By removing its 'natural' veil, 'disasters' are primarily social phenomena (Cuny, 1983; Hewitt, 1995). It is vulnerability constitutes the other part of 'trigger agents' to disasters (Alexander, 1997). A number of examples such as the 1994 Northridge earthquake in Los Angeles, the U.S. (Petak and Elahi, 2000), and the 2010 Darfield earthquake in Canterbury, New Zealand (CRED, 2010) had shown relatively positive results, in terms of

building damage and life loss, due to pre-existing stringent Building Codes in the two jurisdictions. In contrast, extensive building collapse and damage, and loss of life in the 2010 Haiti earthquake had reflected the impact of physical vulnerability upon the human community in an earthquake (Lindell, 2010). Likewise, the 2004 Indian Tsunami has been recognized by some studies as a disaster that was created by nature while devastated by human failure to prepare for and respond to an environmental hazard.

Over time the notion of disaster has changed (McEntire, 2001). The early day view of disasters is an act of God as the punishments to the human being (Drabek, 1991 cited McEntire, 2001). After that, disasters became synonymous with disaster agents themselves (McEntire, 2001). This natural hazards perspective was later enhanced with the technological causes of disasters. Hence, there is no precise definition of disasters that have universally accepted (PDM, 2002 cited Shaluf *et al.*, 2003; Turner and Pedgeon, 1997 cited Shaluf *et al.*, 2003). Shaluf *et al.* (2003) believe this is because the disaster definition is dependent upon the disciplines where it is being used. Some scholars admit that disaster can be defined into various definitions based on the distinction of geography, economic, and political situation of the countries which prone to disasters (Eshghi and Larson, 2008). However, The Emergency Events Database (EM-DAT) uses an absolute definition of a disaster. The criteria of the disaster which can be reported to their database are at least took 10 or more people live, affected 100 or more people, ask for international help, and a state emergency declaration by the government.

Disaster happens when a hazard risk is known. To be called disastrous, the known hazard must astonish the community to respond with all their capabilities and resources. Hence, United Nations defines an international disaster is “a serious disruption of the functioning of society, causing widespread human, material, or environmental losses which exceed the ability of the affected society to cope using only its resources” (United Nations, 1992). It is also emphasized by McEntire (2001) with an explanation about the interaction of the disruptive and destructive results interact with various forms of vulnerability. A disaster risk results from a combination of hazards and vulnerability of individuals. Natural hazards such as earthquakes may not trigger a disaster if the hazards do not affect people or their properties (Palliyaguru, 2013). It becomes a disaster when it causes damage and harmful consequences for the human being and their properties.

Disasters can also be understood by some indicators, such as death toll, the number of people injured, number of damage and lost property, and environmental degradation, either tangible

or intangible. Those indicators are crucial to measuring vulnerability. In other case, disasters may happen suddenly and very fast with no warning with its effect are very damaging. It is called sudden onset disasters. These disasters are including earthquake, tsunami, volcanoes, tornadoes, floods, and landslide. In contrary, there is 'creeping' disasters. It happens when the ability of organizations that assist people needs decreasing over time, while the disasters persist for longer times, months or years since occurring for the first time. This is including drought, famine, erosion, and the disease epidemic.

In more than one occasions, disasters can occur in multiple hazards. Sometimes, few disasters happen independently at the same time, for example, floods strike after an earthquake or tornadoes hit while drought happens. In another hand, there is 'compound disasters' when one disaster trigger next disaster, such as tsunami occur following a big earthquake (Pallyaguru, 2013). Another example is drought leading to famine and or fire forest. Most of this type of disasters that happen both simultaneously or in subsequence have the worse consequence to the victims, both psychically and psychologically, as well as their social and environmental condition. It leads to the more difficult of rescue and recovery efforts.

While disasters are the core subject of this research, it is worth differentiating between a few terms closely associated with disasters, such as emergencies, catastrophes, and crisis. There are some major differences between the terms 'emergencies', 'disasters,' 'catastrophes,' and 'crisis' based on factors such as level of impact on communities and properties, and required the level of response and parties involved in response activities (Eshghi and Larson, 2008). Hereafter this study uses the term 'disasters' to cover all the harming and threatening events.

In general, disasters can be categorized into two groups: natural disasters and man-made or technological disasters (Eshghi and Larson, 2008; Shaluf, 2007) although the boundary between the two is blurred (DFID, 2006). However, research such as Moe and Pathranarakul (2006) and UNISDR (2009) call man-made disasters by a different name; that is 'technological disasters.' Here 'technological disasters' is another term for man-made disasters. Moreover, researching in-depth on the types of disasters, Shaluf (2007) recognizes an additional branch of disasters called 'hybrid disasters' which are characterized by both natural and man-made disasters. Shaluf (200) defines natural disasters as 'catastrophic events resulting from natural causes which man has no ability to control.' Abbott (2005) views a natural disaster as the result of a hazardous situation without an involvement of human activities. In the latter definition, the natural disaster is considered an event combined with human behavior and a natural hazard. Accordingly, a

natural disaster happens in locations without human interest or natural phenomena that can be stated as hazards, thus will not be named as natural disasters (Weichselgartner, 2001).

On the other hand, man-made disasters can be defined when disasters are caused by human will, carelessness, negligence, and a failed system (Eshghi and Larson, 2008). Man-made disasters can occur in a sudden or for a long time. Man-made disasters which happen in sudden are noted as socio-technical disasters (Shaluf *et al.*, 2003). Also, based on the organizational state there are four types of the socio-technical disasters. They are technological disasters such as the failure of factory and plant, transport failures, failed production, and another public place breakdown (Shaluf *et al.*, 2003). Furthermore, Shaluf *et al.* (2003) note that long-term man-made disasters are the disasters that happen due to conflicts. Man-made disasters are classified to have taken place due to technological failure or violent behavior of humans such as a failed technology, like an airplane accident or the downfall of a skyscraper as well as a bridge; and people violence action, such as terrorism or war (Eshghi and Larson, 2008).

In summary, there are the variety of classifications for disasters presented by the research and institutional communities. However, data show a significant rise in the number of disasters in past several years. Some statistics that help us to understand the increasing trend of disasters and the reasons for such growth are discussed in the next section.

2.2.2 Increased disasters and their drivers

The numbers of disaster and people affected substantially increase across the globe. Table 2.1 is the summary of the number of disasters worldwide from 1900 to 2015 from The Emergency Events Database (EM-DAT). It shows an increasing number of disasters both of natural disaster and man-made disaster. For example, between 1900 and 1909 the number of disasters were reported only 94 cases. This number increases sharply by 5,989 cases between 2010 and 2015.

Table 2.1 Number of disasters worldwide 1900-2015

Period	Number of disaster (natural disaster and man-made disaster)
1900-1909	94
1910-1919	114
1920-1929	122
1930-1939	185
1940-1949	251
1950-1959	361
1960-1969	679
1970-1979	1,182
1980-1989	2,797
1990-1999	5,929
2000-2009	8,011
2010-2015	5,989

Source: CRED, 2010 and EM-DAT, 2015

It is further revealed that about 354 natural disasters happened every year between 1991 and 1999 and since 2000 until 2015, this increase to around 754 in a year, which is more than double the annual average disasters of previous decades (IFRC, 2005; EM-DAT, 2015). The number of hydro-meteorological disasters (i.e. floods, windstorms, and drought) has increased more than doubled since 1996 (UNISDR, 2015). Man-made disasters are growing every second. Reportedly, 966 man-made disasters took place in the period of 1980-1989, which has significantly increased to 3,083 in 2000-2014 (UNISDR, 2015).

There are various drivers of increasing disasters in these periods. This is evident in the above classifications of disasters because these classifications are based on the primary cause(s) of disasters. However, disasters are seen by many scholars and well-established institutions as a combination of hazards, vulnerability's condition and lack of capacity to reduce risks (Van Niekerk, 2007; UNISDR, 2009; UNISDR, 2015). Thus, all these hazards, vulnerabilities and insufficient capacities can be called the "causes of disasters". Therefore, it is evident that the organic nature of disasters is due to increase these causes of disasters, which are: an increase of hazard risk, an increase of vulnerabilities and weakened capacity.

The increasing risk of natural hazards is just one reason leading to the increased number of disasters. UNISDR (2015) pointing out the environmental drivers of disaster risks, claims that climate change has been one reason for this increased nature of natural hazards. In this context, Coleman (2006) has concluded in his research that the exponential growth in man-made disaster frequency in industrialized countries is due to an increase in traditional hazards such as fires and

explosions, rather than from new technologies. By some means, the increasing nature of hazards is one primary driver of increased disasters.

Apart from the risks of natural hazards, people are gradually more vulnerable to these hazards. The recent data about major disasters evidence the vulnerability of the universe to natural disasters. Further, almost 75% of the population across the world live in areas which were suffered by some form of disaster during the period 1980-2015 (EM-DAT, 2015). Nearly 25% of the landmass around the world and up to 75% of its communities lives in danger (EM-DAT, 2015). This including developing countries that have recently hit by numerous massive natural hazards such as earthquakes, floods, and cyclones leading to disasters (UNISDR, 2015). The most noticeable fact is that most of the people affected by those disasters are from the third world countries (Jones, 2006; UNISDR, 2015). In this context, it is worth understanding the overall impact of the increased number of disasters worldwide, which forms the basis of the discussion in the next section.

2.2.3 *Impact of disasters*

The everyday life's activities may interrupt as a result of disasters, wherever the disasters take place, causing a lot of consequences in many aspects of the community. For example, daily life, economic activities, political practice, social life, psychological situation and environmental issues. The damage and losses resulted from the disaster could be seen in the various level of a community from families, neighborhood, villages, district, provinces, national and even international level as an outcome from disastrous events (Neumayer *et al.* 2014). Measurement of disaster losses cannot be counted only in the financial term, but also the life loss which is priceless, as a direct or indirect result.

There are two forms of disasters loss that usually be assessed: economic loss and human loss, with other casualties, i.e., social, political, environmental, and psychological commonly related to financial losses. According to EM-DAT (2014), during the last two decades, both men and women had died as a result of natural disasters were more than one and half million. Moreover, the number of people suffered every year were double. An average of 258 million women and men has been affected annually by disasters since 1990 (EM-DAT, 2015, UNISDR, 2015).

It has also been reported that the cost of the economy of natural disasters has dramatically risen over time (UNISDR, 2015). Economic losses resulted from disasters can be principally categorized into three types: direct economic loss, indirect economic loss and secondary effects

(EM-DAT, 2015). It is called direct losses when disasters lead to the casualty of stocks and valuable capital, business infrastructures, and social facilities. Meanwhile, indirect losses resulting from the disruption of goods and services distribution, dysfunction of public services delivery, like electrical connection, telecommunication, clean water supply and sewage collection, also the increased medical cost as well as death and injury. Finally, secondary effects consist of long and short term result both all economic aspects and situation of social-economic, such as financial and fiscal condition, the rate of debt at household and national level, revenue distribution, the proportion of poverty, and employment condition (UNISDR, 2015). However, the impacts of those secondary effects mostly are significant.

While the entire world has become prone to disasters, recent history is evidence of many natural, and man-made disasters in developing countries and these countries are recognised as the hardest hit with many human losses and high loss of property compared to developed countries (Muzaffer and Omer, 2006). Hence, the poor are often said to be the primary victims of disasters (Anand, 2005; Gunasekara, 2006; Ofori, 2002; Vatsa, 2004). The tsunami in Southern and Southeast Asia (2004) and the tropical cyclone “Nargis” in Myanmar (2008) are just two such examples, which raises the need to explore the risks these developing countries face regarding natural and man-made disasters. Accordingly, the next section elaborates on past disaster experiences that developing countries were exposed to, together with a discussion on some of the reasons for them to be seen at a higher disaster risk. The discussion then follows with disaster risks associated in particular in the Indonesian setting as the main point of discussion.

2.2.4 Disasters in developing countries

The majority victims of disasters are reportedly people live in developing countries (Anand, 2005; Gunasekara, 2006; UNISDR, 2015); either due to natural or man-made disasters. Table 2.2 shows that the number of people death caused by the disaster in developed and developing countries between 2004 and 2015. It shows that the number of death caused by disasters in developed countries is far lower than death in developing countries, although the world’s “at-risk” population from developing countries believed for only 11% (EM-DAT, 2015).

Table 2.2 Total death resulted from disasters in developed and developing countries

Years	Developing countries	Developed countries	Total death	% developing countries to total
2004	253,987	1,222	255,209	99.5%
2005	102,000	2,767	104,767	97.4%
2006	35,376	4,534	39,910	88.6%
2007	29,069	1,006	30,075	96.7%
2008	248,300	835	249,135	99.7%
2009	21,139	1,743	22,882	92.4%
2010	279,876	56,867	336,743	83.1%
2011	19,103	18,666	37,769	50.6%
2012	16,200	1,378	17,578	92.2%
2013	26,550	2,372	28,922	91.8%
2014	24,792	998	25,790	96.1%
2015	18,515	806	19,321	95.8%

Note: Developed countries include the United Kingdom, the United States, Australia, Canada, France, Germany, Spain, Italy, Japan, and South Korea (Source: EM-DAT, 2015)

Most developing countries have weaker capacity to reduce risk and therefore they face much greater GDP lost than developed countries (Coppola, 2011; EM-DAT, 2015). Table 2.3 shows total damage caused by disasters in developing and developed countries. Overall, the economic lost caused by disasters in those countries is higher than in developed countries.

Table 2.3 Total economic lost resulted from disasters in developing and developed countries (in '000 US\$)

Years	Developing countries	Developed countries	Total economic lost	% developing countries to total
2004	101,861,044	35,787,134	137,648,178	74%
2005	171,772,998	42,849,535	214,622,533	80%
2006	22,051,800	12,054,125	34,105,925	65%
2007	32,162,505	43,126,752	75,289,257	43%
2008	126,433,247	64,115,000	190,548,247	66%
2009	21,353,323	26,975,000	48,328,323	44%
2010	94,186,950	58,360,146	152,547,096	62%
2011	296,000,015	68,095,854	364,095,869	81%
2012	124,088,101	32,423,766	156,511,867	79%
2013	68,558,589	51,465,600	120,024,189	57%
2014	70,480,407	27,967,000	98,447,407	72%
2015	8,742,997	5,866,200	14,609,197	60%

Note: Developed countries include Australia, the United States, Canada, the United Kingdom, France, Germany, Italy, Spain, Japan, and South Korea (Source: EM-DAT, 2015)

Much research has concluded that disasters affect severely when it occurs in developing countries (Amaratunga *et al.*, 2007; UNISDR, 2015). Thus, it is argued that developing countries have low ability to face the disasters' result (Coppola, 2011). The capacity of developing countries to reduce risk is weaker than of developed countries. Table 2.4 presents the differences in disaster impact between developed and developing countries, which show the difference in capacity to the response of disaster. In general, developed countries have a greater capacity to response disaster. These capacities include having mechanism in place to recover from higher economic losses, employ mechanisms that reduce the loss of life and have greater survivability and protection. In contrast, developing countries often face the lack of financial capacity to recover from economic losses and weak protection and survivability from disasters.

Table 2.4 Distinctions in the impact of disasters between developed and developing countries

Developed countries	Developing countries
Likely to endure higher losses economically, but have mechanism in place to absorb these costs.	Have less at risk in terms of financial value, but save little and have no defence to face even small financial loss. Economic consequence can be important, and social building eventually suffers.
Implement system that decrease life loss, such as early warning systems, applied building rule, and define the safe zone (zoning)	Little crucial resources to take advantage of modern technologies, and lack of skill to administer building rule and zoning even though the mechanisms is available.
Implement prompted emergency and medical care that surge survivability and manage the disease transfer/spread.	Sustain massive primary and secondary causalities.
Involve insurance and reinsurance company to handle private, personal and public risk.	In general, do not involve in insurance program. Allocate funds from regular development agenda to emergency respond and recovery relief.

Source: Coppola, 2011

Coppola (2011) affirms the main reason behind the lack of capacity of developing countries to response disaster, which includes the unfamiliarity of the event, and the lack of awareness of proper disaster management systems, which caused many errors in risk reduction, mitigation, and recovery programs. Other problems included equity problems; communication barriers; poor capacity of existing organizations in disaster preparedness, difficulties in handling present

tasks, lack of capacity building with existing human resources, difficulties and ineffectiveness in incorporating the best practices in environmental sustainability and disaster management.

It is therefore evident that developing countries experience higher levels of mortality due to natural and man-made disasters, for instance, the earthquake with 6.5 SR at central California in 2003 caused two lives and 40 injured. In comparison, the earthquake with 6.6 SR, which strike Iran 4 days later, killed over 40,000 people (Jones, 2006). This is evidence of the differing levels of impact between the two, though both events took place in areas with high-density populations. Accordingly, it is evident that developing countries are in the firing line due to the increased level of drivers of disasters such as hazards, vulnerabilities and lack of capacity. In comparison to developed countries, developing countries face a higher number of serious natural and man-made hazards. Apart from hazards, people, structures, and the economy of developing countries are more vulnerable to hazards and are less able to prevent and overcome the consequences of disasters. The next section turns the discussion to the impact of the disaster in Indonesia as the contexts of this study.

2.2.5 Situation in Indonesia

Made up of over 13,000 islands covering 8.8 million square kilometers, Indonesia is home to over 228 million people. The country consists of six big islands: Java, Kalimantan (a part of Borneo), Sumatera, Sulawesi, the Nusa Tenggara as well as Papua (a part of New Guinea). In the north borders to Malaysia and the east has the border with Papua New Guinea. Positioned between two big oceans, the Pacific and the Indian, Indonesia is situated in South East Asia region. The position of Indonesia is acknowledged as a country that very prone to disasters since it is located above three main tectonic plates which are very active. Accordingly, in the northern Indonesia is the Eurasian plate, while the Pacific plate is located in the eastern Indonesia and the Indian Ocean-Australian laid below the southern Indonesia. These feature with a volcanic arc, ranging from Sumatera Island, Nusa Tenggara, and Sulawesi. Most of the old volcanic mountains and valleys are swampy. Currently, there are 728 active volcanoes across the archipelago (Bappenas, 2006)

Well known as a disaster prone country, Indonesia had been experienced from tremendous volcanic eruptions in the world. Tambora volcano that is located in the Sumbawa Island erupted in 1815, threw up more than 1.7 million ton of ash and lava, that layered the atmosphere and blocked the sun rise. Its result was cold wave since the earth did not receive enough sun lights.

In the following year, 1816, the cold wave continuing and It was known as ‘a year without summer’ and resulted from harvest failure and famine around the globe (National Disaster Agency, 2009). In 1883, still in the same century, Krakatau Volcano also erupted, that was described as similar to the explosion of 200 megatons TNT or about 13,000 times of atomic bomb blast hit Hiroshima in The World War II (Bappenas, 2006).

Featuring island arc building, there is a geological process known as a sub-ducting movement that creates active belt throughout the volcanic arc. Additionally, the faults usually generate earthquakes are the Sorong Fault at Papua New Guinea Island, the Palu-Koro at Sulawesi Island, and the Great Sumatra Fault located on Sumatra Island. Several major earthquakes had happened in some regions with dense population, such as Aceh, Nias Island, West Sumatra, Bengkulu, Central Java, Yogyakarta, and Flores. Accordingly, tectonic activities also generate the tsunami and volcanic eruptions. For example are the tsunami in Flores in 1992 and the Merapi Volcano eruption in 1994 (ADRC, 2005). In summary, Indonesia is known as a country that very prone to disasters because of the distinct characteristic both geologically and geographically. Figure 2.1 shows geographic distribution of natural and man-made disaster in Indonesia.

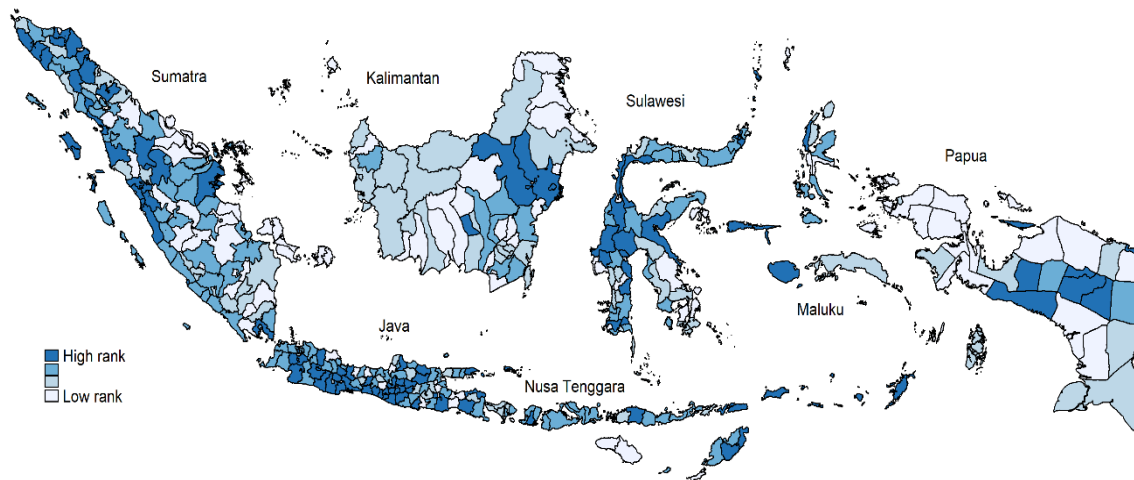


Figure 2.1 Geographic distributions of natural and man-made disaster in Indonesia 2000-2015 (source: author based on National Disaster Management Agency 2015 dataset)

The darker mark indicates the most prone regions with various disasters. Sumatra, Java, Sulawesi and Nusa Tenggara are among regions with the highest risk of an earthquake in Indonesia. Triggered by movements of a tectonic plate and volcanic eruptions, earthquakes frequently occur in Indonesia regions. These movements happen along the west coast of Sumatra where Indian Ocean Plate joins the Asian Plate; Sulawesi, Maluku and also in Nusa Tenggara where the Australian Plate meets the Plate of Pacific Ocean, generate a belt of an

earthquake with a lot of epicenters and hundreds of volcanoes. These volcanoes are located across Sumatera, Java, Bali and Nusa Tenggara. The mountain range laid throughout some islands created a belt with about 7,000 kilometers long. Moreover, most of the tsunami in Indonesia are triggered by the tectonic earthquake and mostly hit the subduction areas and active seismic zones (National Disaster Management Agency, 2016).

The rising Indonesian population leads to the increase of housing demand by clearing green areas and also occupy land used as water absorption, and the result is more floods and landslides. Comparing to the eastern regions, the western part of Indonesia suffers more floods than the east, because of the higher frequency of rainfall. Jakarta, the densest city in Indonesia, is among regions with highest floods risk. Almost every year Jakarta and other parts of Java are stroked by floods causing massive loss, both material and immaterial. Some districts faced flashed floods that hit suddenly but result in massive damage. Also, landslides usually also occur in slope areas of Indonesia, mostly triggered by heavy rainfall. The most unforgettable landslide hit Banjarnegara, Central Java in 2006. It killed more than 300 people, and whole three villages had to be relocated. Other regions which are prone to landslide are Bukit Barisan Mountains in Sumatra, Sulawesi, and mountain ranges in Java (National Disaster Management Agency, 2009).

Some region in Nusa Tenggara and Central Java are among the highest risk of droughts. The National Disaster Management Agency (2009) explains drought mainly happen in several eastern regions during dry seasons. It also causes the spread of tropical disease such as dengue fever and malaria, low food production, and reducing the electric power supply from hydro power installation due to the low of water supply. At the same time, the western regions, like Sumatera and Kalimantan suffer land and forest fire. The fires are usually done by people's activities to clear land for farming, both individual and industrial, and sometimes become worse because of El Nino wave phenomenon. According to the National Disaster Management Agency, (2016), the economic loss from the 2015's fires was about 2000 billion rupiah. Furthermore, smoke from the forest fires also create problems related to people's health, not only within a population in the area but also spreading to nearby countries.

Man-made disasters such as technological mistake also have to be an Indonesia biggest problem within current years. National Disaster Management Agency (2016) highlight the causes of this disasters are bad planning or design and human error or user's mistake. It may results industrial accident, fire, explosion, radioactive pollution and accident in transportation. The most

memorable technological disaster is the drilling failure in oil mining in Sidoarjo that caused an enormous mudflow from inside earth. This hazards impact still can be felt by this time. Another man-made disaster is a gas explosion in P.T Bukit Asam Sawahlunto, West Sumatra happened in 2009, took 32 lives and made 23 people injured. In term of the impact of technological disasters, deeper attentions need to be shown to the accidents in transportation. The data from the Indonesia Transportation Ministry presents that during 2015 there were 27 thousand people died in traffic accidents. More attentions need to be focused on the safety riding, maintaining the street quality and put the proper traffic signs in high-risk places.

Table 2.5 Disasters frequency and its impact in Indonesia 1900-2015

Period	Number of disaster (natural disaster and man-made disaster)	Number people killed	Estimated damaged (USD\$Billion)
1900-1909	314	3,007	0.301
1910-1919	317	4,670	0.451
1920-1929	322	5,080	0.679
1930-1939	335	5,560	0.670
1940-1949	341	6,001	0.890
1950-1959	461	6,800	0.900
1960-1969	579	7,800	1.470
1970-1979	582	8,970	1.500
1980-1989	813	10,054	1.567
1990-1999	1,062	12,034	1.630
2000-2009	1,782	218,202	3.945
2010-2015	1,229	10,926	1.367

Source: National Disaster Management Agency, 2016

The number of disasters in Indonesia increases sharply during the last two decades. Table 2.5 above shows the disasters frequency and its impact in Indonesia between 1900 and 2015. In the period 2000-2015, Indonesia is hit by 3,011 disasters, with total live loss is 229,128 people, 134,066 were reported missing, 262,430 were injured, and 8,309,679 were evicted; also the loss of billions of rupiah related to the economic activities (National Disaster Management Agency, 2016).

Some major disasters which notably overwhelmed the world were the 2004 huge earthquake followed by the giant tsunami, which destroyed cities in Aceh Province, and the earthquake with 5.9 SR happened in 2006, which damaged Yogyakarta, Central Java. Aceh tsunami was one of the worst disasters Indonesia. It was driven by one of the most powerful earthquakes with a 9.3 magnitude on the Richter scale (the third largest ever recorded) with an epicenter close to the

west coast of Northern Sumatra. The undersea earthquake caused other earthquakes which generate the tidal waves which traveled with very high speed and continuous force towards far away from coastlines. Indonesia is the worst affected country with an enormous death toll, economic devastation, and social losses. The 2004 tsunami mainly hit Aceh and North Sumatra. It was responsible for the majority of the casualties, damage, and drowned or washed over the coasts of a lot of countries across South Asia and Pacific regions. The estimation of the life loss is 165,708 people killed with 532,898 affected (National Disaster Management Agency, 2009). 2010). Moreover, the 5.9 SR earthquake strike Yogyakarta and Central Java on 27 May 2006 at 5.50 am with epicenter is about three kilometers from the Bantul shoreline. This earthquake claimed 30.959 individuals and injured more than fifty thousand people. The government of Indonesia estimates the total loss and damage is USD 3.1 billion (Bappenas, 2006).

The geographic distribution of people killed and affected by disasters shows variation across regions. People living in prone disaster regions have highest risks. Figure 2.2 reveals that the number of people killed in North Sumatra, Central Java, East Sulawesi, Nusa Tenggara, and East Papua are among the highest in Indonesia. In contrast, they living in fewer disaster risks region such as West Kalimantan, Riau, and West Papua are the lowest.

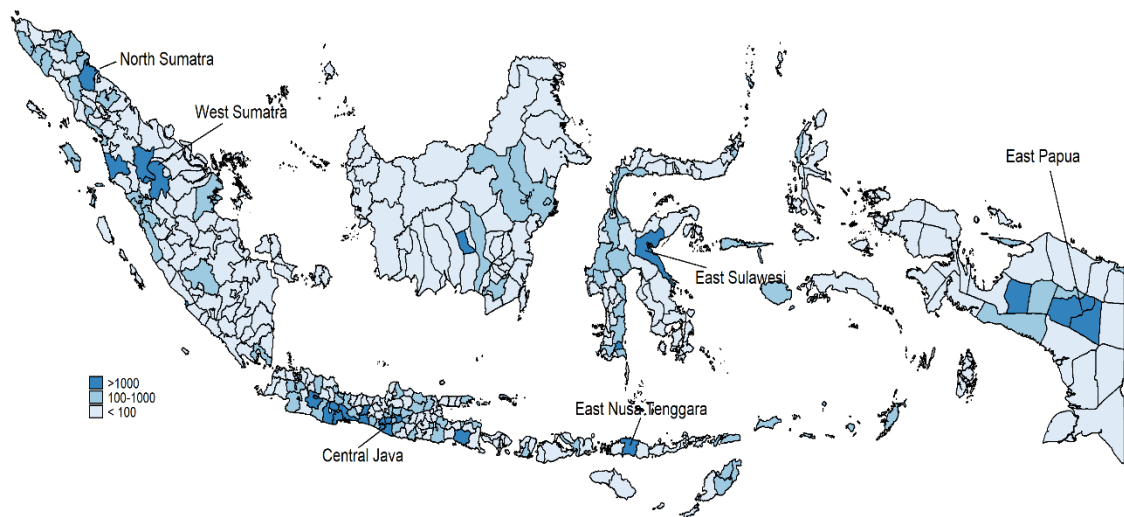


Figure 2.2 Number people killed by disasters in Indonesia 2006 -2010 (source: author based on Podes 2013 dataset)

Based on the preceding discussion, it shows that increasing natural hazards across developing countries in the last decades have a severe impact on lives and livelihoods of people in this region. The impact of natural disaster in this region is not only related to the prone disaster location but also associated the capacity of most developing countries to cope disaster. Indonesia is an archipelago country in which disaster risks vary across districts. It shows that

people living in higher disaster risks have more severely impacted by disasters than those living in fewer disaster risks. Hence, the government and policy makers should pay more attention of people, especially women who are living in higher disaster risks regions since there are not only facing greater risks from a natural disaster but also more significant risks from existing gender inequality. The next section discusses the current situation of gender and disaster in developing countries and then turn to the impact of the disaster on women in Indonesia as the contexts of this study.

2.3 Women and disasters in developing countries

Since the recent quarter century, the girls and women life has improved. Currently, in the developing countries, more girls attend school and literate. Forty percent of the global workforce are women (World Bank, 2012). Furthermore, globally, the women life span is longer than men. However, in several regions, the progress of gender equality is still limited. It can be found mainly in developing countries. A significant number of girls and women still die in early age, during childhood time and in the reproductive years. Women still get a low wage from their job and have less voice in society. Table 2.6 shows several indicators of women and men welfare between 1990 and 2010. It shows gender disparities in most development indicators except live expectancy.

Table 2.6. Some indicators of women and men welfare 1990 and 2010

Welfare indicators	Countries	1990		2010	
		Male	Female	Male	Female
Primary school enrolment rate	Developing Countries	81	67	107	100
	Developed countries	99	98	110	101
Secondary school enrolment rate	Developing countries	30	22	41	34
	Developed countries	76	64	96	94
Labor force participation	Developing countries	82%	50%	78%	52%
	Developed countries	68%	60%	68%	61%
Live expectancy	Developing countries	51	54	56	59
	Developed countries	72	79	77	83
Mortality of maternal (per 100,000 live births)	Developing countries	-	850	-	580
	Developed countries	-	251	-	113

Source: World Bank 2012

The most persistent and egregious gender disparities include in several development indicators. Firstly, the higher mortality rate of women and girls. Across the world, more women are tended to die than men in various developing countries rather than in developed countries. It is estimated about 3.9 million girls and women under 60 years age died every year (World Bank, 2012). Around two-fifth of those girls die when born or even never be born, one-sixth passed away in early age, and more than one-third perish during their reproductive life. In Sub-Saharan Africa the number is rising, particularly young age and reproductive age death, more particular in countries with high HIV and AIDS incidents. Secondly, inequalities occur in girls' schooling. Regardless of the improvement, elementary and junior high school admission for girls still much lower than for boys. It can be found in societies who live in poverty in some parts of South Asia and African sub-Sahara countries. Thirdly, access disparity to economic share remains between men and women. In the family, women often do an unpaid job, or informal work, such as female farmers often carry out or manage smaller plots and low profitable crops, than male farmers. Business women are likely to conduct small companies or firms and less profitable business. In the end, women earning tend to be less than men. Lastly, an unequal voice within society still exists. In various countries, women (particular women in poverty) have less power to voice their opinion over decision process and worsened by their lack of control over resources in the family. Moreover, in most developing countries, women's participation in formal politic activities is meager and commonly underrepresented in a political party (World Bank, 2012).

Despite facing greater gender inequality, women and girls across low-income countries are also typically at higher risk from disasters than men (UNDP, 2010). Figure 2.3 shows gender inequality index across the worldwide. It shows that the persistence of gender inequality occurs across high disaster risk countries particularly in developing countries. Gender inequality index (GII) is an index for measuring gender disparity that based on three dimensions to measure opportunity costs: reproductive health, empowerment and labor market participation (UNDP, 2010). Gender Inequality Index (GII) differs to Gender Development Index (GDI). GDI measures gender gaps in human development by accounting for disparities between women and men in three dimension of human development (i.e. health, knowledge and living standards) (UNDP, 2016). Currently, approximately 200 million of women affected annually by natural disasters and 6 million of them are missing every year (World Bank, 2011).

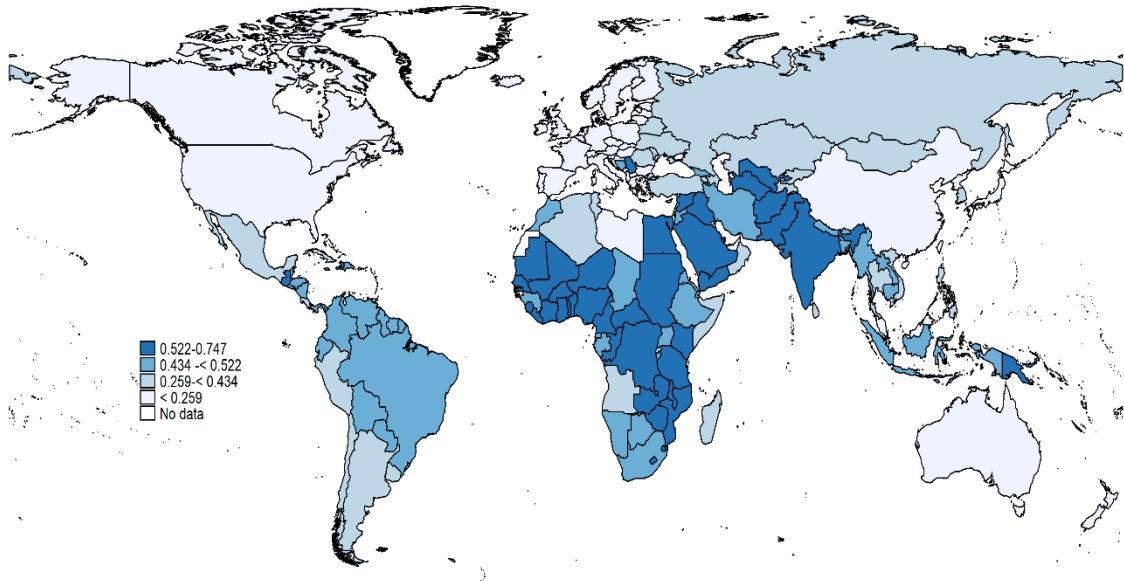


Figure 2.3 Gender inequality index across the world 2013 (source: author based on UNDP 2013 dataset)

Studies also report the impact of a disaster on Human Development Index (HDI) 2010. The HDI measure emphasizes individual capabilities and not economic growth alone. HDI is a measure of human development achievement in three key dimensions (i.e. health, knowledge and living standards) (UNDP, 2016). HDI is calculated using the geometric mean of normalized indices for health (measured by life expectancy at birth), knowledge (measured by mean of years of schooling adult aged 25 years and older and expected years of schooling for children entering age), living standard (measured by gross national income per capita). The sum of each dimension is aggregated into a composite index based on geometric mean (UNDP, 2016).

It shows the most human suffering is in the countries with lower human development index, as the percentage of the total number killed and affected people of the total population appropriately very high compares to the countries with high gender development index (UNDP, 2013). A study from Neumayer *et al.* (2014) about disasters that occurred in 141 countries found that women were not only more likely to die in natural disasters and their aftermath but discovered that developing countries where women face the lack of social and economic right had affected severely. In term of life span, natural disasters reduce the women life expectancy, that worse than the effect on men. The study also found that the bigger the disaster and the more inferior women socioeconomic status, thus the effect on the women life expectancy is also higher.

WHO (2010) reports that the number of women affected by disasters, in particular, is about seventy per cent of neglected people. Table 2.7 presents a selective review of the percentage of women losses from recent natural disaster in developing countries.

Table 2.7 Selective reviews of the women losses from recent natural disasters in developing countries

Location (year)	Type of disasters	Estimated death	Estimated women death	Estimated homeless	Estimated homeless women
Bangladesh (1991)	Cyclone	140,000	90%	560,000	80%
Haiti (2010)	Earthquake	220,000	80%	600,000	70%
Srilanka (2004)	Tsunami	38,000	70%	500,000	60%
Indonesia (2004)	Tsunami	166,000	80%	655,000	75%
Turkey (1999)	Earthquake	33,000	70%	300,000	80%
China (2008)	Floods	12,000	80%	1,5 million	90%
India (2001)	Earthquake	10,000	80%	620,000	70%
Venezuela (1999)	Floods	10,000	80%	200,000	90%
Thailand (2004)	Tsunami	5,000	80%	300,000	70%

Sources: Chowdury, 2001; Oxfam, 2005; APWLD, 2005; Ariyabandu, 2009; UNISDR, 2011.

Across developing countries, the percentage of women dying and homeless on total damage are quite large at 70-90% (UNISDR, 2011). The cyclones which hit Bangladesh in 1991 killed 140 thousand people, and 90 percent were women. China, about 1 million of women are homeless due to torrential rain and flooding in 2008 (Oxfam, 2005). During the emergency caused by Haiti earthquake 2010, the majority of the victims were women and found in the poorest area of the country (Chowdury *et al.*, 1993). In Turkey earthquake 1999, 70-80% of death and homeless are women. Likewise in Venezuela and Thailand, most victims and homeless are women. Most of the tsunami victims in Indonesia, India and Sri Lanka caused are women reaching at 70-80% of the victims (Oxfam, 2005).

Women also were severely devastated on disasters aftermath. Increasing number of women household head following the disasters left all family burdens to women. Loss of jobs and unemployment often pushes men to migrate and have to leave his wife and families. Women are also more likely experience violence following disasters due to unsafety shelters and temporary accommodation. Statistics show the severe impact of a disaster on women after a disaster. World Bank (2012) reports that 90% of poor people in disaster affected areas are women and they are concentrated in South Asia and Southeast Asia. In Indonesia, after Aceh tsunami, about 50% of households were headed by women. The fact that women literacy tend to be lower than men and most of them do not have right to productive assets within families

also leave them in a disadvantage position. Dufka (1988) found in the wake of the Mexico City earthquake:

“one study of 3,200 families - domicificados - who lost their homes in their homes in the earthquake reported that majority of these families were headed by women, were near or below poverty level and work out of their home (for example, preparing food to be sold on the street)”.

Likewise, in El Salvador, the total damages sustained by women because of the earthquake were larger than men at about USD 715.2 million (UNDP, 2010). Limited mobility and access of women to resources and assets lead to unstable survival ability and worsen women’s vulnerability during and after disasters (UNISDR, 2006). The main priorities in responding to disasters are the relocation of affected people to temporary shelters that safer and sturdier, restoration of the permanent building, repairment of clean water supply, household and public sanitation, electric network, and school facilities. Yonder *et al.* (2005) write that support and emergency assistance disserve women who have to manage food supplies, household stuff, children and family concerns are facing a chaotic system of aid distribution and process that were hardly listening to their idea and opinion. Despite all their high activities, their work is usually overlooked or go unnoticed. Notably, poor women encounter many obstacles in accessing and qualifying for support, such as low access to information about aid procedures, and also the qualification of a requirement that often rules out them. The entitlement protocols frequently tend to benefit men than women like men who registered in a bank and have a bank account and distinguished heads of families. Help and support are often given to the formal companies when the aids focus on the labor in the formal business, resulting in a further economic exclusion of women’s position.

In the post-disaster reconstruction stage, the focus of the entitlement’s activities is given to the individuals and their damaged buildings. The approach prioritizes property owners within affected communities and ignores non-owners or tenants (poor people, women, ethnic and other minorities). It also focuses on ‘bricks and mortar’ policy in a reconstruction of houses, public infrastructures, business and tourist facilities, avoiding to focus on women who mostly live from informal economic activities and collecting resources to cope and survive with hazards. Women’s job is severely affected throughout reconstruction process, and their economic losses can be worse. The damage to support systems such as health care system, child care, and public transportation causes higher domestic work demand. Destroyed living facilities mean disruption of women’s working activities. For women who work independently in the household, the house

loss leads to the loss of work equipment, market, and opportunities to gain income. Domestic violence tends to surge as men lose their self-control during disasters.

Gender biases in participation, access, and rights during recovery process mirroring the existing gender inequality in the affected communities. Women lack participation and leadership in public spaces occur in affected communities as the communities set norms of the labor gender division. The intensification of women's multiple roles and the invisibility of their contribution to emergency management and recovery were observed post-tsunami (Ariyabandu 2006) and post-Katrina New Orleans (Enarson 2005). In relief shelters, girls and women were frequently seen holding responsibility for look after their families. It was women responsibility to secure food for the family member.

In Aceh, Indonesian' women were not taken provision in the operation of the halter and were not involved in the negotiation meeting with aid bodies and government institutions that in charge of supplies distribution (APWLD, 2005). In Sri Lanka, women have low participation in recovery planning and management, despite a range of committees appointed to consult stakeholders. While in the districts in the South Sri Lanka, women's participation reached up to 40% in some instances, in the Eastern Sri Lanka where the sociocultural traditions are relatively more conservative it was less than 10%. Men dominated most entirely recovery and reconstruction activities. Similarly, in Pakistan, it was observed that in Azad Jammu and Kashmir and North Western Frontier Province, women were not involved in camp management, especially in the camps run by religious organizations (Rural Development Policy Institute Islamabad, 2006). The observers found the lack of consultation with women and their roles in rebuilding and sustaining their own families as well as their communities. Women were not consulted in housing relocation and reconstruction, although their knowledge and experience are needed. Displaced women mentioned very few places for expressing their opinions within recovery and reconstruction. Since this study account for gender and disaster in Indonesia as the case, the next section presents more detailed women conditions and the impact of a disaster on women in the country.

2.4 Situation of women and disasters in Indonesia

Indonesia is among the most populous countries with 240 million people living in 2010. The proportion of women population is quite large with 49.66% or equal to 120 million (World Bank,

2015). Gender development in the country has improved substantially during the last two decades. Female life expectancy increases from 65 years in 1990 to 73 years in 2015 which higher than the world average of 71. Women access to schooling also increases from 67% in 1990 to 83% in 2015. Women poverty also reduced substantially from 65% in 1990 to 30% in 2015. Nonetheless, there are some development challenges of improving women welfare and well-being in the country. Indonesia's Gender Development Index (GDI) also lagged behind compared to other countries. In 2014, the GDI rank of Indonesia was 110 out of 188 countries (United Nations, 2015). Women have lower literacy rate than their counterparts (in 2014, the percentage of women literacy at 83.4% while man literacy at 92.5%). Women gross school enrolment ratio was also lower than men (65% and 67% respectively). Women earn income is also lower than men with USD 2,289 as compared with USD 4,434 (UNDP, 2013).

Increasing disasters in Indonesia has severely affected women conditions in Indonesia. Disasters in the country do not affect women and men equally. Vulnerability and exposure inequalities to hazard in addition to inequalities of capabilities, opportunities, and share of resource significantly detriment women, put them in a more vulnerable situation during disasters. Table 2.8 shows some women and men killed by a natural and man-made disaster in Indonesia between 1900 and 2012.

Table 2.8 Total disaster and its death toll in Indonesia 1900-2012

Period	Number people killed		Total people killed
	Women	Men	
1900-1909	2,406	601	3,007
1910-1919	3,736	934	4,670
1920-1929	4,064	1,016	5,080
1930-1939	4,448	1,112	5,560
1940-1949	4,801	1,200	6,001
1950-1959	5,440	1,360	6,800
1960-1969	6,240	1,560	7,800
1970-1979	7,176	1,794	8,970
1980-1989	8,043	2,011	10,054
1990-1999	9,627	2,407	12,034
2000-2009	146,562	71,640	218,202
2010-2012	77,360	19,340	96,700

Source: National Disaster Management Agency, 2016

Women killed due to natural and man-made disaster were four to five times more than men between 2000 and 2009. Reasons for the atrocious situation across districts are similar, such as a lot of women choose to stay behind to protect, save, or look for her children and other family

members, while men were often able to flee from disaster's scene. However, there is an uncommon event, such as when the tsunami hit them in Sunday morning in 2004, when they were off work and stayed at home look after the family while the men were out on errands far away from the seashore. In Nias Island, North Sumatra, when the tsunami struck the beach, many women were waiting for the catch from fishermen, since the women usually involving in the sea product processing and trade them in the markets. In other case, women were stroked by the tsunami when they take a bath on the beach as their morning ritual. However, it is not only about the casualties that women suffered the most, but also the fact that both men and women have to deal with much more difficulties since a low number of survived women. Accordingly, there is deliberate role concern where men have to take unfamiliar responsibilities and tasks such as look after the family while taking care themselves. It is exacerbated by the lack of confidence in doing the tasks and uncertainty to fulfill the family needs during disaster aftermath. However, in most of the cases, the most suffered are women.

The economic loss of women was also significantly higher than men. For example, across regions in Aceh, North Sumatra, and West Sumatra the total damages sustained by women because of the earthquake between 2004 and 2007 were larger than men at about USD 1.201 billion (National Disaster Management Agency, 2016). Likewise, the total economic loss of women in Central Java and Yogyakarta also were higher than men at about USD 1.509 billion (National Disaster Management Agency, 2016). It is also reported that the number women economic loss higher within some areas with lower gender development (the Ministry of Women Empowerment, 2016). Figure 2.4 shows GDI across the region in Indonesia 2013. The number indicates that gender development in some disaster risks areas such as Aceh, North and West Sumatra, East Sulawesi and East Papua is lower compared to other regions. It is also reported that in those areas the total economic loss of women because of the earthquake between 2004 and 2007 was larger than men (National Disaster Management Agency, 2016).

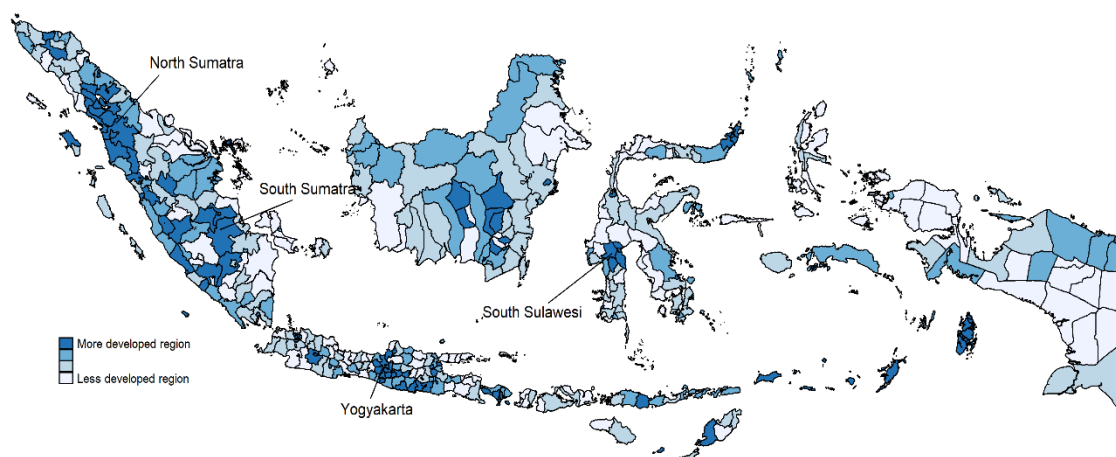


Figure 2.4 Gender Development Index across region in Indonesia 2013 (Source: The Ministry of Women Empowerment, 2016)

A research found that in the post-disaster women tend to be more vulnerable, because of the physical nature of female (more vulnerable than men) and the existing of gender inequality in Indonesia (Jauhola, 2010). The gender inequalities can be found in some forms: the lack access to the household and community resources, the unfair labor division based on gender, more responsibilities to look after family members, women with disability, and old women. Thus, they have low ability to mobilize resources following disasters, in efforts to be part of rehabilitation and resilience. Economically, in the aftermath of disasters, women face more problems in gaining income due to the overburdened domestic activities. PSKP UGM (2011) identify some reason why women more vulnerable to disaster across regions in Indonesia.

Firstly, across areas in Indonesia women are generally have less access to resources - social connections and power, individual mobility, knowledge, experience and skills (intelligence and literacy), control power over property land and another economic share, transportation, secure residence and job, violence free and voice in the decision-making - which are substantial in disaster management process from preparedness to reconstruction. Secondly, most of the Indonesian women are also victims of the unfair labor division based on gender. A big number of women works in the agriculture sector, run small and medium companies, work in the informal economy (household business), doing jobs with low wage, less secure and no advantage such as health insurance or union representation. The agricultural business usually the most suffering from natural disasters, leads to a big number of women unemployment following the disaster.

Thirdly, as a family main care giver to look after children, and elderly or disabled, they cannot move freely to get a new job in another region. The privilege is credited to men, while women are left behind to act as head of a family. Fourthly, housing and its infrastructure are usually flattened or broken during the disaster, a lot of families have to be relocated to temporary shelters. The lack of for easy daily activities like washing and cooking make women's domestic burden increases along with her economic problem, reducing her freedom and mobility to access alternative income sources. Fifthly, women's bargaining position in a family will significantly decrease when women do not have any access to economic and financial resources. Sixthly, increasing number of violence against women were also found following disasters. Lastly, the concern to the women's sexual and reproductive health is still insufficient. It remains in the early stage of recognition within disaster rehabilitation, and relief works. Further, Enarson (2009) suggests that it is important to take into account the gendered impacts of disaster within disaster management policies to reduce the vulnerability of women.

2.5 Summary of the chapter and links

This chapter presents the current situation of disasters, its trends and its impact in developing countries contexts. The numbers of disasters and people affected by those disasters are increasing worldwide. Climate change and environmental degradation have resulted in a greater number of disaster events. In the previous two decades, women and men have been killed by natural disasters are more than one and a half million. Also, the total victims who affected every year become twice in the last decade. While the entire world has become prone to disasters, recent history is evidence of many natural, and man-made disasters in developing countries and these countries are recognized as the hardest hit with many human losses and high loss of property compared to developed countries. Across developing countries, women place in the most vulnerable groups. Despite facing greater gender inequality, women and girls across disaster-affected countries are also typically face a higher risk of natural disasters comparing to men. Increasing disaster in Indonesia has severely affected women conditions in Indonesia. In the aftermath of the disaster, women are more vulnerable because of their vulnerability related to their physical nature, and also the existing gender inequality that can be found across Indonesia. Accordingly, the next chapter discusses in more detailed on the origin of gender, gendered nature of disaster and factors associated with gendered vulnerability in disaster contexts.

Chapter 3

Gender, vulnerability, and sustainability of post-disaster reconstruction

3.1 Introduction

Having provided a discussion and present data on disasters in developing countries and the current situation of disasters and its impacts on women in Indonesia, the discussion turns to the relationship between gender and disasters. Gender is an essential aspect of a social institution that forms the social world where disaster happens (Enarson, 2014). Gender scholars note that gender is the main principle in organizing societies. Thus, it is an important tool to assess the disaster experience (Enarson, 2014; Bradshaw and Fordham, 2014). It is argued that the disaster's impact rarely disclose themselves throughout an impacted communities. Moreover, the range of the impact is seen by a social construct like gender. However, such distinctions are widely most disadvantaged women and create gender inequality. Such gender inequality lead to vulnerabilities to hazards as well as decrease capacities for disaster risks reduction and resilience, which threat sustainability of development.

This chapter presents literature review and synthesis of the relationship between gender, vulnerability, capacity, and sustainability of post-disaster reconstruction. Thus, the structure of this chapter as follows: firstly, the conception of gender, gender vulnerability and gender capacity is presented. Secondly, the link between gender equality, post-disaster reconstruction, and sustainable development is discussed. Summary of the chapter and links are shown in the last section.

3.2 The origin of gender

Gender is related to constructed role and cultivated behaviour in social attributed to women and men (Moser, 2012; Oakley, 2015). Hence, the relation of hierarchical power and gender between women and men that refer to above expectations are not come from biological directly, but socially constructed. Gender identities along with expected roles and responsibilities are modifiable within and between cultures. The meaning of gender has been

explained widely discussed in the literature. Whitehead (1978) as quoted by Ostergaard (1992, p. 6) put the word 'gender' in the following definition:

"...No study of women and development can start from the viewpoint that the problem is women, but rather men and women, and more specifically the relations between them"..."The relations between men and women are socially constituted and not derived from biology. Therefore the term gender relations should distinguish such social relations between men and women from those characteristics, which can be derived from biological differences".

Women and men have a biological difference. Women can give birth; men cannot. In much of the world, adult men are physically larger than adult women. Most civilized societies define the basic biological difference into different roles and behavior. It is implemented in the distribution of access and control to resources, rights, and power to present their opinion. Connel (2015) highlights sex is a part of biology since the quality of the subject is unchangeable and fix, on the other hand, gender is a concern in social science study since it refers to the social construction of men and women along with their role and position in family and society. Gender interpretation differs within cultures or between them since every culture has its own identity and characteristics. Accordingly, the character of gender is dynamic that makes gender interpretation is changeable under the influence of social and economic factors on a wide scale. On the contrary, sex is permanent, unchangeable and universal (Coles *et al.* 2015). Moser (2012) explains that gender concludes what is wanted and permitted in a female or a male within a defined context which determines resources, responsibilities, and opportunities. All those links, attributes, and conveniences that are referring to gender are socially developed and are studied via socialization process.

In the identification role based on gender, Kabira and Masinjila (1997) establish several components (i.e., locus, action, power, and visualization) which are used to differentiate the role of men and women. Also, action applies to labor division based on gender usually classified into three categories: productive, reproductive, and role in a community. Productive roles refer to all activities in producing goods and services that generate income. Reproductive roles are all activities without payment or producing goods, such as domestic work in the household, nursing family member, and other activities to look after family well-being. This role including all activities without economic value, such as helping in the farm yard, looking after household stock, and rebuilding family's infrastructure. Meanwhile, community activities refer to all work done for community welfare or public interest, such as religious activities, social services for

community, volunteering, and social service for the community. In the most of cultures, productive and community roles are done to men, while reproductive activities refer to women.

The environment where women and men function called 'locus.' It is usually referring to the situation related to the gender gaps, especially referring to a situation about stay at home or doing a job outside the home. Moreover, it can be seen in the term of freedom of movement and also see the condition of employment with income or not. Most of the cultures place women at home to look after a family member and managing household activities, and sometimes doing production in small scale and close to home. In contrary, men are appointed to do a job outside or away from home with better income or payment. This situation results from an unequal level of autonomy and economic empowerment.

Visualization has defined as recognition due to some activities that implemented in material reward and privilege. Also, power is related to the ability in decision making and ability to force others to follow and doing whatever the authority's decision. In many societies, these power are usually attributed to men, in a household as well as at community level. The role attribution based on sex that persistently is adopted is called 'gender stereotyping.' Gender stereotyping that means gender inequality can be found in some aspect such as opportunity, right, role, responsibility, control over and access to resources. The inequalities are a product of socialization as gender role are not required defined by sex condition. According to Lamaz (1991, p. 21), the definition of socialization is "the process by which individuals acquire knowledge, skills, and dispositions that enable them to participate as more or less effective members of a group and the society." Thus, the distinctions of socialization lead to the different roles in above gender issues. Moreover, the different construction of labor role creates different income or wage, opportunities, roles, and also employment status (Connell, 2014).

Similar to ethnicity, class, and race, gender is one of social classification that widely introduces someone's life opportunities and also building participation in a community. Although a lot of societies do not implement ethnic or race segregate, most of them have gender asymmetries-characteristic and gaps-to some extents. Gender roles and relations can vary considerably across societies, and it can be manifested from individual to state level. The methodical, disadvantageous treatment of a human being based on their gender, which avoids those opportunities, rights or resources, can occur from household to state level. Hence, while gender acknowledges the needs of both women and men, more concern is given on noticing the women

needs, since it is identified that women more often carry other disadvantages because of gender than men. These burdens can be exaggerated within all institutional spheres from household, community, market, and state across the world (Moser and Moser, 2005). Figure 3.1 presents existing gender disparities from household to state level.

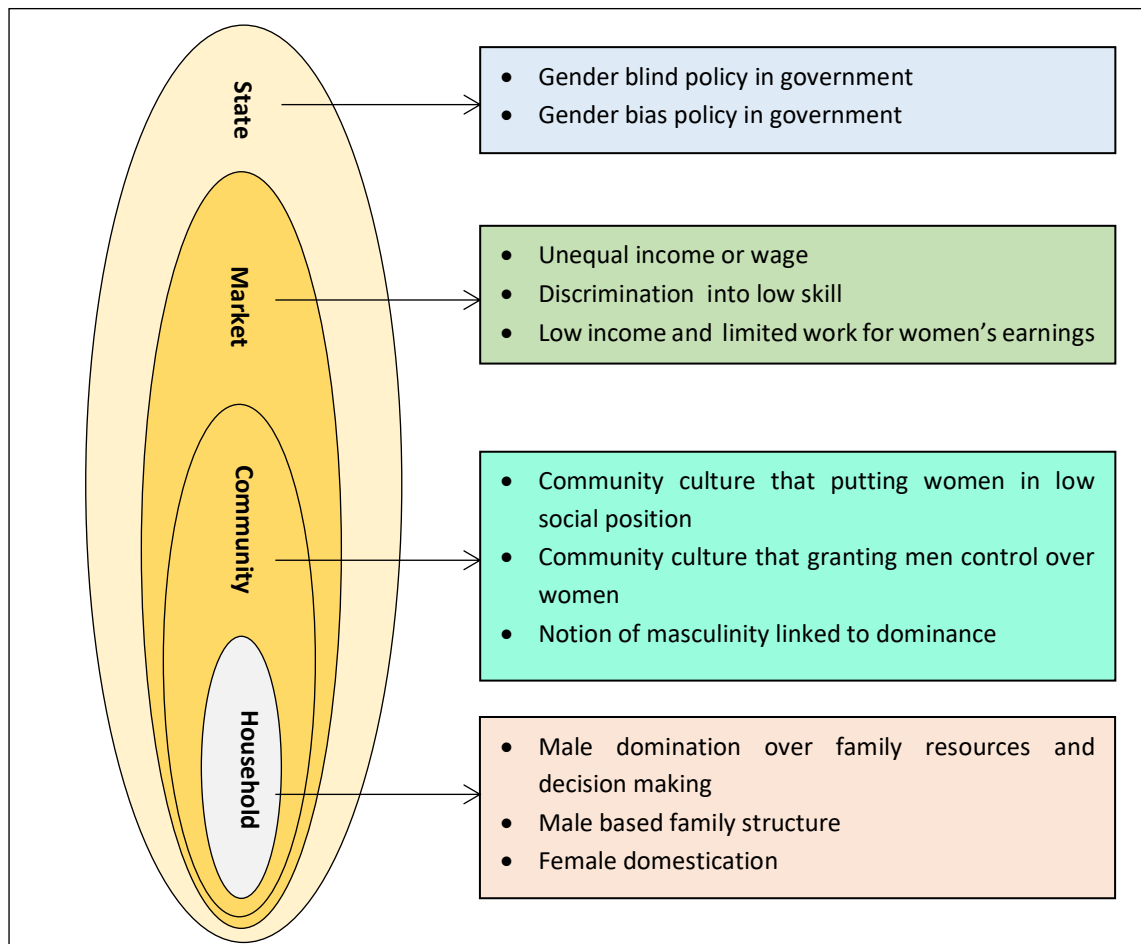


Figure 3.1 The existing gender discrimination from individual to state level (source: Adopted from Moser and Moser, 2008)

Within households, gender disparities are manifested through male domination over family resources and decision making and male based family structure which are both related to female domestication within a family. Girls and women possibly suffer discrimination in term of household resources sharing. In case the discrimination happens in food distribution, sometimes it leads to worse malnutrition and higher mortality for women. Moreover, gender discrimination also exists in 'son preference' which is practiced in abortion or female feticide (Moser, 2012). Within community level disparities of gender are manifested through a patriarchal culture which

granting men domination to access as well as to control resources and participation in the process of decision making within a community. This patriarchal culture often reinforces men power, also the concept of women's inferiority. Patriarchal cultures can strengthen the position of those with power in economic, social and politic that will lead to strengthening male power.

Within the labor market, unequal wage, discrimination into low skill and limited women's earning due to a low work comparing to men with equal education levels. Within state level, low level of women participation and involvement in decision-making institutions within the state level maintains discrimination related to public services access, such as education as well as health care services or discrimination in law enforcement. In this level, gender disparities often represent from existing gender blind policy and gender bias policy of the government. Such policies fail to identify that gender is an essential factor of a social issue impacting on government's policies. A gender blind policy, for example, believes gender is not an important factor that influencing policy making process. Such gender blind policies also assume that a policy or program does not have unequal (even if unintended) outcome of women and men.

World Development Report 2012 pointed out that women are treated in discrimination, and less advantage is positioned on their lives due to their gender across the world. They report that after decades of the women equality progress, nearly 90% countries across the world they surveyed remain to implement policies and regulations that legally prevent women from using their economic and political opportunities sufficiently (World Bank, 2012). Studies also indicated acute problems of gender inequality in most low-income countries (Mukuria *et al.*, 2005; Peterman *et al.*, 2014; Coles *et al.* 2015). Low access to productive capital and resources, job opportunities, basic health services, and fundamental human rights protections, lack of involvement in decision making, violence, and harmful traditions are several factors of women socioeconomic marginalization in the nation. Comparing to the women from developed countries, where they are more empowered economically, also possess a powerful voice and confident action, in the opposite, women from developing countries are commonly silent with weakness in expressing their idea due to their economic and cultural situations (Moser, 2012; Branisa *et al.*, 2012). The factors of economic and culture, along with institutional aspects rule the gender based division of employment, opportunities, responsibilities, rights, and access to and control over resources. Additionally, some of the gender disparities are including literacy, education, employment, media access, and decision-making process.

In summary, gender inequality is the condition of society across low-income countries. Such inequality brings negative impact on development outcomes, and there are costs ignoring gender issues for national development. Enarson (2009) explains that disasters phenomenon often reveals both the weaknesses and strengths of a social system while they to enhance existing patterns. Hence, disasters across low-income countries may reinforce, preserve, and develop gender inequality, often worsen bad situations faced by women and vulnerable groups. In the next section, the discussion is turning to the gendered nature of disasters.

3.3 The gendered nature of disasters

The women and men relationships are powerful forces in all cultures (Coles *et al.*, 2015). Bradshaw and Fordham (2014) note the process to define these relationships builds different responsibilities and roles of men and women which also creates inequalities in their control over and access to resources (land inheritance or credit accessibility from a bank) and ability in decision making (whose voice and who can be community leader). The mixed impact of those differences and inequalities implies that men and women face distinct levels and types of vulnerability and exposure to natural disaster effects. The stereotypes and gender based behavior leads to the worse inequalities, particularly in disaster situations. Those gender stereotypes are commonly related to the idea what men and men can or cannot do, and also the idea of what should or should not do.

Enarson (2014) points out disasters are not always naturally constructed but could be socially constructed too. When gender is a main social construction, and the condition of social creates disasters. Thus, gender plays an essential part in counting the risk scale confronted by population's member (Bradshaw and Fordham, 2014). Enarson (2014) notes that natural disasters are the process of social which is accelerated by environmental incidents and laid on social connection and patterns of historical development. McLaughlin and Dietz (2007) explain that the disaster's social construction come from inequalities of power within society which creates vulnerability of specific groups. As a result, women are placed in more vulnerable position because of their socially constructed roles. As Alston (2014) underlines that the way how gender is defined affects in the way how women suffer from disasters since disasters exaggerate the weakness and the strength of society. The vulnerability of women can be seen in their low participation in decision making, the sexual job distribution, unequal access to resources, and unequal control over resources.

There is substantial differences between women and men in the ways of how to deal and cope with disasters, before, during and an aftermath that caused by gender aspects in the communities. According to Fothergill (1998), it is clear that gender relation plays significant roles in the disasters management, relief and responds bodies, community mobilization and leadership, family recovery with its designs and preparation, and also disaster response strategies. Men and women roles and responsibility create different attribute or identity, attitudes, social responsibilities along with social expectations. The differences are most likely unfavorable for women that the most crucial issue is the limited access to disaster knowledge and information which is, in the end, increase family risk and vulnerability.

Ignoring gender issues in disaster and risk management may result in ineffective disaster and risk management which may lead to unsustainable disaster risk reduction. Table 3.1 summarizes examples of gender issues within disaster management phases which should be considered to create an effective disaster management. Failure to consider gender issues within the process of the plan and implementation of disaster risk management program will result in costs linked to post-disaster casualties and needs, which may hold back recovery, reconstruction, and development in long-term of countries that repeatedly hit by disasters. Within mitigation and preparedness, lack of women participation and access to risk identification, warning system, and disaster risk simulation may lead to ineffective mitigation and preparedness. Regarding disaster response management, not addressing access and mobility problems among women will increase women mortality during disasters. Within disaster recovery, ineffective and unsustainable reconstruction may occur due to lack of women participation and access in decision-making process and reconstruction programs. World Bank (2011) highlighted that disasters followed by gender-blind response might reinforce, preserve and also worsen existing gender inequalities, make a bad situation worse for women and other vulnerable groups and reduce the impact of disaster risk management interventions.

Table 3.1 Gender issues within disaster management phases

Disaster management phase	Main purposes	Gender issues
Mitigation	To minimize the disaster risk before a disaster occurs.	Lack of women participation and access in the developing of resistant construction, creating building codes and designing regulatory measures, relocation planning of developing community shelters, and treatment systems and redundancy in life safety infrastructure.
Preparedness	To anticipate problems and place resources needed for an effective response before disasters occur.	Lack of women participation and access within planning, resource identification, warning systems, training, simulations.
Response	To save lives, reduce the damage of property, and improve the beginning of post-disasters recovery.	Women less access to information about dangers. Women have less mobility during disasters. Lack access of women on evacuation and shelter provision. Too many women died and injured.
Recovery	To repairing or reconstructing the pre-disaster living circumstances of the affected community	Lack of women participation and access in temporary shelter supply or long-term housing. Women less participate and not involved within assessment of damage and needs. Lack participation and access of women within programs of social rehabilitation, employment opportunities formation, property losses reimbursement, recovery and rehabilitation of the injured, and disasters reassessment.

Source: World Bank, 2011, Enarson, 2014.

Recognizing the gender implications and aspects of disasters are vital for achieving the effectiveness of disaster risk management (Neumayer, 2009; Seager, 2014; Jabeen, 2014). Women groups do not suffer the same problems and vulnerabilities during disasters. Many socio-economic and physiological factors will result in different effects of disasters on women and men. These factors also will lead to the differences ability of women and men in coping disasters. The next section discusses in more detailed about the relationship between gender, hazards, risks, and vulnerability, and also various factors, affect women vulnerability in disaster contexts.

3.3.1 Disasters and gender vulnerabilities

Disasters are often known as environmental events, which not unavoidable, make a massive loss and social living disruption in environments with hazards. The results of disasters can be seen in various socioeconomic, geographic, social, political, and cultural contexts. These impacts on above contexts are not inevitable or natural, even though the disasters strike regularly. People's comparative risk of damage is a combination function of the exposure to hazards, the capacity in mitigating the results of disasters, and also the vulnerability.

Enarson (2009) explains risk is variously distributed within and between communities. Since international development places developing countries at higher risk, the result of poor communities higher than affluent communities at the global level (UNDP, 2010). Even though vulnerability is not always identic to poverty or social class, people capacity to access or control over vital resources is built by physical power and age, citizenship status, culture, ethnicity, and gender. Accordingly, people who most marginalized and in insecure economic position are least can access and have control over resources they needed during and after natural disasters (Enarson and Chakrabarti, 2009).

According to Mayner and Arbon (2015), the definitions of disasters are made in many forms by institutions and scholars. Hence, those definitions can be different depending on the study field. As a result, there is no definition for disasters that is accepted universally. For instance, Coppola (2011) explains that a disaster is a function of the risk process which are the hazard, exposure, and vulnerability. However, UNISDR (2009) describes a disaster as a consequence of a hazard, vulnerability, and the lack of capacity to minimize the risk of disasters. Additionally, Haigh and Amaratunga (2010) explain disasters are "exceptional event with overwhelming loss of life and property." According to the variation of the disaster's interpretation and its causes, the impact on human community is similar, which is including massive death, economic losses, destruction of built and natural environments, declining community livelihoods, increasing poverty and vulnerability. From above definitions, there are three characteristics of disasters: it is an occurrence followed by harmful effects, there is an aspect of disruption and suffering to people, and the suffered people or community requires assistance to recover.

The natural disasters incident is based on the mixture of two aspects, hazard, and vulnerability (Khan *et al.*, 2008; Coppola, 2011). UNISDR (2005, p.1) explain hazard as "potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property

damage, social and economic disruption or environmental degradation.” Accordingly, hazards may have various origins: disasters can be natural or human induced (Coppola, 2011). Natural hazards are hazards that are caused by natural phenomena, as events resulted from a meteorological, geological or even biological cause, for instance, cyclones, tsunamis, earthquakes and volcanic eruptions which are exclusive of natural origin (Khan *et al.*, 2008). Furthermore, man-made hazards are caused by human negligence, such as explosions, gas leakage, waste landslide, wars, and many others (Khan *et al.*, 2008). However, Khan *et al.* (2008) explain another type of hazard that defined as socio-natural hazards that are triggered by both natural and man-made phenomena. In this definition, floods, landslides, drought, and forest fires are included in this definition.

Vulnerability is adopted in the study of disaster management as well as hazard and risk analysis. It is also commonly used in global change subject within studies of environment and development (Ginige *et al.*, 2014; Jabeen, 2014; Blaikie *et al.*, 2014; Morchain *et al.* 2015). UNISDR (2015, p.64) defines vulnerability as follow “the conditions determined by physical, social, economic and environmental factors or processes which increase the susceptibility of a community to the impacts of hazards.” While Morchain *et al.* (2015) explain that vulnerability to hazards is described as the exposure level of people or property and their capacity in preparing and responding to the disaster’s impacts. Moreover, Buckle *et al.* (2000) refer to the glossary created by the Emergency Management Australia (1998) which defines vulnerability as “the degree of ability and resilience of the community and environment to hazards: the level of loss to a given element at risk or set of such elements resulting from occurrence of a phenomenon of a given magnitude and expressed on a scale of 0 (no damage) to 1 (total loss)”. Ginige *et al.* (2014, p. 331) also explain vulnerability as “the characteristics of an individual with the situation where he/she lives which affect his/her capacity to anticipate, cope with, resist and recover from the natural hazard effect”.

In term of vulnerability approach, it is explained that inequalities both in exposure and in access to resources and opportunities make particular groups within the community more vulnerable to the impact from disasters’ impact (Lam *et al.*, 2014). Blaikie *et al.* (2014) explain that the disaster risk should be referred to the vulnerability made for a lot of people by their daily life, also where the definition of vulnerability is about person or group characteristics that able to impact their capacity to anticipate, resist, cope with and recover from the natural disaster impact. Moreover, Cannon (1994, p. 22) suggests that “there are no generalised opportunities

and risks in nature, but instead there are sets of unequal access to opportunities and unequal exposures to risks which are a consequence of the socioeconomic system”. Studies reveal that women suffer more adversely from the impact of disasters than men, such as more women died and left with less capacity, the stronger the disaster, more suffer for women (Enarson, 2014; Seager, 2014; Bradshaw, 2015).

Studies have also identified several types of gender vulnerability within disaster contexts. This type of vulnerability includes biological and physiological vulnerability, economic vulnerability, social and political vulnerability and cultural vulnerability. Table 3.2 describes details of gender vulnerabilities in disaster contexts.

Table 3.2 Types of gender vulnerabilities in disaster contexts

Types of gender vulnerability	Details
Biological and Physiological vulnerability	<p>Men, generally have stronger physic to face the physical impact from disaster. Normally, women run slower and face more difficulties to climb trees, lamp posts or other rescue tools (Neumayer <i>et al.</i>, 2014).</p> <p>Women can be more vulnerable due to pregnancy and lactation, since they need more food and clean water. At times it is worsened by their problems of mobility due to physical condition during pregnancy and lactation (Gaillard and Fordham, 2015).</p> <p>The rise of maternal and infant mortality due to the damage of basic health facilities. The higher poverty level of elderly women, since the women have longer lifespans (Gaillard and Fordham, 2015).</p>
Economic vulnerability	<p>Poor women often unable to build good quality houses or failed to improve the condition of their house, get a good location to live, or have enough food, because of limited resources (Enarson, 2014).</p> <p>Poor women are also vulnerable to natural hazards due to less access to economic resources and less economic mobility than men in the same social class (McCarty, 2014).</p> <p>In financial or economic evaluations, reproductive work does not included as well as women’s time inputs during distribution of resources within recovery and reconstruction projects (Enarson, 2012).</p> <p>Women workload increase and is not known. It may burden women with productive, reproductive, and also community work) (Gaillard and Fordham, 2014).</p>
Social and political vulnerability	<p>Women and girls difficulties to get education cause less capability to process information and to understand early warning messages (Enarson, 2012).</p> <p>Unequal opportunities to access education during post-disaster reconstruction (Enarson, 2012). In the disaster aftermath a lot of number of girls drop out from school and forced to stay at home to help household or because of financial reason (Blaikie <i>et al.</i>, 2014).</p>

	<p>Women generally have lower levels of literacy. This challenges them to access good jobs during reconstruction (McCarty, 2014).</p> <p>Women face inadequate access and opportunities in decision making process during reconstruction (Fordham, 2003).</p> <p>Lack of experience of involvement in political activity makes women difficult to participate in political activity before and during post-disaster reconstruction (Gaillard and Fordham, 2014).</p>
Cultural vulnerability	<p>Women limited social roles lead to low survival skill in order to survive from disasters, like climbing, swimming, learning and understanding early warning system and involving in disaster prevention activities (Bradshaw, 2015).</p> <p>Women dress codes often hindrance their ability to move fast and culturally prevent women to leave first due to the consent from husband, father, or brother (Seager, 2014; Enarson, 2014).</p> <p>The status of women who still are subordinated to men which is usually referring to religious belief. It limits women's capability in responding hazards during disaster and reconstruction (Enarson, 2014).</p> <p>Heterosexist which fail to identify the need of women who are head of households. It is caused by the traditional view of power distribution in households that tend to benefit men (Gaillard and Fordham, 2014).</p> <p>The women risk often overlooked due to a perspective that men is risk taker (Blaikie <i>et al.</i>, 2014).</p> <p>Lack of gender awareness from women because of their responsibilities over household chores that lead their knowledge limited to the 'housewife knowledge' and put them out from the decision making process (Gaillard and Fordham, 2014).</p> <p>Most of the times women do not get about early warning information since women's behaviour preferences are not considered (Enarson, 2014).</p>

A note from several studies explains that women vulnerability in the context of disasters is connected to the vulnerability which exists in the day to day life. It can be seen through different access to resources caused by structural inequalities existed in the community. Citing Blaikie's Pressure and Release Model (2014) the progress toward gendered vulnerability in the contexts of disasters can be described in several steps. They are root causes, dynamic pressures and unsafe conditions which exist in society. The following figure 3.2 shows progress toward gendered vulnerability.

The progress toward gendered vulnerability

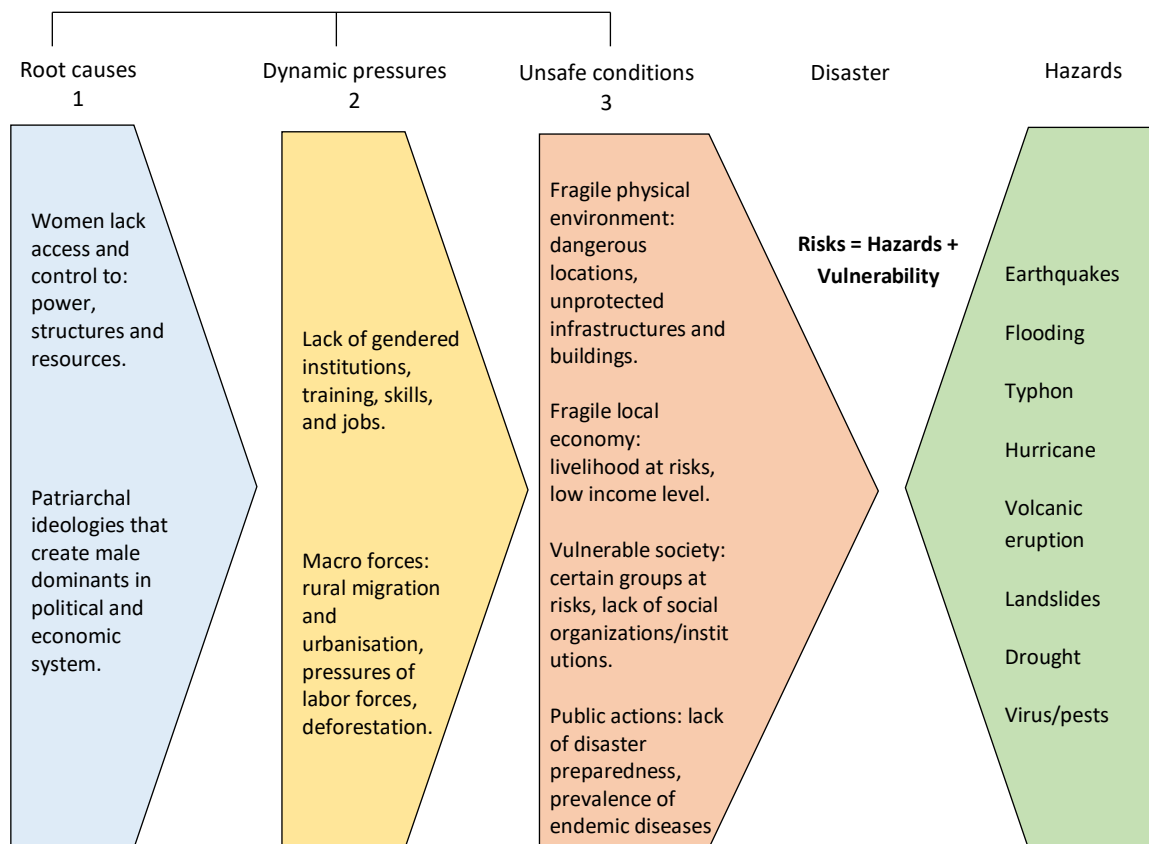


Figure 3.2 Progress toward gendered vulnerability (Source: adapted from Blaikie *et al.*, 2014)

Some scholars identified that gender vulnerability is a result of women’s lack access and control to resources, structures as well as power. This situation is worsened by patriarchal ideologies that lead to men domination in an economic and political system (Moser and Moser, 2005; Enarson, 2014). Also, a gender-sensitive analysis done by Bradshaw (2015) points out women who live within patriarchal communities are disadvantaged economically, politically and socially. It is worse for lower social class women and even worse for women from lower social class with color. Therefore, it would be unexpected if this disadvantage does not be found in a disaster event.

Dynamic pressures are consists of macro and micro conditions which create gender vulnerability. These conditions include lack of gendered institution, training, skills, and jobs which often affects women require participation and access to economic resources lead to higher vulnerability. Meanwhile, the examples of macro conditions are people migration (rural migration and urbanization), deforestation refers to environmental degradation, labor pressure

that leads to unstable economic and financial. This situation will significantly affect women who already live with disadvantaged economic and social circumstances that lead them to be more vulnerable. Thus, in hazardous regions, women with higher vulnerability are women with increased risk of disasters.

Analysis of vulnerability examines accumulative and long-term disaster casualties that intensify inequality and worsen vulnerability. This study has also examined how the relation of power between men and women within a community are resisted and communities empowered (Morchain *et al.*, 2015). Hence, studying whether and how women are vulnerable in emergency contexts is an important to develop gendered sensitive disaster management. It is also recognized that the effect of disasters in the circumstances of developing countries is detrimental compared those in developed countries. Coppola (2011) explains that the capacity of most developing countries to reduce risks and to recover from disasters is much weaker than of developed countries. Enarson (2014) and Bradshaw (2015) point out that lack of gendered capacities in most developing countries is main factors of detrimental impacts of disasters on women.

An effective disaster risk reduction can be achieved by addressing gender and gender vulnerability issues. While the accessible data is not much, empirical research supports the disaster impact varies based on gender. For instance, a case study carried out in Aceh Indonesia revealed the victims of the Indian Ocean tsunami are children under ten years old (21.1%) and older adults above 70 years old (32.6%) (Rofi, 2006). Moreover, in Sri Lanka and India the difference between men and women as victims of that tsunami is one man compare to four women, in another word every man who died there are four women who also died (OXFAM, 2005). For maximizing the effectiveness of disaster risk reduction policy and its implementation, it is essential to understand the different nature of the vulnerable groups (children, disable people, elderly people) since every particular group have different capabilities, asset, and role which will influence how they are will be affected by disasters, and how they respond and cope.

Furthermore, during recent years, the focus on reducing gender vulnerability has greatly ignored capacities of the vulnerable groups. Evidence from Bantul indicates that women can play an active role in recovery and reconstruction after the earthquake strikes their area (World Bank, 2014). They actively involved in the planning and implementation of reconstruction program that is said is one of the most successful post-disaster reconstruction programs. A significant

lesson learned is how the women's capacities and strength can be very useful in rebuilding and re-establish community after disasters (Nivaran, 2004). Thus, concerning in the vulnerability of certain groups is insufficient within disaster risk reduction, and strengthening their capacities will help to achieve in reducing risk even though it may not always lead to mitigating the vulnerability. The next section will explain and discuss gender capabilities in the disasters and sustainable development context.

3.3.2 *Disasters and gender capacities: women as an agent of development*

In 1970 the women's role in development had been documented by Boserup. Today, especially following the 1995 Beijing Conference on Women, almost all the leading development organizations pursue to some extents to integrate gender roles and issues into their programs, both on efficiency grounds and by social equity as a development goal (United Nations, 1996). In the disasters contexts, the social position of women has been identified as crucial keys for natural disasters prevention (UNISDR, 2015). It refers to their strong knowledge about local people as well as their environment and its ecosystems, women abilities and skills including social network, organizing events, mitigation, and resilience to the impacts of the disaster.

The important role of women capacity in disaster reduction has been highlighted further within the Sendai Framework for Disaster Risk Reduction 2015–2030, as written in the document:

“Women and their participation are critical to effectively managing disaster risk and designing, resourcing and implementing gender-sensitive disaster risk reduction policies, plans and programs; and adequate capacity building measures need to be taken to empower women for preparedness as well as to build their capacity to secure alternate means of livelihood in post-disaster situations (UNISDR, 2015, p.29)”.

Certain theoretical assumptions are connected to the critical roles of women capacity in built environment. Mies and Shiva (1993) shows privilege of women in bonding with nature or environment. She points out that the moral essence of “women as caretakers” and describe the relationship between women and environment or nature which creating a gendered cultural development which brings to a women's deeper spiritual connection to environment. Mies (1993) sees the ‘nearness’ of women to nature as a result of societal, historical developments in which women, because of their capacity of giving birth, are bound to nature in a special way. Materialistic eco-feminists see the privileged bond of women with nature as a result of a societal

and cultural development (Enarson and Chakrabarti, 2005). Some have, as well, an anthropological-psychological perspective on human beings as fundamentally containing aspects of femininity and masculinity (Chodorow, 2014; Spence and Helmreich, 2014).

Capacity refers to the association of the available resources, strengths, and attributes in an organization, community, or society which can be applied in achieving an agreed goal (UNISDR, 2006). The components of capacity are including physical means and infrastructures, organization or institution, human skill and knowledge, societal coping ability, and also common attributes including social relations, management, and leadership skill. This also may be called as capability. In the context of built environment and disaster reduction, women capacity relates to their particular experience and expertise to contribute to disaster reduction-in part gained from their position as primary caregivers within the family, and often within the wider community (Enarson, 2014). Table 3.3 below shows some example of women capacities within built environment and disaster risk management that promote how to utilize the environment wisely, adopt social relationship and institution more egalitarian.

Table 3.3 Women capacities in built environment and disaster reduction

Disaster management phase	Women capacities
Mitigation	<p>Women coping capacity can be improved by their indigenous knowledge and practise in environment management within fragile and hazardous environment that increase their survival ability</p> <p>Women as volunteer, community worker and network activists often lead and take initiative in promoting mitigation to hazard within local scope.</p>
Preparedness	<p>The education of women will improve increase capacity to cope with natural disasters.</p> <p>The experience of women as community educators including who involved in family education and school committee will improve their awareness and disaster awareness capacity</p> <p>Women’s partnership activities, women’s knowledge about local situations and resources can create the foundation for better environmental preparedness.</p> <p>The women roles as providers and producers, will help their households and communities being less vulnerable to the impacts of disasters</p>
Response	<p>Women’s knowledge assist protect vulnerable environment and people at risk since women are survivor with coping skills</p> <p>Women improve community health condition by leading the initiative in many contexts to find and address community health problems resulting from pollution and contamination of environment.</p> <p>Organizations of local women can be valuable allies for organizations from outside community in responding to hazards.</p>

Recovery	<p>Women usually built better relationships with local authorities and this experience proved women’s leadership capacity.</p> <p>The organizations of women’s community possess awareness, information, experience, networks, and resources that is very important within disaster recovery and reconstruction as it is increasing resilience.</p> <p>During reconstruction women have demonstrated their capacity as food producers and managers, safe and clean water and fuel provider, and income-earners.</p>
----------	---

Source: compiled from UNISDR, 2006; Enarson, 2014; Bradshaw, 2015

Women capable of bringing differences in built environment and disaster risk management efforts through their capacities in mitigating environmental hazards; initiate movement in local level to appraise disaster vulnerabilities and coping capacities; promote awareness about, and prepare for disasters; respond to emergency needs during recovery and reconstruction. The women’s ability to organize people and to handle transition within disaster management and development must be appreciated. Women have to be offered opportunities to involve in decision making and administration in all levels of disaster recovery and reconstruction, even though in particular cultural situation some problems or barriers prevent them from taking role actively within some activities such as relief distribution, clearing up debris and preparing land for reconstruction (Drolet *et al.*, 2015).

Enarson (2014) states that “all mitigation is local.” Since local people or resident have detailed information about the specific vulnerabilities of individuals, institution and particular groups in their community and also have knowledge about their coping technique and strategies adopted from their ancestor and operated traditionally from time to time. The involvement and participation of the women are crucial. Their indigenous knowledge and practice in the management of environment develop their coping capacity inside communities during disasters that contribute to their survival abilities (McCarty, 2014). Volunteer women and community workers more often decide and take the lead to promote disaster mitigation in their local community. It will assist emergency official to initiate a better mitigation policy and action. One example from Gujarat, India describes during drought periods women had organized and managed their livestock including maintained milk distribution for females and children. In the end, these activities helped to secure family income (Yonder *et al.*, 2005). Furthermore, in Bangladesh women participation in technological innovation, can be found in women’s change for composting food waste to produce farm fertilizer. It helps maintain food security for families within communities. Other women’s participation is in environment preservation in anticipating flood. They were securing fodder to protect their livestock, planting fast growing trees around

the houses to protect them from the wind, while the plants also help to stabilize the soil (Chowdhury *et al.*, 2001).

It is commonly known that women have coping skills during disasters with their knowledge use to protect the environment and another community member who at risk or exposure. Their contributions in disaster mitigation are well-known, from helping secure livestock to involving in post-disaster recovery and reconstruction. Fisher *et al.* (2015) report that during the drought in Southern Africa, women groups assisted raise food security along with disaster resilience, affiliated only with legally elected committees consist of equally men and women. Those elected officials worked efficiently in small groups in distributing relief food and sharing job, property, and tools. In doing these work, they found out that women were the forefront leader as the groups of women not only given opportunities to increase food but also opportunities to gain self-confidence and show it publicly by participating in high activities. Besides, women are activist in grass-root level which their actions is recognized globally (Yonder *et al.*, 2005; Drolet *et al.*, 2015). An example is a Chipko movement in India. The movement is an action against deforestation to preserve forest environment as their vital resources (Chowdhury *et al.*, 2001). While in Zimbabwe there are a women's resources that hold a community workshop to identify mitigation strategy for drought (Nhundu *et al.*, 2015). These activities support women to improve their capacities in resilience during and after drought season and also developing the plan to face the following drought season. It can be seen in efforts to get equal access to agricultural credit and services, also same control to agricultural production and income.

Even though most women work most of the time socially unrecognized and undervalued, they able to make a real difference to speed up recovery and relief activities. It can be seen in through their involvement in the distribution of relief resources, also their participation in cultural organizations and development groups. The case of the earthquake in India and Turkey reveal women are very cooperative and proactive in the distribution of relief supplies and helping other women groups to get equal shares of the goods (Yonder *et al.*, 2005). In Gujarat, the development group Swayam Shikshan Prayog (SSP) along with women groups help rebuild houses and community building (Gopalan, 2001). Those activities show women able to build a good relationship with district government and this experience proved the leadership capacity of women. Building relationship and working with the local authorities give the women organizations responsivity to build houses and other community facilities based on their

previous experience, both in reconstruction and also in creating networks with affected communities.

Local women associations are a valuable collaborator for outside institutions in disaster's relief. UNDP (1992) reports the strong relationship with Self Employed Women Association (SEWA) in India to help women who work as craft worker and another earthquake survivor. To demand support, women can organize more effective than men because of men, generally, refuse to involve. The reasons for men refusal are their reluctance to pay tax and to engage with women.

Accordingly, women association often have better insight, networks, experience and resources which are important in the recovery and reconstruction process to increase disaster resilience. During reconstruction, various institutions are unsuccessful in delivering equipment based on the communities' needs. In several post-disaster conditions, women needs and rights are often overlooked, even though they are the most suffering survivors that subjected gender inequality. Accordingly, research has established that gender consideration should be taken into account within disaster management (Drolet *et al.* 2015). More important, studies from many gender scholars have identified that emergency women and men in different ways due to their distinct roles and responsibilities and the distinction of their needs, capabilities, and vulnerabilities (Enarson, 2012; Jabeen, 2014; Bradshaw, 2015). Women's understanding and expertise about local knowledge are valuable households' assets and wider communities which are struggling to recover and rebuild. Thus, disaster manager or officials should work closely with women to achieve sufficient resilience.

During and after a disaster, the authorities face difficulties to collect valid information on time, following by ineffective implementation of the reconstruction policy and programs. In this situation, the involvement of women is beneficial. Yonder *et al.* (2005) provide evidence about women participation in disaster relief and reconstruction in Turkey and India. They conclude that women are most competent to mobilize the community to involve within disaster relief and reconstruction. Those women develop networks and form small informal organizations to address the important community's problems during post-disaster recovery and reconstruction. Also, during reconstruction, it is recognized that women have the capacity to earn family income. Produce and manage livestock and food, provide clean water and fuel, and participate in social, cultural, and political activities.

Indeed, while women's efforts to maintain, restore, preserve and improve the environment with its ecosystem, they also contribute to disaster prevention and environmental improvement. Women also help to promote sustainable development by identifying hazards and reducing vulnerability to disasters. Thus, to achieve the goals of sustainability of disaster resilience needs an implementation of gender equality which can be operated with commitment and creativity of all men and women. The next section discusses sustainable development and its relation with post-disaster reconstruction and gender equality.

3.4 Gender equality, post-disaster reconstruction and sustainable development

Increasing gender vulnerability and overlooking gender capacity are gender inequality issues within post-disaster reconstruction which challenge to achieve sustainability and resilience. This section argues that post-disaster reconstruction can provide window opportunity for sustainable development by addressing gender vulnerability and promoting gender capacity. Without such efforts, the opportunities to create sustainable development within post-disaster reconstruction may disappear since sustainable development addresses the both women and men needs. Accordingly, the next section discusses a window opportunities of post-disaster reconstruction for enhancing the sustainability of development.

3.4.1 Post-disaster reconstruction as a window opportunity for sustainable development

Post-disaster reconstruction is a part of the disaster management cycle that can be stated as a primary stage of post-disaster. Bhadra and Pulla (2014, p.24) define reconstruction as "the actions taken to re-establish a community after a period of rehabilitation after a disaster." The activities or actions are including permanent housing rebuilding, services restoration, and full recovery to the pre-disaster condition. Accordingly, reconstruction is not only related to the physical matters but also focus on economic, social, environmental and political issues.

Palliyaguru and Amaratunga (2011) explain that post-disaster reconstruction is "the activity that returns infrastructural systems to minimum operating standards and guides long-term efforts designed to return life to normal or improved levels after disasters". Post-disaster reconstruction is the function by which countries, communities, families, and individuals, reconstruct or regain what has been lost as a result of a disaster, and reduce the similar disasters risk in the future (Coppola, 2011). Reconstruction activities cover decisions and actions done following a catastrophe by fixing, developing, and improving the pre-disaster situations of

affected community life. At the same time, these activities encourage and facilitate necessary improvement to reduce disaster risk. The stage can be done by undertaking activities such as casualty or damage assessment, debris removal and the establishment of disaster relief centers.

Activities related to post-disaster reconstruction are the most complex in disaster management works. The scope of individuals, organizations, and groups involved is also bigger than other parts of disaster management. Reconstruction brings about the largest attention and concern from the whole community because disasters essentially affect people's lives. Also, recovery activities attract (or involve) more considerable amount of money compared to other functions. According to Coppola (2011), reconstruction requires a complex process of planning, coordination, and funding, which covers activities such as ongoing communication with the public, casualties' appraisal, needs assessment, damaged building demolition and repair, social rehabilitation agenda, rehabilitation and reconstruction infrastructures.

Literature on disaster and built environment increasingly recognised that disasters create windows of opportunity to develop and improve the social, environmental, physical, and political during post-disaster reconstruction within affected communities both for short term and also long term (Palliyaguru *et al.* 2013; Kim and Olshansky, 2014; Mannakkara and Wilkinson, 2014, 2015). As explained by Mannakkara and Wilkinson (2015), reconstruction to rebuild affected areas after a natural disaster is a complex issue concerning economic, social, cultural, psychological, environmental, and technological condition. Palliyaguru *et al.* (2013) explain that reconstruction is an excellent opportunity to change developing countries into a better urban development model. Peng *et al.* (2014) confirm that the reconstruction processes should not be ignored because of its opportunistic nature of promoting development innovations.

Haigh and Amaratunga (2010) suggests the opportunities of post-disaster reconstruction which can be understood from some points. Firstly, disaster often destroys a lot of improper and vulnerable buildings and infrastructure. Post-disaster reconstruction can be a fresh start to create improvement in addressing disaster risk above. Secondly, disaster usually exposes the mistake of past policies and strategies of development. This knowledge will generate stakeholder to share awareness to address those development failures. Thirdly, post-disaster reconstruction creates renewed political will and desire to implement disaster risk reduction.

Lastly, disaster most likely brings a considerable amount of external funding. That means tremendous opportunity to reduce vulnerability and to build more sustainable community.

Table 3.4 shows various development opportunities of post-disaster reconstruction for achieving sustainability of affected areas. Post-disaster reconstruction provides opportunities for creating environmental sustainability through a better-built environment, protects a community from environmental degradation; and better urban planning through integrating disaster risk reduction system such as developing an effective early warning system for future disasters.

Table 3.4 Post-disaster reconstruction opportunities for creating sustainability of development of disaster affected areas

Pillars	Opportunities
Environment	Built environment and protects community from environmental degradation and prevent them from pollution. Better urban planning by integrating disaster risk reduction system such as developing effective early warning system for future disasters.
Economy	Job creation and equal job opportunities for all communities members Protect and enlarge economic access of unemployed and poor people of disaster affected areas. Encourage economic growth through economic and business development within disaster affected areas.
Social	Building social capital and encourage social participation of all community members within disaster affected areas. Provides social security and enlarge education access of poor and vulnerable people of disaster affected areas. Building community confidence, enhance social accountability and transparency through community development of disaster affected areas. Provides equal opportunities for community member both men and women to involve in community development and to access development programs.

Source: compiled from Haigh and Amaratunga, 2010, Palliyaguru *et al.* 2013, Kim and Olshansky, 2014

Regarding economic sustainability, post-disaster reconstruction provides opportunities for building economic sustainability through enlarging job creation and equal job opportunities for all community members; protect and enlarge economic access of unemployed and poor people of disaster affected areas; and encourage economic growth through economic and business development within disaster affected areas. Moreover, post-disaster reconstruction provides

opportunities to create social sustainability through building social capital and encourages social participation; provides social security and enlarge education access; building community confidence, enhance social accountability and transparency through community development; and provides equal opportunities for community for a community member to participate in community development and to access development programs.

However, it is a fact that all of these opportunities of post-disaster reconstruction does not always give benefits to all stakeholders who involved in reconstruction work. In practice, too often reconstruction efforts do not contribute to long-term development, but they sometimes undermine it (Bradshaw and Fordham, 2014). In several districts of China regions, Peng *et al.* (2014) show how reconstruction failed to enhance the livelihoods of the suffered communities and their resilience to face future disasters particularly regarding the long term impact of disaster responses. Barenstein and Pittel (2007) shows how reconstruction in coastal Tamil Nadu region of India failed to protect affected communities from the future disaster due to a poor quality of construction and low grade in safety comparing to traditional houses, since the limited financial and technical capacity of the people to fix and maintain reinforced concrete cement building houses. In Indonesia, UN-HABITAT (2006) report how low-quality houses with poor facilities in the accommodation, lack of road quality, inadequate and unhealthy sanitation are common problems in some affected areas in Aceh, Nias, Sumatra, and Central Java. UN-HABITAT (2006) reports many housing, water, and sanitation reconstruction achieved less quality, satisfaction, and accountability in Aceh, Nias and some parts of earthquake areas in Central Java. Permanent housing across these areas is not managed efficiently, less in coordination among stakeholders and very slow in developing process. The situation causes loss of development opportunity and makes the reconstruction process is longer (Escamilla and Habert, 2015)). These conditions highlight the need for sustainable post-disaster reconstruction to improve the effectiveness of reconstruction practices in those regions.

Current development and disaster management studies show that involving the local community in post-disaster reconstruction practices is needed to achieve sustainable development (Lizarralde *et al.*, 2009; McCarthy, 2014; Yi and Yang, 2014; Vaughan, 2014; Drolet *et al.* 2015). Formal post-disaster management practices are typically top-down, centrally controlled and male dominated. The top-down approach often depends on central government agendas with hierarchical command and control for planning and implementation (Lizarralde *et al.*, 2009). This approach tends to overlook or ignore local communities, particular women

during the reconstruction process and therefore, often fails to address specific needs and vulnerabilities of local communities during reconstruction. However, Vaughan (2014) explains that the specific needs and vulnerabilities can only be found within a direct meeting process, dialogue and consultation with the affected communities since it is only the communities who have a better understanding of local realities and contexts. Thus, the government and policy makers should notice, integrate, promote, strengthen, and empower the women and men role within local people to implement sustainable development that environmentally sound.

To sum up, post-disaster reconstruction as a window opportunity come along with challenges. The pragmatic approach of development needs to accommodate a knowledge and understanding of these difficulties and their consequences in their action, at least for the short term. Meanwhile, the recovery efforts are often a rushed action that needs the establishment of observation, dialogue, and agreement to create effective disaster resilience program. However, it should not hinder the priority to start the recovery process early without forgetting the long term post- disaster reconstruction goals. The following section is a discussion about the concept of sustainability and sustainable development and also its links with post-disaster reconstruction.

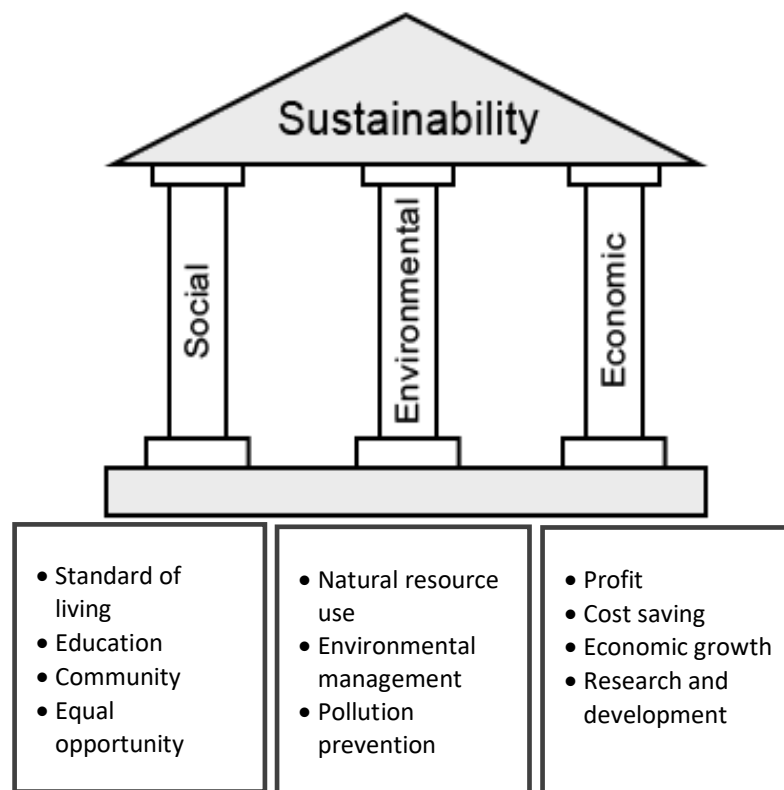
3.4.2 The concept of sustainability and sustainable development

The concept of sustainability gets its roots in the 1960s during environmental movement when environmental issues such as over population, resource depletion, decreasing water supplies, air pollution and the spread of chemicals and heavy metals in nature challenge the development of human being in the world (Low *et al.* 2000). Warning of the dire consequences of pesticide use, Rachel Carson's descriptions of vanishing species of birds in silent spring, and fear about overpopulation leading to resource disruptions (Ehrlich, 1969), and the potential of food shortages (Commoner, 1971), summarized the concerns of the day. These events contributed to the theory that there may be limits to growth (Meadows *et al.*, 1972).

The word of sustainability itself means the capacity to endure (Repetto, 1986). According to Oxford English Dictionary, the term 'sustainable' stands for 'capable of being borne or endured; supportable, bearable,' 'capable of being upheld or defended; maintainable,' 'capable of being maintained at a certain rate or level.' This conception suggests the balance between achieving the quality of human life and the carrying capacity of the environment. IUCN/UNEP/WWF (1991, p.10) defines sustainability as "improving the quality of human life while living within the

carrying capacity of supporting eco-systems.” The term of sustainability, in the beginning, is widely used in ecology areas. In ecology, sustainability illustrates how biological system is complex and remains productive. Healthy wetland and forest which live for long can be classified as a sustainable biological system. In term of a human being, sustainability may be seen from well-being maintenance in the long term that including ecological, political, economic, and cultural aspects. As Repetto (1986) explains that the focus of sustainability is increasing long-term health and well-being. Therefore, sustainability is associated with the quality of life within society. Hence, the main idea of sustainability is that present situation must not hinder the improvement of the living condition in the future. That means the economic system must be managed wisely to give the benefit of natural resources to future human being.

Sustainability involves three pillars which are economic prosperity, environmental quality and social equity (UNDP, 2010). These pillars have also become the core of 2030 The Agendas of Sustainable Development has 17 goals and 169 targets (United Nations, 2015). Figure 3.3 describes the pillars of sustainability, which interlinked one another.



Source: UNDP, 2010, 2015

Figure 3.3 Three pillars of sustainable development

Environment sustainability means achieving healthy ecosystem that able to provide essential goods and services to humans and other organisms. Environmental sustainability relates policies and actions to protect natural resources to support human life. In the contexts of development, environmental sustainability is about making responsible policies that not only eliminate the adverse impact of development on the environment but also built the environment better. Accordingly, economic sustainability concerns how to fulfill human consumptions, wealth, utility or welfare without diminishing the prospect of the next generation to enjoy them. Currently, the average per capita consumption of people in the world increases with high growth in developing countries due to population growth. The challenge for sustainability is to manage the increasing people consumption in developing countries without bringing negative impact on the environment. A recent the United Nations report proposes a green economy defined as one that improves human well-being and social equity, as well as essentially reduces environmental risk and ecological scarcities (United Nations, 2015). Lastly, social sustainability encompasses human rights, labor rights, and corporate governance. Social sustainability refers to how current and future generations can have same or greater access to social resources such as human rights and cultures (United Nations, 2015).

This study addresses sustainable development in the context of post-disaster reconstruction. The sustainable development concept became a term since the publication of the World Commission on Environment and Development in 1987. According to this commission sustainable development is “development that meets the need of the present without compromising the ability of future generation to meet their needs” (WCED 1987, p.43). The activities of the sustainable development are understood as development activities which result in environmental preservation and protection, economic growth and also social equity. Sustainable development focuses on maintaining natural resources for present and future generations (Blewitt, 2014). Two main concepts of sustainable development are need and limitation. The ‘need’ concept refers to the essential requirements that should be placed as the main priority. Moreover, the concept of ‘limitation’ links to the technology and social organization ability to meet present and future needs within environment protection scope (Blewitt, 2014).

The Agenda 21 Charter provided Principles that established goals that needed to be achieved in the world quest for sustainability. Agenda 21 deals specifically with development policies in Principles 4 and 8. Principle 8 suggests that “States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies”

(United Nations, 1999). Environmental protection policies are addressed in Principles 2, 4, 7, 11, 15, 16, 24 and 25 of Agenda 21. Chief among these is Principle 4 that suggests “to achieve sustainable development, environmental protection shall constitute an integral part of the development process” (United Nations 1999:2). Meanwhile, non-sustainable development is the antithesis of sustainable development. It implies persistently unmanageable growth that is environmentally unsafe, that consumes resources such as energy ineffectively while degrading the human condition. Extreme cases of non-sustainable development are characterized by ecosystem disruption, paralyzed communications, dysfunctional transportation systems, persistent lack of resources and materials, pervasive environmental mismanagement, prolonged poverty and lack of medical care, permanent destruction of infrastructure, and recurring military conflict. Any and all of these conditions, either individually or in combination, can be disruptive to environments, yielding non-sustainable results.

In 1996, OECD through the Development Assistance Committee (DAC) selected an integrated set of sustainable development’s goals to provide indicators of progress, which the decision to set the goals are based on the formulation and agreement among the international community in the UN conferences. The important subjects of sustainable development that had been set are education, children, environment, human rights, population, social development and women (United Nations, 1996). Further, the goals also addressed on Post 2015 Development Agenda with having the main vision to eradicate poverty while transforming economies through sustainable development. In September 2015, the United Nations has approved the 2030 Agenda for sustainable development which consists of 17 goals from ending poverty, hunger, ensuring healthy lives and education, achieving gender equality and empowers women and girls to promote peaceful and inclusive societies as well as strengthen global partnership for sustainable development (United Nations, 2015). This agenda puts sustainable development at the core as building blocks of sustained prosperity for all.

This study linked these goals of sustainable development in the context of post-disaster reconstruction in a developing country. As part of development effort, post-disaster reconstruction in developing countries should be sustainable to obtain its development opportunities. The impacts of post-disaster reconstruction are important to affected communities’ livelihoods and on their resilience to future disasters. Hence, it is essential that any effort for post-disaster reconstruction seriously acknowledges how to protect the community and the environment to reduce the community’s vulnerability in the future. Therefore, post-disaster reconstruction should also give high attention to the long term change

caused by reconstruction, and on whether vulnerability of the affected communities to future disasters is mitigated. For example, while it is important to prioritize the idea to build disaster resilience housing and technologies during reconstruction, it also needs to consider other factors such as environmental, economic, social, cultural, institutional and technical factors in the affected communities. Ignoring or making the wrong decisions about these factors reduces the chances of satisfying the needs of communities and the long term sustainability of the reconstruction. The next section elaborates some indicators that can be used to measure the sustainability of post-disaster reconstruction.

3.4.3 *Measuring sustainability of post-disaster reconstruction*

Some literature considers shelter and housing are the center part of intervention during post-disaster recovery and reconstruction activities (Davidson *et al.*, 2007; Zetter and Boano, 2007). Furthermore, the crucial need for housing will lead to reconstruction projects to a great scale, with a high demand for construction material and small concern for environmental protection that is resulting in a worse living condition for the future residents (Peacock *et al.*, 2007).

While sustainable reconstruction is quite a new topic, it has been analyzed in several academic papers (Abrahams, 2014; Drolet *et al.* 2015; Escamilla and Habert, 2015). The UNEP and SKAT's report defines sustainable reconstruction as "an integrated approach to reconstruction." It means that all aspects of sustainable development must be considered in every process of reconstruction (UNEP and SKAT, 2007). Although this definition is broad, there are two most important aspects can be drawn as characteristic of sustainable reconstruction: firstly, the multidimensional aspect, which positions sustainability under different but interrelated criteria, and secondly, the long-term approach.

Both aspects relate to the sustainable reconstruction definition to the concept of sustainable development. According to the Brundtland Report (WCED, 1987, p. 43), the definition of sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The implied notion from above definition is that reaching the sustainable development goal need balanced concerns of economic, environment, and social equity that must be carried out simultaneously at the same time (United Nations, 2015). Also, time perspective is vital in focusing on sustainability, considering the time-downstream for next generations (Neumayer, 2003). The sustainable reconstruction concept looked to approve double approaches which are one that

deals with the disaster respond challenges in the current time, at the same time it should promote knowledge and culture to prevent future disasters (Ingram *et al.*, 2006; Smith and Wenger, 2007). Therefore, sustainable reconstruction is centered on the idea of 'building back better' which aim to rebuild affected communities into a safe and more resilience to disasters (Kennedy *et al.*, 2008). In fact, sustainable reconstruction should seek at rebuilding safely and adequately (Palliyaguru and Amaratunga, 2011; Drolet *et al.*, 2015).

According to Broadbent (2007) sustainable post-disaster reconstruction is an approach to redevelop an affected region that considers to fulfill the present needs of communities and also contributes communities' future needs during the development process in the concerned areas. While Palliyaguru and Amaratunga (2011) highlight that sustainable reconstruction means reconstruction attempts must include intent to rebuild, improve, and then sustain the people quality life in the disaster-affected community, both in the short and long term. Further, they emphasize that post-disaster reconstruction should be an effort to achieve sustainable development agenda since it extends a lot of social, economic and environmental development opportunities for rebuilding better communities.

Some studies highlight the importance of sustainable post-disaster reconstruction (Broadbent, 2007; Lizarralde *et al.* 2009; Palliyaguru and Amaratunga, 2011; Ciegis *et al.*, 2015). Ciegis *et al.* (2015) explain that sustainable post-disaster reconstruction is needed to ensure that development opportunities able to give benefit for both present and future community development. Palliyaguru and Amaratunga (2011) also suggest that without considering sustainability post-disaster reconstruction efforts will not contribute to the future generation and may result in unsustainable development outcomes such as less quality or unsatisfactory of reconstruction. Abrahams (2014) points out that sustainable post-disaster reconstruction emphasizes restoring, maintaining, and enhancing the life quality of people in a disaster-affected community. Thus, the goal of sustainable post-disaster reconstruction is to improve the quality of life of affected communities at current and future time.

As also discussed in the previous section, sustainable development should be seen as an integrative and holistic concept within the development, striving for harmony and balance between its three dimensions: environment, social and economy (Palliyaguru and Amaratunga, 2011; Kim and Olshansky, 2014; Lizarralde *et al.*, 2015). As a part of the development process, post-disaster reconstruction gains a significant role to enhance sustainable development.

Sustainable post-disaster construction is, therefore, one of the fundamental processes of sustainable development in disaster affected countries and therefore it can be seen as a holistic process aiming to restore and maintain harmony between the natural and built environment, and create settlements that encourage social and economic equity as promoted by the 2030 Sustainable Development Agenda. In the post-disaster reconstruction context, these dimensions can be translated into some main indicators as presented in table 3.5.

Table 3.5 Indicators of sustainable post-disaster reconstruction

Dimension	Measures
Environment	<ul style="list-style-type: none"> • Reconstruction should improve nutrient, advance food security and develop sustainable agriculture. • Reconstruction should achieve healthy lives and improve citizen well-being. • Reconstruction protects community from environmental degradation, such as provides pollution prevention. • Reconstruction not only builds healthy houses, water and sanitation but also builds disaster resistant houses infrastructures. • Reconstruction includes disaster risk reduction system, such as providing effective early warning system. • Reconstruction should protect natural resources of community from extinction. • Reconstruction should provide availability and sustainability of water and sanitation system for citizen. • Reconstruction should build cities and housing integrated, safe, sustainable and resilient.
Economy	<ul style="list-style-type: none"> • Reconstruction should contribute to poverty eradication • Reconstruction provides equal job opportunities for community members. • Reconstruction should protect unemployed and poor people of disaster affected areas. • Reconstruction should encourage inclusive economic growth within affected areas.
Social	<ul style="list-style-type: none"> • Reconstruction should establish education services for all and promote lifelong learning to all individuals within affected communities. • Reconstruction encourages social participation of all community members. • Reconstruction provides social security in particular for vulnerable people. • Reconstruction encourages community confidence of community members following disasters. • Reconstruction brings community trust and reduces social conflict • Reconstruction enhances social accountability and transparency. • Reconstruction provides equal opportunities for community members to access knowledge and education. • Reconstruction should empower all girls and women in order to achieve gender equality • Reconstruction should involve communities and promote peace for development sustainability

Source: Adapted from UNDP, 2010 and United Nations, 2015

Ecological components mean that post-disaster reconstruction should be seen as a way for improving ecosystem management. This implies that reconstruction should make use of conservation strategies and maintenance of carrying capacities of ecosystems (Lizarralde *et al.* 2009; Escamilla and Habert, 2015). Hence, reconstruction should make affected areas inclusive, safe, resilient and sustainable. For example, housing, water, and sanitation reconstructions should not only promote healthy lives and well-being but also preserve the environment and its ecosystem from future disasters. On the other hand, it should also provide availability and sustainability of clean water and sanitation system for the citizen as well as deliver food security and encourage sustainable farming.

Nevertheless, the economic dimensions signify that post-disaster reconstruction should be done by economic adaptation to various uncertainties and transformation in the environment situation (Jones, 2006; Lizarralde *et al.* 2009; Drolet *et al.* 2015). For example, improving economic well-being and poverty reduction within affected regions should not mean the potential to destroy natural resources and biodiversity.

Furthermore, social dimension highlight that post-disaster reconstruction work should identify the extent of social value and identities, relationship, and social organizations of affected communities that can be managed and adapted to disasters in the future (Lizarralde *et al.* 2009; Chanamoto and Hall, 2015; Drolet *et al.* 2015). The participation of affected communities is vital to pinpoint concerns and needs of the communities concerned during the post-disaster reconstruction project. Getting closer to affected communities in the reconstruction process also brings an effective way to achieve better performance of housing, water and sanitation, road and other infrastructure reconstruction. Giving equal opportunities to both women and men during disaster management process is essential for empowering women and girls and promoting gender equality. Hence, reconstruction should support communities across affected areas to achieve sustainable development. Accordingly, the next section discusses the link between gender equality and sustainability of reconstruction.

3.4.4. Issues of sustainability of post-disaster reconstruction across disaster affected countries

Disasters often left survivors with high pressure to build permanent houses quickly. It leads to a big-scale reconstruction project followed by a high need for reconstruction material. The production of reconstruction material can result in pollution, forest damage, and depletion of local natural resources if the production process is not managed properly, while the

reconstruction activities itself produce waste and pollution. Thus, post-disaster reconstruction should be done carefully, not in a rush to rebuild and to restore the living condition as pre-disaster situations. It should be balanced with the fulfilling of the opportunities for long-term disaster risk reduction and community development through sustainable reconstruction. Therefore, sustainable post-disaster reconstruction is formed to respond the above needs and problems by delivering an integrated structure for actions. Sustainable reconstruction in disaster affected areas provides an opportunity to build infrastructures with better quality and to improve the living conditions and its environment.

The aim of sustainable post-disaster reconstruction is an improvement of living conditions for disaster survivors, such as the requirements of financial, health, education and empowerment for vulnerable groups. However, reconstruction often meets some challenges that threaten their sustainability and hinder people from achieving better life and community. Firstly, disaster risk reduction possibly faces more abstract threat and risk in long terms because of the rising investment which often changes the disaster risk reduction's priorities. The finance and government officials should be warned from time to time about the importance of funding to disaster resilience programs to make post-disaster reconstruction more useful. Solving the causes of disasters and pre-disaster risk reduction should be integrated into every development designs and planning. Moreover, disaster risk reduction and mitigation are cross-sections affairs that are needing coordination system of various stakeholders, groups, and organizations. Insufficient fund and human resources in the implementations could affect the delivery and credibility of the program.

Secondly, the low political will and commitment of local and national government is a big challenge for any effort to achieve land and property rights, including housing. The need for fast responds and recovery persist to overcome over good design and planning, consultation process, control over environmental safety, quality monitoring, and chance to involve in the reconstruction works. Permanent reconstruction is still not well coordinated, badly managed, and late started since local officials' ability to plan is limited due to disaster. Also, there is an insufficient number of professional, and experts support in establishing and restoring the building and public facilities, while disaster survivors play as passive victims waiting for support and assistance.

Thirdly, the damage of building, infrastructure facilities, and services impedes revitalization of economic activities. Local economic development faces challenges due to the declined production and purchasing ability that weakens the legal and regulatory economic framework such as judicial system, land allocations, and business licensing. It is worsened by the lack of institutions and organizations concerned in local economy and labor skills improvement like credit for small entrepreneur, micro finance for women and vulnerable survivors, training, and public employment scheme. Some situations are commonly found in the post-disaster reconstruction such as the lack of resources, social capital, and social structure as well as the lack of trust and confidence. Most of the resources and capabilities put in the post-disaster reconstruction programs are attributed to experts or professionals who left the reconstruction location after the work is finished.

Last but not least, disasters both natural and human-caused damage and devastate infrastructure, livelihoods, and assets. It is worsened by poverty and resources scarcity that create vulnerability, weaken coping ability and hamper recovery efforts. Even though the local economy is dynamic and vibrant, it is widely known that the most challenging aspect of a disaster situation is an economic recovery.

Accordingly, this study addresses sustainability of post-disaster reconstruction from a gender perspective. Pelling and Castree (2001) states that natural disaster is gendered constructed. The gendered construction of natural disasters results from the unequal relationship between women and men in a society that leads to women vulnerability (McLaughlin and Dietz, 2007). The next section discusses the relationship between sustainability of reconstruction and gender equality.

3.4.5 Gender equality and sustainability of reconstruction

Amartya Sen, a Nobel memorial prize in Economic Sciences, point outs the significant role of women in sustainable development (Sen, 2001, p.7). He writes,

“Advancing gender equality may be one of the best ways of saving the environment, and countering the dangers of overcrowding and other adversities associated with population pressure. The voice of women is critically important for the world’s future - not just for women’s future.”

Thus, it can be said that the concept of sustainable development is the programme or development activities that considering the future needs while fulfilling the present needs to

make the next generation able to meet their needs. Thus it accommodates both needs of men and women. The equality of inter-generations could be obtained by addressing gender issue and relations that stress on prevailing inequality. Accordingly, sustainable development cannot be achieved without addressing gender inequalities issue.

It is commonly known gender inequality delayed the progress of other development results. For example, the World Bank (2007), UNDP (2010), and OECD (2010) highlight the importance of attaining gender equality as a precondition to improving other MDGs elements. Also, OECD (2010, p.1) research confirmed that:

“Societies that increase women’s access to education, health care, employment, and credit, and that narrow differences between women and men in economic opportunities, increase the pace of economic development and reduce poverty.”

Further, the 2030 Sustainable Development Goals also highlight issue of gender inequality as a key challenges to achieve the goals and targets, as written in the document:

“There are enormous disparities of opportunity, wealth and power. Gender inequality remains a key challenge. Unemployment, particularly youth unemployment, is a major concern...Women and girls must enjoy equal access to quality education, economic resources and political participation as well as equal opportunities with men and boys for employment, leadership and decision-making at all levels” (United Nations, 2015, p.5).

Therefore, the Goals number 5 of 2030 Sustainable Development Agenda is:

“To end all forms of discrimination against all women and girls everywhere. These include: eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation; eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation; recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate; ensure women’s full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life; ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences; undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws; enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women; and adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels” (United Nations, 2015, p.6).

Research also demonstrates the link between gender inequality and other development results. For illustration, the child mortality causes a link to the women's rights. The children mortality rate tends higher for children from a mother with low formal education (OECD, 2010; Patel *et al.* 2014). It is similar to the situation where mothers have less right to land ownership where more than 60% children suffer malnutrition and the number rise to 85% in the place where women do not have access to credit (OECD, 2010). Hence, it can be said that gender inequality is a barrier to achieving development goals or Millennium Development goals.

Gender inequality most likely effect on whether women can access advantage of development activities. A series of reports about the MDGs in the last five years have shown that women get less benefit from the MDGs progress than men within several regions (2010). For instance, many women face difficulties to travel a long trip to access health, legal or social services due to the gendered roles within their community or because their partner did not allow them to go without a husband, brothers or another family member.

Gender equality is pre-requisite for achieving other development outcomes. The approach is shown in paragraph 121 of the MDG draft apparently pictured gender equality as one aspect to achieve the other MDGs goals, as stated:

"...to promote gender equality and the empowerment of women as effective ways to combat poverty, hunger and disease and to stimulate development that is truly sustainable." Advocates of a human rights approach also support this importance of gender equality. As a report by ActionAid, advocating a rights-based approach concludes: "Gender equality and women's rights are central. Failure to address gender equality and women's human rights will undermine efforts to eradicate poverty for both women and men" (United Nations, 2016).

For the Social Development Goals, women high participation and women empowerment are crucial to achieve the goals. A statement on the United Nations report on the Sustainable Development Goals states:

"Across regions and countries, evidence suggests that sustainable development strategies that do not promote gender equality and the full participation and empowerment of women and girls will not succeed" (United Nations, 2016).

The 2030 Sustainable Development Goals also specify achieving gender equality and the empowerment of women and girls will give essential contribution in progressing all the Goals and targets (United Nations, 2015), as written in the document:

“Realizing gender equality and the empowerment of women and girls will make a crucial contribution to progress across all the Goals and targets. The achievement of full human potential and of sustainable development is not possible if one half of humanity continues to be denied its full human rights and opportunities. Women and girls must enjoy equal access to quality education, economic resources and political participation as well as equal opportunities with men and boys for employment, leadership and decision-making at all levels. We will work for a significant increase in investments to close the gender gap and strengthen support for institutions in relation to gender equality and the empowerment of women at the global, regional and national levels. All forms of discrimination and violence against women and girls will be eliminated, including through the engagement of men and boys. The systematic mainstreaming of a gender perspective in the implementation of the Agenda is crucial” (United Nations, 2015, p.6).

Gender equality is thus essential for enhancing the sustainability of development. As Leach (2015) argues, sustainable development is not possible without gender equality. In fact, it is a prerequisite for any action aimed at improving people’s quality of life. This implies that gender equality is essential for social justice and human rights. Accordingly, it is also a precondition for environmental protection, sustainable reconstruction, and development.

A series of the study confirms communities with higher gender equality achieve better economic growth and receive advantages from bigger agricultural activities and enhanced food security. This achievement can be established due to higher women participation in the decision making process and management roles that are crucial to sustainable development agendas, where they can be effective agents of change. Also, women lifestyle and consumption patterns tend to be more concerned about the environment and have a better sense of responsibility towards achieving sustainable development. Women also more likely like to recycle and use public transportation than men (Enarson, 2014).

Gender equality is a vital element for sustainable development. The full participation and equal involvement of women are needed in sustainable development. Hence, to achieve the three pillars of sustainable development by solving the current issues of gender inequality. Firstly, environment preservation needs a strong knowledge about women related to natural or environmental resources and also women right and roles in source management and planning. Furthermore, it needs recognition and integration of women understanding about environmental issues along with knowledge about the impact of environmental degradation and severe exploitation. Secondly, economic welfare needs strategies which are gender responsive. The world estimation reveals that about seventy percent people living in absolute poverty are women (Enarson, 2014). Achievement of economic well-being will be difficult if there is still any

group who is hugely living underprivileged compared to the other group. Neither economy situation could be named healthy if there are no contributions and competencies from all community members. Thirdly, social equity is essentially related to gender equality. The obvious indicators of social equality are racism, sexism, discrimination based on the ethnic group, faith, political opinion, social status or sexual orientation. Accordingly, society is difficult to survive sustainably, or its people can live with dignity and confidence if there are prejudice and discrimination to any social group. It has also been highlighted that gender issues are not similar to women's issues. Understanding gender leads to understanding opportunities, constraints and the impacts of transformation affect both men and women (United Nations, 2002). Equality partnership between women and men is the foundation of solid families and strong communities in the hustling world. But the misogynistic perspective maintains to continue an approach that lies discrimination against women. Women have been persistently ditched out from decision-making activities across experience and societies. Accordingly, within most of the social groups, women are consistently discriminated within patriarchal governance structure. This authority system maintains further imbalance, marginalization, suffering, and conflict. Establishing bigger gender equality will contribute to developing peace, democracy, and prosperous societies.

Leach *et al.* (2015) define gender equality as the extent to which men's and women's opportunities and outcomes are constrained or enhanced solely by their gender. Gender equality focus on both women and men, it commits working with men and boys, women and girls to make a change in attitudes, behaviors, roles, and responsibilities in the community. A real equality indicates not only parity in numbers or rules in the papers; but it also indicates extending freedoms and enhancing all quality of life so that equality is accomplished without omitting advantages for men and women (Cornwall and Edwards, 2015). Gender equality can be conceptualized in two ways: the equality of opportunities and outcomes (World Bank, 2012). The equality of opportunities often used in the economic sphere in which individual preferences may result in different outcomes though their opportunities are equal. Meanwhile, the equality of outcome often used on access to essential services such as health and education where gender equality in outcomes is often inherently valued.

In the contexts of reconstruction, existing gender inequality increase not only women vulnerability but also causes unsustainable reconstruction. Studies have documented such gender inequalities and their negative impact on reconstruction. Table 3.6 shows some

examples of gender inequalities and its negative impacts to post-disaster reconstruction. It shows that all forms of gender inequality have detrimental effects on women and society both in short-term and long-term. For example, shortage of women voices within reconstruction planning will lead to neglecting women concerns and preferences of reconstruction which further result in less access and control of women in economic resources. In long-term, this will lead to increasing women poverty following reconstruction.

Table 3.6 Type of gender inequalities within post-disaster reconstruction

Gender inequality	Example	Impacts
Lack of women participation in planning stage	Women concerns and preferences are often neglected during consultative time to plan housing, water and sanitation reconstruction. Low involvement in local economic recovery activities.	Women less access and control on properties and economic resources.
Shortage of women leadership during reconstruction	Limited leadership of women in the reconstruction process put women needs and problems are not recognised	Unsustainability of reconstruction may result in due to women needs and concerns are not fully accommodated.
Men preference in land and properties claim	Women have no right on land and houses which may put them on the verge of losing livelihoods and assets after disaster.	Women lost their assets which mean they more vulnerable to be poor following reconstruction.
Men preference on employment access and financial loan policies	Low access of women on job market and loan boosts post-disaster poverty.	Women poverty which indicates unsustainable development following reconstruction.
Women preference on health services access	Women protection from violence, and also health service to address women special health issues are often overlooked due to disaster.	Women poor health which indicates unsustainable reconstruction and development.
Lack of safe environment for women and girls after disaster	Public housing and sanitation fail to secure 'female-friendly' environments with separate space for children care facilities and sanitary equipment. It leads to situations where girls and women face harassment and sexual violence.	Lack of housing and safe space put women at high risk of violence. Unsafely community also indicate unsustainable reconstruction and development.

Source: Enarson (2014); Bradshaw, 2015; Gaillard *et al.* 2015)

In the literature of post-disaster management, there is a growing recognition of a concept of translating the disaster adversity into an opportunity to reach the development goals (Haigh and Amaratunga, 2010; Palliyaguru *et al.* 2013). Accordingly, post-disaster reconstruction can be

understood as a chance or opportunity to carry and guide contribution to create a better living standard for the poor, to empower the marginal people to involve, and to set up communication among survivor and government official to promote responsibility. Hence, it is an opportunity to “build back better” and adopt sustainable development values and risk reduction within communities which are at high risk of disaster. As UNECLAC (2003:45) documents write:

Disasters should also be seen as an opportunity to improve pre-existing conditions, including sex equity. Reconstruction, therefore, should not be thought of simply as a process of replacing what has been lost, but also as an opportunity to perform actions that make the most under-privileged groups less vulnerable, favour sex equity and improve living conditions for women, especially those who are heads of households (UNECLAC, 2003:45)

The studies of built environment and gender also emphasize that gender equality is one significant element which must be acknowledged to improve the sustainability post-disaster reconstruction and to create effective risk reduction (Childs, 2006; Ginige *et al.*, 2010; Drolet *et al.* 2015; Gritti, 2015; Chanamoto and Hall, 2015). The study of Drolet *et al.* (2015) reveals, once women are empowered, they will gain the capacity and the inner will to enhance their lives and take control over their own family and its problems. Their new capability will give them an equal share of economic and political decision making which will lead to decrease women’s vulnerabilities during and after a disaster. Thus, considering gender equality in post-disaster reconstruction programs will bring opportunities for women to make their own decision and also build their capacities to solve their problems about their future. Sendai Framework for Disaster Risk Reduction 2015–2030 that highlighted the importance of gender equality to build back better in reconstruction. As stated in Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation, and reconstruction:

“The steady growth of disaster risk, including the increase of people and assets exposure, combined with the lessons learned from past disasters, indicates the need to further strengthen disaster preparedness for response, take action in anticipation of events, integrate disaster risk reduction in response preparedness and ensure that capacities are in place for effective response and recovery at all levels. Empowering women and persons with disabilities to publicly lead and promote gender equitable and universally accessible response, recovery, rehabilitation and reconstruction approaches is a key. Disasters have demonstrated that the recovery, rehabilitation and reconstruction phase, which needs to be prepared ahead of a disaster, is a critical opportunity to “Build Back Better” (UNISDR 2015, p.12).

The Sendai Framework for Disaster Risk Reduction and the 2030 Sustainable Development Agenda encourage all stakeholders to raise the issue about the role of both men and women in dealing with environmental problems to achieve sustainable development and to improve

people quality life (Elliot, 2012; Redclift and Springett, 2015). This reflects the high need to achieve gender equality in the affected communities to develop long term disaster resilient communities. Figure 3.4 presents the relation of gender equality and three pillars of sustainable post-disaster reconstruction and development.

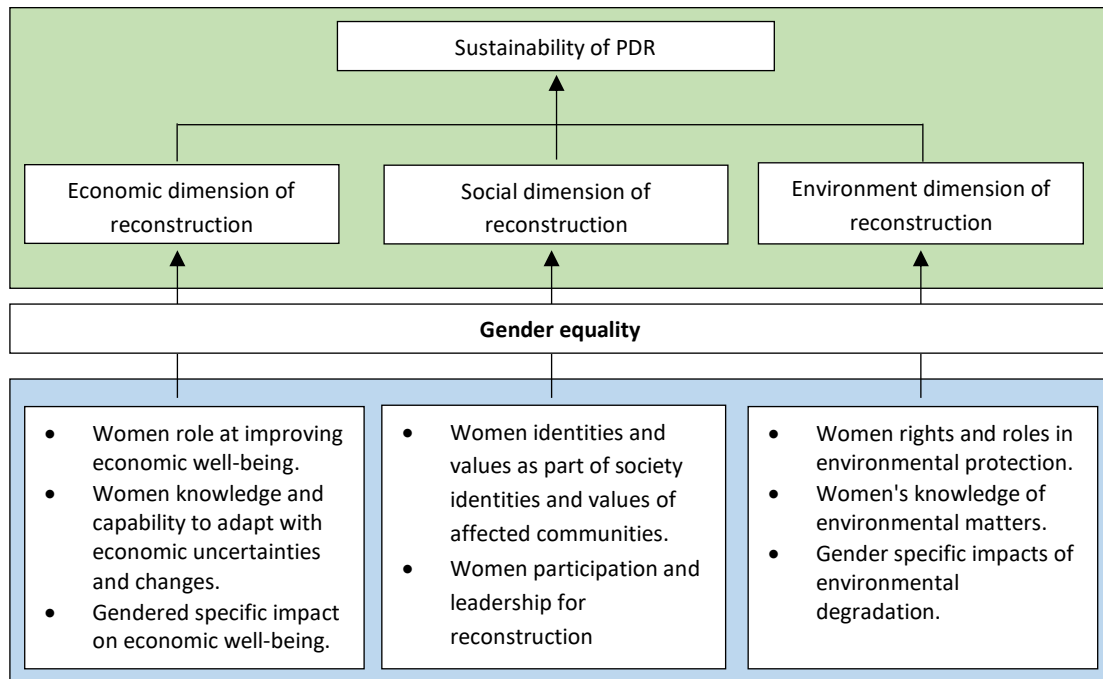


Figure 3.4 Gender equality and three dimensions of sustainable post-disaster reconstruction (Source: Adapted from Jones, 2006; Lizarralde *et al.* 2009; Enarson, 2014)

Achieving the three dimensions of sustainable development can be done with investment in economic in an economic, social and environmental capital. Environmental sustainability needs a good knowledge about the relation of women and environmental resources and also women's roles and right in managing and planning those resources. It will lead to recognition of gender impact on environmental degradation as well as how to enhance sustainable environment after a disaster. Farmer women who work as producers, workers and managers deliver contributions in supporting the sustainability of production and consumption, protecting the natural environment and its biodiversity, sustaining cultural wisdom or knowledge, and distributing same and sustainable resources in the households and societies. Farmer women often take responsibility on decision making under uncertain situations that often need transforming work patterns which result in avoiding sustainable development focuses. Giving opportunities and resources as well as involving them in decision-making activities will enhance their well-being

and social life that finally will give benefit for entire communities and moreover is going to improve the sustainability of reconstruction and development.

Economic sustainability needs strategies that responsive to issue of gender. Women have a vital role in enhancing family and community well-being since the number of women in poverty following a disaster is increasing. Gendered impact on economic well-being should enhance economic sustainability of reconstruction. If women are given access to and control over economic resources as well as opportunities to participate in all economic activities, they will fulfill the roles as operator of the reconstruction which result in better outcomes and benefits of sustainable economic development. Moreover, it will contribute to economic growth as well as women's welfare.

Social sustainability concerns that reconstruction programs should identify the aspects of social values and identities, relationships and social organizations of disaster areas can be managed to adapt disasters in the future (Jones, 2006; Lizarralde *et al.* 2009). Women face obstacles to able to participate as a full and equal member in the reconstruction process, not to mention even in all aspects of life. Such obstacles are social norms, marginalization, gender stereotypes, low paid, limited access to and control over resources and health and education facilities. Hence, recognizing and integrating women identities and values is essential to maintain social identities and values of the affected communities. The active involvement and participation of women in post-disaster reconstruction activities are needed, especially in identifying the concerns and needs of the disaster affected communities. These because women are a not only vulnerable group but also there is an essential group in which their capacity and knowledge are needed to achieve sustainable reconstruction. Hence, approaches toward gender equality within reconstruction should have a balance between addressing gender vulnerability and promoting gender capacity.

3.4.6 Balancing vulnerability and resilience approach: reducing vulnerability, promoting capacity

The exclusion, especially of women and girls from disaster risk reduction and reconstruction work, resulting in women vulnerability. Thus, empowering girls and women are indispensable to real community resilience and significant reduction of disaster impacts. The women socio-economic issue has been raised by many gender scholars with stress on the challenge at post-disaster phase (Enarson, 2014; Bradshaw and Fordham, 2014; Bradshaw, 2015; Smyth and Sweetman, 2015). Accordingly, disaster increases women vulnerabilities due to their lack of access to resources, different roles and responsibilities in their household with the main role as

caregiver to children, elderly and disabled (Enarson, 2014; Seager, 2014; Bradshaw, 2015). Also, gender relations in culture and society tend to put women at special risk, some more than others (Enarson, 2014). Gender inequality is another key issue influencing their vulnerability level to the hazard and disaster's aftermath. There are researchers such as Bradshaw and Fordham (2015) those work on gender issues within disaster contexts, assert gender-based inequities inherent in communities in the form of their difficulties in recovering from disasters and relatively limited access to disaster relief aid primarily. However, Enarson (2014) and Drolet *et al.* (2015) explain that regardless of all difficulties and vulnerabilities, women could use the circumstances they face as opportunities to change society's views that often underestimate woman's capabilities and encounter their gendered roles in society. Rather than being victims, women have their role in disaster preparedness, recovery and reconstruction and they can be the key to success and the agents of change. Further, women and men, working together, can identify those hazards that are threats to their homes and livelihoods and work together to build resilience communities (Smyth and Sweetman, 2015).

Promoting gender within post-disaster reconstruction addresses women not only regarding vulnerability but also concerning capacity. A vulnerability perspective can represent women negatively as disempowered and lacking in agency. It is important then to emphasize that this should be seen as a continuum and to balance any discussion with examples of capacities at the positive end (Blaikie *et al.*, 2014; Smyth and Sweetman, 2015). Women are active throughout reconstruction process though their activities may remain invisible or undervalued and often located in the informal rather than the formal disaster management domains (see Bradshaw and Fordham, 2015). Women are active in disaster by preparing their homes and stockpiling supplies (Enarson, 2014); by initiating, and even leading, emergent (Smyth and Sweetman, 2015) and environmental groups (Saito, 2014); by heeding warnings and acting upon them (Gaillard *et al.* 2015); and in a variety of other ways (Enarson, 2014). More recently, researchers find how grassroots women undertake public roles that accelerate community recovery and ensure community participation in reconstruction and development. Women roles include activities from mobilizing affected communities to strengthening government accountability on reconstruction program (Drolet *et al.*, 2015; Bradshaw, 2015).

The vulnerability and resilience approach toward post-disaster reconstruction approach has been discussed in the current disaster management studies. The vulnerability and resilience approach of the 1990s proved to be necessary for the evolution of natural hazards literature and the understanding of vulnerability (McEntire *et al.*, 2010). The vulnerability approach was

created in response to the concern for growing losses, but critics found it to imply that disasters can be eliminated and that preparedness, response, and recovery would no longer be required (McEntire, 2001). The resilience approach was therefore developed to capture these shortcomings as it has a broader, more flexible association within hazard mitigation. Table 3.7 presents the difference between vulnerability and resilience approach.

Table 3.7. The different between vulnerability and resilience approach

Vulnerability approach	Resilience approach
Resistance	Recovery
Force-bound	Time-bound
Safety	Bounce-back
Mitigation	Adaption
Institutional	Community based
System	Network
Engineering	Culture
Risk assessment	Vulnerability-capacity analysis
Outcome	Process
Standards	Institutionalize

Source: McEntire, 2001

Blaikie *et al.* (2014) define resilience as the intrinsic capacity of community to adapt and survive from disasters. This definition was originated from psychology and psychiatry study in the 1940s (Baumwoll, 2008). In the context of disaster management, resilience refers to the coping capacity of a community to react or recover efficiently from disasters (Buckle *et al.*, 2000). Though resilience solves issues in the concept of resistance, this concept is also adopted in the context of response and recovery phases. McEntire (2001) mention that there has been changed in disaster management approach from developing disaster resistant communities to developing disaster resilient communities. Further, Mileti (1999) explains that resilience based approach means assisting in strengthening the capacity of affected communities to manage future shocks. Hence, the concept of resilience is people-focused and thus must reflect the distinct capacities and coping mechanisms of women, girls, boys, and men.

As discussed in the previous section, gender shapes the disaster experience and the ability to recover. Gender relations lead to community resilience to disasters as gender playing important roles in determining the access to and control of resources within communities. Thus, mainstreaming gender through promoting women’s life experiences, professional roles, social networks, coping strategies and leadership skills should be emphasized during a disaster management. Drolet *et al.* (2015) emphasized that mainstreaming gender into disaster

management will create an active recovery and reconstruction, and result in community resilience. Thus, to be efficient, comprehensive and sustainable, activities that strengthen resilience must be gender-sensitive. The next section discusses gender mainstreaming as a strategy for enhancing the sustainability of post-disaster reconstruction.

3.5 Summary of chapter and links

This chapter reviews and synthesizes the existing literature to capture the knowledge and understanding of the issues associated with a disaster, gender, and sustainability of reconstruction. Natural disasters have shown an unprecedented scale of increase during the last few decades with risk to human lives. As a primary determinant of social organization, gender shapes the social worlds within which disaster occur. From the literature review, it is identified that the impacts of disasters rarely reveal themselves equally across an affected population. Rather, the extent of the impact is determined by social construct such as gender. In the context of disaster, gender determines the extent to which disaster impact women and men at affect communities. Such differences are largely often unfavourable to women and lead to gender inequality.

The literature review synthesis shows that increasing gender vulnerability and overlooking gender capacity are gender inequality issues within disaster reconstruction which challenge to achieve sustainability and resilience. Addressing gender mainstreaming within post-disaster reconstruction can provide window opportunity for sustainable development by addressing gender vulnerability and promoting gender capacity. Gender mainstreaming can provide new opportunities for social sustainability through better opportunities both for women and men to access and to participate within social development. The next section discusses the link between gender mainstreaming and sustainable post-disaster reconstruction.

Chapter 4

Gender mainstreaming and sustainability of post-disaster reconstruction

4.1 Introduction

Gender mainstreaming is established within development literature and practice as an important strategy for the gender equality promotion. In the contexts of disaster reconstruction, it is identified that increasing gender vulnerability and overlooking of gender capacity are two main issues of gender inequality that should be addressed to enhance the sustainability of reconstruction and development. This section argues that mainstreaming gender within sustainable post-disaster reconstruction requires two sides of a coin strategy for reducing gender vulnerability and for increasing gender capacity. This section discusses the concept of gender mainstreaming and gender mainstreaming strategies for sustainable post-disaster reconstruction. Hence, the structure of this chapter as follows: firstly, the concept of gender mainstreaming and its link with sustainable post-disaster reconstruction are discussed. This section provides analysis of various strategies for reducing gender vulnerability and promoting gender capacity within post-disaster reconstruction that can be applied to improve the sustainability of reconstruction and development. Some enabling/constraining conditions for mainstreaming gender into sustainable post-disaster reconstruction are also discussed. Finally, the conclusion that identifies the gaps in the knowledge based on the aims and objectives which are explained in the previous chapter.

4.2 What is gender mainstreaming?

Gender mainstreaming was introduced in The Fourth World Conference on Women in 1995 as an important strategy for promoting gender equality. Accordingly, there are critical areas of concern that established in The Beijing Declaration and Platform for Action: poverty, education, health, political decision making, economy, human rights, and violence against women, armed conflict, institutional mechanisms, and environment (United Nations, 1996). Besides, before policies and programs are prepared, policy makers and stakeholders should undertake gender analysis that is related to the situation and contributions of women and men equally. Hence, the priority of gender mainstreaming strategy was augmented in the 23rd special session of the

General Assembly meeting to follow up the Platform for Action implementation that was held in June 2000. Therefore, ECOSOC (1997) defines gender mainstreaming as follow:

“...the process of assessing the implications for women and men of any planned action, including legislation, policies or programs, in all areas and at all levels. It is a strategy for making women’s as well as men’s concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated. The ultimate goal is to achieve gender equality.”

According to the definition, gender mainstreaming is a means, not an end, to the gender equality goal. In other words, mainstreaming is a strategy to achieve gender equality (Bradshaw, 2015). It ensures gender perspectives and issues along with gender attention are central to all actions, i.e. development policy and programs, research, dialogue, advocacy, policy making, resource distribution, programs, and projects. The mean of mainstreaming is not only put a “women” component or “gender equality” component into development policies and program and raising women’s participation, but beyond those, it is also bringing women’s and men’s experience, knowledge, and interests to involve in the development activities and agenda. Thus, it possibly requires an identification of the need for adjustment in those agendas. Thus, by mainstreaming gender equality, there will be a transformation from an unequal situation of social and institutional structures into same structure of social and institutional for women and men.

Some important elements to integrate women and men concerns in policies can be identified (Enarson, 2014; Ginige *et al.*, 2014; Alston, 2014; Bradshaw, 2015). It is including the precondition to providing concern to gender equality from the beginning of development activities so that there is promising to affect goals, strategies, and resource distributions and generate changes in all development activities. Thus, gender analysis is about the roles, responsibilities, contributions, along with the possible effect of actions on women as well as men that are planned as the first substantial procedure, prior to any plans are made; a concern for both men, women, and their relations, particularly in term of access to and control over resources and participation in decision-making activities; positive awareness to gender perspectives, establishing the relationship between gender equality and achievement of the general goals in all areas – if gender perspective is not seen, it is not gender mainstreaming; transforming beyond concerning the number of women involvement to bringing perspectives of gender to the focus centre within planning, analysis, formulation of policies and distribution of

resources; and analysing the need for adjustment of goals, policies, strategies, and actions, along with adjustment of structures, procedures, and cultures of organization (Hanan, 2004).

Gender mainstreaming is a strategy to promote decision making and policy concern to the needs and interests of women and men (Bradshaw and Fordham, 2014; Bradshaw, 2015). The goal is that policy and program of development able to achieve a real sustainable contribution for equality of women and men, nevertheless increasing inequality in some unforeseen matters. These efforts are not easy, simple, straightforward, or complicated. However, they have to be managed, organized, and documented in a kind of approaches like to do an evaluation to the distinction between men and women as well as deliver a massive attention and care in handling the particular opportunities, rights, and obligations of men and women. Additionally, all these opportunities, rights, and responsibilities are developed differently in every communities or culture that shaped by common or popular perceptions about men's and women's position and roles in the public and private sphere (Jabeen, 2014). Moreover, this strategy needs to check the background, priority, conditions, applications of gender mainstreaming since it should lead to in the structure of the mainstream through policy formulation and implementation. In conclusion, policy should respond immediately to transformations of requirements, perceptions and interest or concern based on men's and women's social roles, and followed by promoting equality. In the next section, the discussion moves to gender mainstreaming as a strategy to achieve sustainable reconstruction.

4.3 Gender mainstreaming as a strategy to achieve sustainable post-disaster reconstruction

As discussed in section 3.3.1 and 3.3.2 chapter three, increasing gender vulnerability and neglecting gender capacity are two main gender inequality issues within disaster reconstruction which challenge to achieve sustainability of reconstruction. Hence, gender mainstreaming strategy for sustainable post-disaster reconstruction should address both issues. Gender mainstreaming strategies within sustainable reconstruction should not only incorporate strategies for protecting women vulnerability but also strategies for promoting women capacity (Figure 4.1). Both strategies are needed to create gender equality and women empowerment which both are fundamental for sustainable reconstruction.

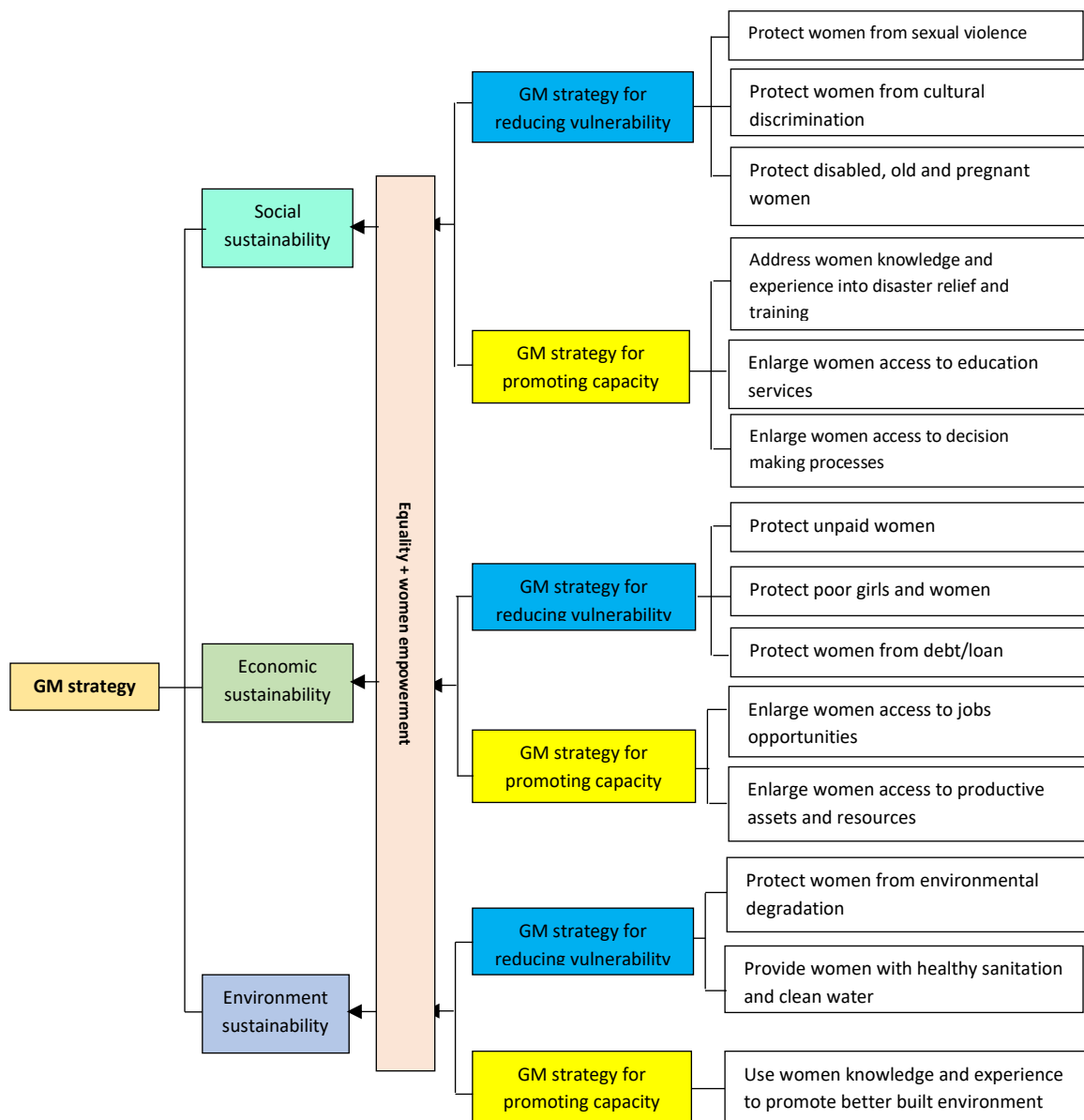


Figure 4.1 Gender mainstreaming strategies within sustainable post-disaster reconstruction (source: author based on literature review)

4.3.1 Gender mainstreaming as a strategy to achieve social sustainability

Social sustainability focuses which the activities of reconstruction must identify the extent of variables (identities, social value, social organizations and relationship within affected areas) can be managed and adapted to the disasters in the future (Lizarralde *et al.* 2009; Peng *et al.* 2014; Escamilla and Habert, 2015). Post-disaster reconstruction provides opportunities to create social sustainability through building social capital and encourages social participation; provides social security and enlarge education access; building community confidence, enhance social accountability and transparency through community development; and provides equal

opportunities for community member to participate in community development and to access development programs.

Sustainable development agenda emphasizes several goals of social sustainability. These goals include providing primary education in all countries, reducing gender disparity in elementary and high school, reduced infants and children mortality, reduced maternal mortality and increase women access on basic health care system particularly the reproductive health services (UNDP, 2013). Hence, integrating gender mainstreaming strategy into reconstruction has potential to achieve these goals. For example, gender stereotypes, social values and norms, limited and unequal access and control to resources, limited women's capabilities to involve fully due to poor health and education services during reconstruction (Fordham, 2003; Enarson and Chakrabarti, 2009; Gaillard *et al.* 2015). However, it is also recognized that women social networking capacity and knowledge are essential to achieving sustainable reconstruction (Drolet *et al.*, 2015). Hence, gender mainstreaming strategies to achieve social sustainability should not only protect women from social and cultural discrimination and violence against them but also should promote and enlarge their access to disaster relief and training process, education services and more importantly within decision-making process during reconstruction.

4.3.2 Gender mainstreaming as a strategy to achieve economic sustainability

Economic sustainability concerns how to fulfill human consumptions, wealth, utility or welfare without diminishing the prospect of the next generation to enjoy it (Ciegis *et al.* 2015). Post-disaster reconstruction provides opportunities for building economic sustainability through enlarging job creation and equal job opportunities for all community members; protect and enlarge economic access of unemployed and poor people of disaster affected areas; and encourage economic growth through economic and business development within disaster affected areas (Yonder *et al.* 2005; Ariyabandhu, 2009; Ciegis *et al.* 2015).

Sustainable development agenda emphasizes two primary goals of economic sustainability. These goals include reducing extreme poverty in developing countries and brings the number of men and women living daily on \$1.25 (or less) to zero (UNDP, 2010). Hence, integrating gender mainstreaming strategy into reconstruction has potential to achieve these goals. For example, women are more vulnerable to job markets because of their sexual roles and gender bias in job markets (Gaillard *et al.* 2015). However, it is also recognized that once women gain access to resources, get opportunities and are allowed to participate equally in economic activities; they will gain a better position to fulfill their role as 'drivers' of reconstruction outcomes and get

benefits of sustainable and inclusive economic growth (Enarson, 2014). Hence, gender mainstreaming strategies to achieve economic sustainability of reconstruction should not only protect women from poverty and unpaid work and low wages but also enlarge their access to resources and productive assets (land, properties, and fund), proper jobs and essential services (clean water and energy).

4.3.3 Gender mainstreaming as a strategy to achieve environmental sustainability

Environmental sustainability is about making responsible policies that not only reduce the detrimental effect of development on the environment but also built the environment better (UNDP, 2010; Ciegis *et al.* 2015). Post-disaster reconstruction provides opportunities for creating environmental sustainability through a better-built environment, protects a community from environmental degradation; and better urban planning through integrating disaster risk reduction system such as developing an effective early warning system for future disaster (Jones, 2006; Lizarralde *et al.* 2009; Wilkinson *et al.* 2014).

The main goal of environmental sustainability of sustainable development agenda is protecting and ensuring the environmental resources. United Nations (2016) reports since 1990, about 1.7 billion individuals have access to clean and safe water to drink, more than 884 million suffer from polluted water for drink, and 2.6 billion without accesses to good sanitation. Hence, integrating gender mainstreaming strategy into reconstruction has potential to achieve these goals. For example, it is recognized that environmental sustainability needs a deep acknowledgment of the relationship between environmental resources and women, also women's rights and roles in management and planning of those resources (UNDP, 2010). Recognition and integration of women's knowledge about the environment, likewise their understanding of environmental degradation with its impact, especially the gender impacts, are important for improving sustainable environment after a disaster (Smyth and Sweetman, 2015; Drolet *et al.* 2015). Hence, gender mainstreaming strategies to promote environmental sustainability of reconstruction should not only protect women from environmental degradation and pollution but also promote their capacity to build better biodiversity and environment.

After discussing some gender mainstreaming strategies to enhance the sustainability of reconstruction, the next section discusses the integration of gender mainstreaming in post-disaster reconstruction process (planning, design, and construction).

4.4. Integrating gender mainstreaming within post-disaster reconstruction

Gender mainstreaming is a cross cutting issue. Therefore it can be integrated within every action plan including legislations, programs, and policies, in all levels and regions (i.e. national, provincial, and local/district government) (Bradshaw and Fordham, 2014). Mainstreaming may be done by involving gender equality perspective that significant in data collection, data analysis, and the relevant activities to make sure that every activity takes into considerations the needs, priorities, and contributions of all groups within a community, including women and men. The concern of the gender equality and its goal should be mainstreamed into, analysis, policy development with its all activities and research.

It is stated by The Platform for Action (United Nations, 1996) that gender analysis is the first fundamental phase in mainstreaming gender. It should be carried out before decision-making process, in all sections of societal development and covering the existing responsibilities and contributions of women and men. Accordingly, gender analysis also should identify the potential impact of designed programs, processes, and activities for men and women. It is not necessary to substitute the need for targeted, women specific programs, projects, policies and effective legislations. Therefore it is a complementary strategy. Accordingly, it should be executed in an approach which supporting women empowerment.

The mainstreaming gender into all development divisions needs several phases (ECOSOC, 2012). It is started by, firstly, an assessment of the links between the current existing issues and gender equality to recognize the gender impacts of the existing programs such as poverty eradication, environment protection, health service and development, and other relevant Development's work. Accordingly, it is including knowledge about the importance of gender equality in securing social justice and human rights for men and women, also for completing and achieving of development's targets. Secondly, the moment for presenting the gender perspective within on going activities with the entry point can be extracted from analysis, research, development policies, data, statistic, training, workshop, conference, and the implementation work of project and programs. Thirdly, identification of a method or approach to successfully integrate a gender perspective into the development activities related to assisting influencing targets or goals, resources distribution, and its outcomes, and strategies for implementation. It can be carried out by increasing attention to gender issues and the gender equality goal that accommodates reference and job detail. The other requirements to promote gender mainstreaming are an

institutional development that including establishing guidelines, hiring and using gender experts, and preparing competence development for all staffs.

Post-disaster reconstruction consists of several stages. Da Silva and Ranasinghe (2010) for example explains that post-disaster reconstruction includes three main stages: planning, design, and construction. Gender mainstreaming strategies can be integrated into each stage (Figure 4.2).

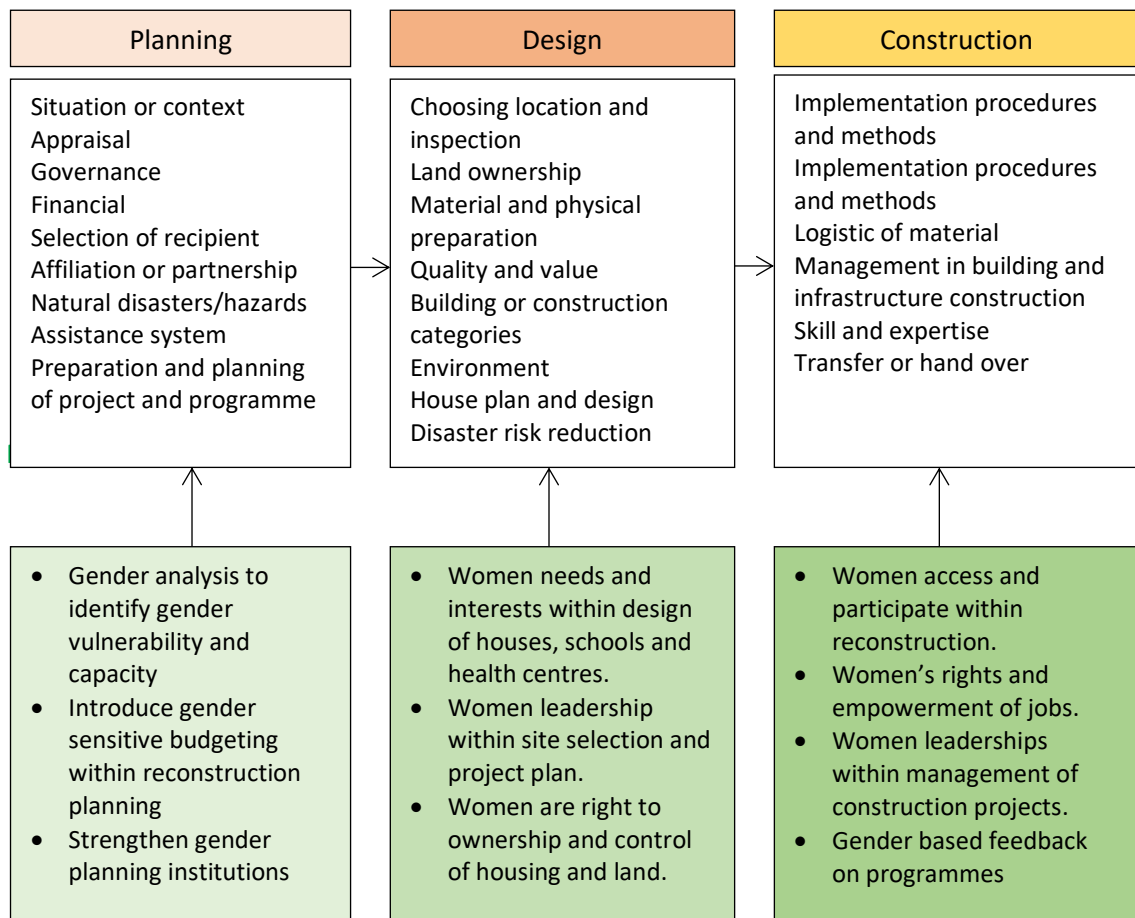


Figure 4.2 Gender mainstreaming strategies within post-disaster reconstruction stages (source: adapted from Da Silva and Ranasinghe, 2010)

Firstly, the planning stage consists of activities in an identification of the overarching issue that must be acknowledged before decisions making whether and how to participate in reconstruction; which must be controlled and amend during the reconstruction implementation. Crucial analysis in this stage is recognition of the disaster's context and its impact; acknowledgement of the district government structures; regulation and establishment of coordination methods; funding and timetable; selecting beneficiaries; building networks between stakeholders; identifying support means that is most appropriate; understanding

natural hazards that threaten in the future; and allocating resources (Da Silva and Ranasinghe, 2010). Further, Oxfam (2010) explain that the integration of gender mainstreaming strategies within planning stage includes the following activities: ensuring gender analysis within planning assessments, building objective on gender equality and women empowerment within planning and budgeting, awareness of gender vulnerabilities and concerns of different vulnerable groups of women (i.e. widows, girl children, and women with disabilities); and assess the different implications of planned programme for both women and men.

Design step deals with the reconstruction project design in detail based on the previous decision to build temporary shelters or permanent housing. The fundamental concerns related to this activity are including site selection; identification and resolve problems about land ownership; planning of physical settlement; identification of proper reconstruction quality; considering and integrating the strategy of disaster risk reduction; making design of the houses or shelters and other public buildings; planning the budget and breakdown it into detailed projects and activities (Da Silva and Ranasinghe, 2010). The integration of gender mainstreaming strategies within design stage include ensuring women needs and interests reflected within a design of houses, schools, and health centers; women leadership within site selection and project plan; and support women's right to ownership and control of economic assets such as housing and land.

Moreover, the construction stage explains the execution of the reconstruction programs. It includes the considerations of implementation methods, project management of the construction, specification, procurement, and distribution of the reconstruction's material, labor and skill management, distribution of the buildings or handover, and evaluation along with maintenance of the buildings after the projects are completed. The integration of gender mainstreaming strategies within construction stage include ensuring that women and men can access and to participate in reconstruction; work with men to secure their support for reconstruction activities that uphold women's rights and empowerment; involving women leaderships within management of construction projects; ensure accountability by establishing mechanisms that enable both female and male beneficiaries to give feedback on reconstruction programs. It is also important that this stage includes feedback on reconstruction program that particularly relates to gender issues.

In summary, post-disaster reconstruction process consists of some key considerations in which policy makers can include gender mainstreaming aspects within each process. It is critical to

including gender mainstreaming elements on each process to create a gender sensitive process of reconstruction. However, effective implementation of gender mainstreaming within post-disaster reconstruction also need to consider enabling/constraining conditions. Accordingly, the next section identifies and discusses the enabling/constraining conditions for effective gender mainstreaming into development.

4.5 Mainstreaming gender within post-disaster reconstruction: why it works and does not work?

Gender mainstreaming has the potential to contribute to the improved development of disaster affected regions. It can provide new opportunities for social sustainability by providing better chances for women and men to access and to participate in social development. It can mean to achieve economic sustainability by bringing equal opportunities for women and men in economic activities. It can mean to achieve environmental sustainability by bringing women and men needs, interests and experience to build environment. However, effective implementation of gender mainstreaming strategies should consider enabling/constraining conditions. This section reviews some studies on gender mainstreaming and development to identify those conditions.

Moser and Moser (2005) perhaps present the most comprehensive review of gender mainstreaming and development across developing countries in the last decade. On their review of gender mainstreaming and development practices conducted by international agencies (such as Hivos, DfID, Sida, Oxfam, World Bank, and UNDP), they elaborate two major conditions for effective gender mainstreaming for development in developing countries: (1) institutional input and (2) operational outcomes.

The institutional input means organizations and resources are supporting gender mainstreaming. These include a commitment to key actors, organization situation and culture, refusal and resistance, a mechanism for accountability, and gender training. Hence, gender mainstreaming success depends on key stakeholders' commitment along with their skill (Saito, 2014). NGOs in the developed countries such as the United Kingdom have better progress on gender related issues due to its gender specialists who work with them (Hudson, 2002). In some cases, even though all staffs have to respond to gender mainstreaming it can be overlooked and disappear because of little concern and commitment from the decision makers and also the resistance from male member, when at the same time specialised gender focal points are

pushed to the edge from activities on mainstreaming gender (Gaillard *et al.* 2015). Additionally, there is a link between organizational culture and program success on gender mainstreaming to achieve gender equality. For instance, a male biased culture within the organization that related to attitudes, working conditions, structures, recruitment, and procedures, likely to discriminate against women both staff and clients (Drolet *et al.* 2015; Gaillard *et al.* 2015; Shortall and Bock, 2015).

On the other hand, operational outcomes refer to how to ensure the ultimate goals of gender mainstreaming is achieved. These constraining conditions include lack of effective monitoring and evaluation system and women participation. The common problems within the operational stage include the lack of constant, effective, and organized monitoring and evaluation of the results and impacts of gender mainstreaming implementation. It leads to the difficulty in identifying the gender mainstreaming impacts on people live particularly on gender equality. As noted by United Nations (2001), it is important to link strategies to actual results. The important issue needs to be considered how to identify criteria for assessment with its indicators. Rather than concerning the impacts or outputs, assessment most likely focus on indicators of input like the number of women as beneficiaries, the female proportion of beneficiaries, and the number of genders mainstreaming activities (Mukhopadhyay, 2014).

Accordingly, the identification of gender indicators faces some issues and challenges. First, it needs same or uniform criteria which chosen by agreement and consensus. Second, it is hard to measure changes of status and transformation in power. Those challenges lead to a lengthy, costly and hard process in making impact assessment. Therefore, there is a significant issue related to the women participation, as noted by Ginige *et al.* (2014) that explaining about gender mainstreaming is not simply women participation, but more important is the situation and terms of the participation. Some present examples bias said it was participation, but it was more mobilization of women that are often avoiding benefit for women (Steans, 2013). Other evidence suggests that participation is often accommodated only some specific groups in the specific programs at local level created by the outside actors, usually donors. Grassroots women hold the very little power to influence the decision-making activities at a higher level within institutions.

In the contexts of post-disaster reconstruction, Yonder *et al.* (2005), Enarson and Chakrabarti (2009), and Drolet *et al.* (2015) studies identify some constraining conditions for integrating gender mainstreaming. Firstly, policy makers often ignore the principles of participation and

sustainability. Policy makers often fail to realize that post-disaster reconstruction is an intervention of development which must accommodate participation and sustainability. Short term post-disaster reconstruction reflects technical respond that increases the involvement of experts from outside to assist the affected communities in skills, knowledge, and priorities. Accordingly, such a standardized and top down policy and program from government tend to ignore the complexity of affected communities needs especially women need to rebuild their lives and well-being. Secondly, in term of participation within government, donor institutions, and international relief, there is often no apparent understanding about the form of women participation even though the urgency of women participation is widely recognized.

Thirdly, policy makers and implementers often fail to identify the gender-specific impact of the disaster. For example, increasing number of women household head and caregiving work following disasters lead to double burden among women in affected communities. Post disaster reconstruction often ignores these issues, while it targets focuses on male-headed households for receiving reconstruction program. Fourthly, a misconception is largely occurred by government and donors that women's groups are passive and based on traditional skills with low technology (Yonder et. al. 2005; Ginige *et al.* 2014; Drolet, 2015).

However, some studies also identify some enabling factors for effective gender mainstreaming within post-disaster reconstruction. Firstly, the reconstruction planning should be recognized women interests and make them as priority concerns (Yonder et. al. 2005; Ginige *et al.* 2014; Drolet, 2015). Based on those women different interest, planning must be able to address them and women concerns might be satisfied. Secondly, it is important to establish a strong framework of gender policy to integrate the gender objectives into sustainable post-disaster reconstruction (Yonder et. al. 2005; Drolet *et al.* 2015). Moreover, applying a proactive and also systematic approach to gender integration within all reconstruction process such as assessment, design, implementation, monitoring, and evaluation, will likely give positive outcomes and develop a better balance in addressing problems, needs, and priorities for all beneficiaries, both men and women. The method is used to design and implement a reconstruction program also influences the level of women contribution and participation in post-disaster reconstruction activities. Women and women should be completely involved and consulted in every phase of design and implementation to make sure that the works are addressing their needs and circumstances. Thus, a training of gender sensitive is often carried out as the first step or entry point for gaining understanding and acknowledgment of gender integration.

Thirdly, women participation and leadership are keys for success mainstreaming gender (Enarson and Chakrabarti 2009; McLeod, 2015). Hence, reconstruction program should create a conducive environment for women and men to participate in the program. For example, providing more opportunities for female leaders and female staffs to involve in the program. Not only that, encouragement from local leaders so that women can participate in decision making is needed. Educating gender mainstreaming for local leaders is needed so that they have knowledge and understanding of the importance of women participation and leadership in the reconstruction program.

Fourthly, the flexibility of reconstruction design which allows the reconstruction to adapt unique characteristics and lesson learn from the local community. For example, Yonder *et al.* (2005) found how reconstruction program should adapt to existing local taboos and customs in latrine construction and maintenance at Bangladesh. Last but not least, mainstreaming gender during reconstruction program need more time and more fund. Therefore, adequate funding for all staffs and volunteers, as well as time for implementing every step of gender mainstreaming, are vital (Khrisnaraj 1997; Yonder *et. al.* 2005; Drolet *et al.* 2015). Yonder *et al.* (2005) point out that gender mainstreaming is not only collecting gender-disaggregated data but most importantly how to increase women's participation through culturally-sensitive approaches.

Based on the preceding discussion, it is identified some enabling/constraining conditions for gender mainstreaming into post-disaster reconstruction. Effective gender mainstreaming strategies should recognize such conditions by creating and strengthening enabling conditions while minimizing constraining conditions. Since this research examines gender mainstreaming in Indonesia, the next section discusses gender and Indonesia national gender mainstreaming policy and its role in post-disaster reconstruction and development.

4.6 Indonesia national gender mainstreaming policy

Indonesia is among developing country, which adopts gender mainstreaming as a national policy. Indonesia is among 189 countries that ratified the conference's Platform of Action of the World Conference on Women, which urged the government to promote gender mainstreaming all policies and programs. The government of Indonesia was also committed to the United Nations Convention on the Political Rights of Women ratified by Law 68/1958 as well as implemented Law No. 7/1984 on eliminating gender discrimination and the Presidential Instruction No. 9/2000 on women participation in politics and development. These laws have instructed that all department and agencies in all levels have to promote and integrate gender

mainstreaming strategies within their planning, implementation, monitoring, and evaluation of development policies and programs.

Gender equality is also fundamental for the nation as it has been expressively stipulated in the national constitution called UUD 1945 in Article 27, with statement “all citizens have equal status before the law.” The government of Indonesia stated the importance role of women in national development through the concept of the *Panca Dharma* (five main roles) of women: supporting her husband’s career and duties, procreating for the nation, caring for and rearing the children, being a good housekeeper, and being a guardian of the community (Sunindyo, 1996). Some national symbols have been used within development policy discourse in the country to represent gender equality. The words of “*kodrat*” and “*martabat*” that mean natural talents and proclivities), *peran ganda* (women’s dual role), and *mitra sejajar* (harmonious gender partnership) are used by government to claim equal position between women and men in Indonesia’s development. Indonesia is also among countries which established specific ministry for delivering women empowerment and development.

The Ministry of Women Empowerment is responsible for managing gender mainstreaming strategies in the country. This ministry has responsibility for supporting the officials during policies formulation, to establish the coordination of policies implementation, to manage the public properties assets, to supervise the poverty eradication programs, to deliver advice and considerations about women empowerment in the country. This institution works together with other ministries and departments both at national and local government level to do their jobs. For example, in cooperation with the Ministry of Home Affairs, this ministry has established women’s bureaus both at the provincial and district government levels to establish a coordination system over the policies implementation, also monitoring and evaluation system over policies and programs. Currently, there are more than four hundred national and district government bureaus across the country. As consultation media in the district and provincial level also be established working groups on gender mainstreaming.

The gender mainstreaming program has been implemented throughout 33 provinces and 430 district governments since 2004. These programs include combating violence against women, increasing women participation in politics, family planning, and reproductive health, and gender based district development budget. From 2004, all provinces in Indonesia adopt women empowerment policies in the document of development planning. These are stepping stone to promote and to integrate gender mainstreaming into local development policies

4.6.1 Gender and post-disaster reconstruction policy

The integration of gender mainstreaming strategy within national disaster management policy in Indonesia has begun since 2007 following the Aceh Tsunami 2004. It realised that the Tsunami have impacts women severely. The National Disaster Management Agency or BNPB (2005) for example found that female death toll made up about 70-80% of all fatalities during the Aceh Tsunami. Further, they also found that reconstruction efforts in some Aceh districts increase women mortality and poverty. Statistics show that women mortality is double compared to men following reconstruction, while women poverty in Aceh Besar and North Aceh is about 40% higher than men (National Disaster Management Agency, 2009). Women lack housing, clean water, and sanitation, as well as foods and health services, are found in those areas. The economic loss of women is also significantly higher than men following reconstruction. Across regions in Aceh, the estimated total damages sustained by women because of the Tsunami were larger than men at about 456 million USD (National Disaster Management Agency, 2016). This situation brings awareness and concerns of the government as well as an International donor to address gender issues within reconstruction.

Accordingly, the gender mainstreaming strategy has been adopted within the national disaster management policy plan since 2007. In this policy plan, it is stated that gender mainstreaming strategies should be integrated into plans for post-disaster reconstruction within local government and national government, as well as in the short and longer development plans, also annual and strategic plans. In this way, gender mainstreaming strategies will not stand by themselves but will be mainstreamed across post-disaster reconstruction programs and activities. It is supposed that gender mainstreaming will assist the recognition of risk sensitivity development and community resilience. Furthermore, a particular approach will be adopted to promote the integration of this strategy within disaster management including disaster risk reduction programme that can be done through special programs for women and girls. Also, more concerns also are given to the poor people, minority groups, marginalized communities, and disabled people or those who have special needs, to reduce their vulnerability while it increases their resilience to disaster.

About reconstruction, the integration of gender mainstreaming within the national disaster management has four pillars. These pillars include (1) enhancement of rule and organizational capacity; (2) integrated post-disaster management planning; (3) training and education; and (4) competency or capacity building and society in the post-disaster reconstruction process. Table

4.1 presents programs and gender mainstreaming priority focus of each pillar within this post-disaster reconstruction policy in the country.

Table 4.1 Four pillars programme and gender mainstreaming focus within post-disaster reconstruction policies in Indonesia

Pillars	Gender mainstreaming focus
enhancement of rule and organizational capacity	<p>Establishment of operating procedures, local management or regulations, and strategies for gender mainstreaming that designate gender mainstreaming instrument or mechanism, focusing on the task, authority, and resources distribution along with its coordination.</p> <p>Formation and strengthening of gender mainstreaming institutions at local level and their several forms of facilities that support reconstruction programs.</p> <p>Capacity improvement of gender human resources in technical disaster management and availability of adequate volunteers</p> <p>Enhancement of universities or other higher education facilities to facilitate capacity building for gender mainstreaming within reconstruction programs</p> <p>Synchronization and Coordination of planning, decision making and implementation of gender mainstreaming at the ministries and agencies for reconstruction</p>
Integrated post-disaster management planning	<p>Formulation of gender mainstreaming plan across disaster affected region.</p> <p>Mainstreaming gender within reconstruction programs</p> <p>Building gender disaggregate data for planning across district governments.</p>
Education and training	<p>Capacity improvement of the gendered staffs for education of disaster</p> <p>Sharing of knowledge and cross-learning between areas and other regions and countries related to gender mainstreaming and reconstruction</p> <p>Education for public by distributing information about gender and disaster</p>
Capacity building and community	<p>Capacity building and improvement of women participation in reconstruction in national and district governments</p> <p>Enhancement of volunteers and stakeholders' participation for promoting gender across reconstruction areas</p> <p>Development of community based reconstruction programs</p> <p>Diversity of women income and social safety net for women in disaster prone regions</p> <p>Introducing and developing finance system for disaster (insurance for disaster) specifically for women</p> <p>Public facilities and infrastructure recovery along with housing reconstruction for women</p>

Source: The Ministry of Women Empowerment and National Disaster Management Agency, 2016

To achieve the goals all government offices which gain a main and relevant role in reconstruction should be involved. The main institution (i.e. the Ministry of Women Empowerment, the National Disaster Management Agency (BNPB), and *Bappenas* or the National Development Planning Agency) have the responsibility to coordinate with other relevant agencies which have a role in assisting the main institution in achieving the goals. The most crucial element in the gender mainstreaming implementation in national reconstruction policy and the programme is the agreement and participation of all government departments and agencies so that in the preparation of mainstreaming gender plan all agencies have a significant role. Accordingly, the next section discusses institutional framework for gender mainstreaming within post-disaster reconstruction in Indonesia.

4.6.2 Institutional framework of gender mainstreaming within post-disaster reconstruction

The institutional framework of gender mainstreaming within post-disaster reconstruction in Indonesia involves key institutions both at the national and district government level. Figure 4.3 shows organization structure of gender mainstreaming within disaster management in Indonesia. At the national level, the responsibility is under the Ministry of Women Empowerment and National Disaster Management Agency (BNPB) along with National Development Planning Agency. The main function of these national institutions is formulating national policy guide for mainstreaming gender across affected regions. Meanwhile, at district government, the responsibility is under the District Women Empowerment and District Disaster Management Agency (BPBD) along with District Development Planning Agency. These institutions have the main function to formulate and to implement local policies for promoting gender in their regions. Because integrating gender within reconstructions involves many departments related to reconstructions and built environments, in their works gendered institutions at national and district government cooperate with other departments such as the National and Local Reconstruction and Development Department.

Disaster management in Indonesia was very much influenced by the spirit of the decentralisation reform in the country which started in 1999. The reform preceded to some important changes within Indonesian governmental system, both administratively and politically. Under Local Autonomy Law No.22/1999, district governments have more substantial power and authority to manage their resources, problems, and issues. Also, the government was also established the National and Local Disaster Management Agency or called "*BNPB Pusat dan Daerah*" to response increasing natural disaster since Aceh Tsunami. The role of District BNPB is vital in the

decentralised Indonesia which has the main role in the formulation and managing disaster risk reduction. The district BNPB consists of collaboration among district stakeholders including district health agency, district search, and rescue unit, army and police, and NGOs.

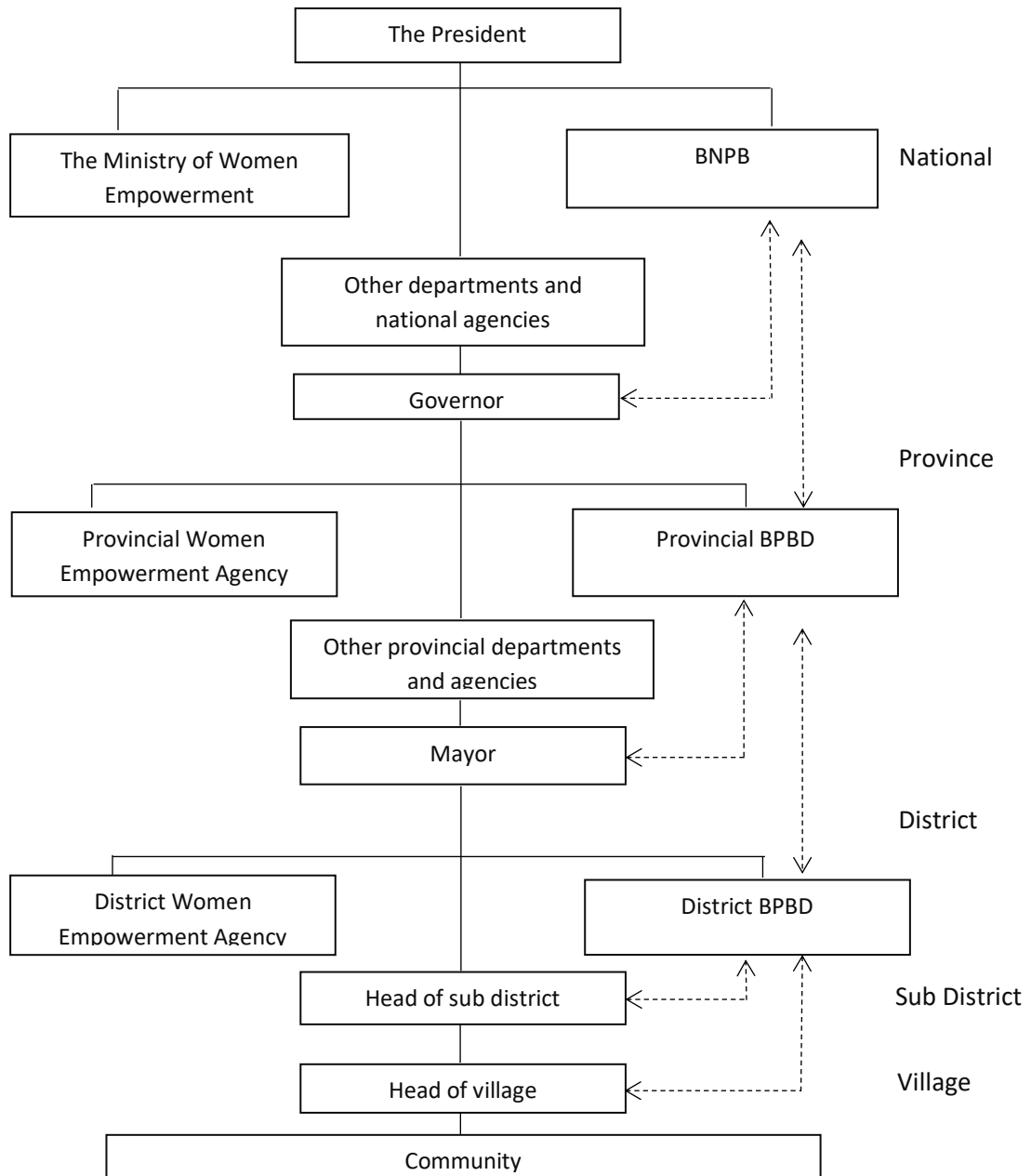


Figure 4.3 Structural organization of gender mainstreaming within disaster management in Indonesia

The set-up of this decentralised disaster management structure at all government levels ensures that district governments have responsibility and authority to implement disaster management policy that meets local needs and concerns, including gender policies within reconstruction

regions. Moreover, the implementation of disaster management will be more effective, comprehensive, directed and efficient due to the existence of disaster management institutions in both local and national level.

Because this research takes post-earthquake reconstruction as the contexts, the next section discusses the characteristics of post-earthquake reconstruction that may challenge for gender mainstreaming efforts.

4.7 Post-earthquake reconstruction as a unique condition for mainstreaming gender

Earthquakes are one of the most deadly natural disasters which accounted over 60% of the deaths affected by natural disasters between 2000 and 2015 (UNISDR, 2015). Among all the massive natural disasters in the last few years, earthquakes along with their damages have taken a large number of people live. In the range of 2000-2015 were about 75,287 people were died every year, stricken by earthquakes (EM-DAT, 2015). Particularly in 2010 and 2011 were the worst time for Haiti due to the devastating earthquake which hit the country. Furthermore, the Great East Japan Earthquake and the massive earthquake in Chile were also a reminder of the multifaceted crises that can be triggered by earthquakes (UNISDR, 2015).

Table 4.2 Top 10 causes of fatalities from natural disaster in Indonesia in the last 30 years.

No	Disaster type	Date	People killed
1	Earthquake (seismic activity)	25-12-2004	165,708
2	Earthquake (seismic activity)	27-05-2006	30,959
3	Earthquake (seismic activity)	12-12-1992	1,117
4	Earthquake (seismic activity)	20-09-2009	915
5	Earthquake (seismic activity)	28-03-2005	915
6	Earthquake (seismic activity)	17-07-2006	802
7	Epidemic	13-05-1998	777
8	Drought	09-1997	672
9	Epidemic	12-01-1998	672
10	Epidemic	01-01-2004	658

Source: EM-DAT, 2015.

Dowrick (2003) divides two effects of the earthquake on a human being: Firstly, physical consequences which consist of death and injury as well as damage to the built and natural environments. For example, in Indonesia the most hazardous disasters are earthquakes. Reports describe the top six out of the top ten causes of fatalities during the last 30 years; earthquakes are the major hazard which happens after 2004. In more detail, Table 4.2 demonstrates the

significant earthquakes number in Indonesia in recent 30 years. The number of death and injury resulted by the earthquake in Indonesia during the period is among the highest compared to other earthquake prone countries, such as Turkey, Japan, New Zealand, Fiji, Mexico, and Papua New Guinea (EM-DAT, 2015).

Secondly, the physical effects of earthquakes, in turn, are considered as to their social and economic consequences (Dowrick, 2003). These social and economic consequences of earthquake include damaged housing and public/ private infrastructures; epidemic diseases; trauma and bereavement; a high number of poor people and macroeconomic impacts. In Indonesia, for example, the earthquake's casualties are not only assessed from economic losses and fatalities, but also from a considerable amount of damage to residential or habitats. More than 120 thousand houses are needed after the Aceh earthquake in 2004 and the Nias earthquake in 2005 (BRR and International Partners, 2005). Also, the 6.3 SR earthquake that hit Yogyakarta and Central Java on 27 May 2006 damaged 157,000 public facilities, houses, and other infrastructures (Bappenas, 2006). Moreover, an earthquake also stroke Tasikmalaya (West Java) on 2 September 2009 had destroyed 65,700 public buildings and houses. The next earthquake hit Padang (West Sumatra) that happened on 30 September 2009 resulted in 114.483 houses severely damaged (Bappenas, 2011). On 25 October 2010, a remote island is called *Kepulauan Mentawai* also heavily damaged due to an earthquake with 7.7 Richter scale which triggered 3 meters tsunami and claimed 509 people and destroyed 879 public facilities, infrastructure, and houses.

Earthquake across regions in Indonesia also decrease social and economic conditions. For example, epidemic diseases such as diarrhoea and dengue occurred across districts after Aceh and North Sumatra earthquakes. The high incidence of diarrhoea and dengue in those areas lead to high infant mortality rate from 11% to 30% (The Ministry of Health, 2009). The earthquake also increases the number of unemployment in those regions, and these lead to increasing poverty. For example, poverty increased dramatically following Aceh and North Sumatra earthquake from 40% to 60% (Bappenas, 2009). The poverty rate in Yogyakarta also increased substantially from 20% to 40% (Bappenas, 2010). Such economic conditions affect severely to the economic growth of those regions. Because of the earthquake in Aceh and North Sumatra, the domestic growth product in those regions was dropped from 8% to 1% (Bappenas, 2009). Likewise, following Yogyakarta earthquake, the economic growth in this region decreased from 12% to just 4% (Bappenas, 2009). With these massive impacts of the earthquake on living

conditions and livelihood of human being across affected regions, post-disaster reconstruction within earthquake in Indonesia faces a huge challenge. The challenge is intensified by the fact that some of the region's most earthquake-prone zones are also areas of high population density – such as Yogyakarta, Central Java, West and North Sumatra. The result of large earthquakes in such areas were catastrophic, with terrible loss of human lives and staggering economic costs. This inherent weakness is magnified by low capacity of affected communities to response the earthquake. While having the potential to cause considerable devastation, earthquakes also stand out from other hazards in another way.

Accordingly, this research examines sustainability issues of post-earthquake reconstruction in Indonesia which is one of the critical challenges within current national and local development today. More specifically, this research addresses the role of gender mainstreaming strategies for sustainability of post-earthquake reconstruction in Indonesia. Accordingly, the next section discusses in more detail why studying gender mainstreaming is needed for enhancing the sustainability of post-earthquake reconstruction.

4.8 Knowledge gaps: the need of gender mainstreaming strategies for enhancing sustainability of post-disaster reconstruction

This research is under two main bodies of literature: gender and development studies and disaster management studies. Within disaster management studies, this research addresses issues of sustainability of post-disaster reconstruction. Within gender and development studies, this research focuses on the role of gender mainstreaming within sustainable development. Some literature tends to discuss the sustainability of post-disaster reconstruction and gender mainstreaming as two separate components (Moser and Moser, 2005; Enarson, 2014; Gaillard and Fordham, 2015). However, fundamentally, both issues are interrelated. Sustainability of post-disaster reconstruction is not achievable and finish unless gender mainstreaming is a fundamental aspect of it, and gender issues are not objected that can be discussed from disaster reconstruction (Yonder *et al.*, 2005; Drolet *et al.* 2015; Chanamoto and Hall, 2015).

The need for integrating gender mainstreaming within post-disaster reconstruction has been emphasized by many studies. Enarson and Chakrabarti (2009) on their review of disaster reconstruction across developing countries found evidence that gender mainstreaming is addressed marginally and often missing in this phase. The United Nations International Strategy for Disaster Reduction (UNISDR) in their policy review revealed that the majority of recovery and

reconstruction efforts in many affected countries still reflect traditional gender stereotypes and male bias (UNISDR, 2006). Smyth and Sweetman (2015) in their review of gender and resilience in several developing countries report that although women had less access to rescue and relief and faced much greater vulnerability, such a gender-aware and gender-sensitive approach often missing from the response of the administration. Drolet *et al.* (2015) further elaborate that exposure to environmental hazards and risk to catastrophic disasters are influenced by social structures particularly gender. However, planning for post natural disaster reconstruction predominantly focuses on the physical management of disasters and also primarily tends to be 'gender blind.' These situations result in women's needs and capacities being overlooked by men's needs and capacities. These situations not only put women under extra pressure but also limit their engagement within the post-disaster reconstruction process where their opinions and points of view are needed for achieving sustainable post-disaster reconstruction.

The interest in studies in gender mainstreaming within disaster management and built environment studies is relatively new (Thurairajah *et. al.*, 2010; Ginige *et al.*, 2010; Smyth and Sweetman, 2015). The concerns relating to the study of gender and disaster are largely contributed from sociology and development literature. These studies give a clear explanation and undeniable evidence that women are primarily victims of hazards and disasters (see among others Enarson and Chakrabarti, 2009; Aboobacker and Nakray, 2011; Gaillard *et al.* 2015). Despite the increasing concern of gender mainstreaming within disaster management, the relatively little research examines how this concept can be integrated into practice and theory of sustainable post-disaster reconstruction (Aboobacker and Nakray, 2011). Aboobacker and Nakray (2011) explain that while gender is widely recognized as an important consideration in development theory and practice, the integration of gender mainstreaming into thinking and practices into post-disaster reconstruction is just beginning. Gender and development scholars also have shown that acknowledgment of women's capacities and strengths in development policy are important to enhance the sustainability of development (Alston, 2014; Enarson, 2014; Bradshaw, 2015; Coles *et al.* 2015). However, few studies in post-disaster reconstruction explore how women's capacities and strengths should be integrated into policy decisions and all formal arrangements related to recovery and reconstruction. As Ariyabandu and Wicramasinghe (2009, p.9) state that:

“Gender differences in disaster have been discussed primarily in the context of vulnerability. Women’s abilities to mitigate hazards and prevent disasters and to cope with and recover from the effects of disaster have not sufficiently been taken into account or developed”.

Participation and partnership between women and men have been highlighted by gender and development scholars as one pillar of sustainable development. But, little is well-known about the methods of supporting and maintaining participation and partnership between women and men for a longer period in community post-disaster reconstruction (Yonder, 2005). Studies in this area are still underexplored and thus demand the exploration of how gender mainstreaming is linked to sustainable post-disaster reconstruction and how it could help policy makers to design better policies and frameworks for more sustainable post-disaster reconstruction.

From the above description, the need is evident for integrating gender mainstreaming in post-disaster reconstruction. Research concerning gender mainstreaming in post-disaster reconstruction has also become more relevant today for Indonesia as well as other developing countries which try to build an environment away from disaster prone areas that are safer and more sustainable. Hence, there is a need to undertake research addressing the question of how to integrate gender mainstreaming into sustainable post-disaster reconstruction. Therefore, this research aims to explore the ways of mainstreaming gender in post-disaster reconstruction to formulate policy relevant findings that integrate a gender mainstreaming perspective into the sustainable development agenda. The case of post-disaster reconstruction in earthquake areas in Indonesia is examined to explain why, how and to what extent gender mainstreaming should be integrated within post-disaster reconstruction policies and practices in positively contributing towards sustainable reconstruction and development agenda.

4.9 Summary of the chapter and links

This chapter reviews and synthesizes the existing literature on gender mainstreaming and sustainability of post-disaster reconstruction. Addressing gender mainstreaming within post-disaster reconstruction can provide window opportunity for sustainable development by addressing gender vulnerability and promoting gender capacity. Gender mainstreaming can provide new opportunities for social sustainability through better opportunities for women and men to access and to participate in social development. It can mean to achieve economic sustainability by bringing equal opportunities for women and men in economic activities. It can mean to achieve environmental sustainability by bringing women and men needs, interests and experience to build environment. However, experiences in many disaster reconstruction policies and practices illustrate that gender mainstreaming is addressed marginally and often missing in this phase. The majority of recovery and reconstruction efforts in many affected countries still reflect traditional gender stereotypes, male bias, predominantly focuses on the physical

management of disasters and also largely tends to be 'gender blind.' These situations result in women's needs and capacities being overlooked by men's needs and capacities. Hence, research concerning gender mainstreaming in post-disaster reconstruction has become important as many countries try to build an environment away from disaster prone areas that are safer and more sustainable.

Gender mainstreaming strategy has been promoted by international donors, governments and policy makers across developing countries as a part of sustainable development agenda. However, in Indonesia despite the government has adopted gender mainstreaming strategy within the national development, there are some key challenges associated with gender inequality and sustainability of post-disaster reconstruction; whether reconstruction is used to address gender inequality is in doubt. Therefore, it is wise to study the question of how and what ways gender mainstreaming could have addressed the above challenges. In particular, to what extent gender mainstreaming strategy would link to the sustainability of post-earthquake reconstruction. Thus, this research focuses on the contribution of gender mainstreaming on the sustainability of post-earthquake reconstruction in Indonesia.

The importance of gender mainstreaming into sustainable development has been widely accepted. Since post-earthquake reconstruction is a part of development in many affected countries, it can be therefore presumed that the integration of gender mainstreaming within post-earthquake reconstruction may benefit for converting disasters into development opportunities. Thus, this research has hypothesized that integration of gender mainstreaming strategy into post-earthquake reconstruction may have potential to improve the sustainability of post-disaster reconstruction. Thus, the main focus of the research, therefore, lies with the concept of 'sustainability' and 'gender mainstreaming,' where the research intends to study how the integration of gender mainstreaming strategy into post-earthquake reconstruction contributing to three dimensions of sustainability of reconstruction. Having established the literature review of the study, the next chapter discusses the research methodology selected for the research.

Chapter 5

Research method

5.1 Introduction

This chapter discusses research method applied in this study. Firstly, it discusses the establishment of research problems. An explanation of the research focus ensues, after which the framework of the research methodology is presented. This section discusses the research philosophy of the study, the research approach and its rationale, the data collection techniques, and the methods applied to enhance the reliability and credibility of the results. Finally, a summary of the chapter and links to the following chapter are described.

5.2. Establishment of the research problem

This research was based on a research problem rather than a research question. From the research problem, the research aim, research objectives, and research questions were defined (Brink and Wood, 1998). In this study, the research problem is the existence of knowledge gaps in the literature on gender development and post-disaster reconstruction as well as critical issues of gender vulnerability within post-earthquake reconstruction in developing countries, particularly Indonesia (see Chapter 1). The main motivation for the researcher's choice of research problem was its fit with her research area of interest.

5.2.1. The researcher's area of interest

As a person who herself has experienced earthquakes, born and living in a disaster-prone region in Indonesia, the researcher has observed the many critical issues faced by women and men in society before, during and after earthquakes. As a researcher who is building her career in the area of gender mainstreaming and development in developing countries, the researcher has a strong desire to look more deeply into the gender issue within post-disaster reconstruction. Moreover, for more than ten years, the researcher has been working at the Centre for Women's Studies at *Jenderal Soedirman* University in Indonesia, where the researcher specialization is gender mainstreaming and development. Therefore, the researcher aims to study the area that strongly linked to gender mainstreaming and sustainable development issues, particular strategies to mainstreaming gender into sustainable post-earthquake reconstruction. The

researcher has identified a research gap in the literature as well as gender development issues within post-earthquake reconstruction across developing countries and Indonesia.

Second, the researcher wishes the findings will provide benefits for Indonesia, as presented in Chapter 2 (Section 2.4). As discussed in Chapters 1 and 2, earthquakes are the most dangerous disasters in Indonesia, leading to massive casualties and economic loss. These enormous physical and economic tolls occur due to poor community and government disaster preparedness, for example, poor housing infrastructure design, lack of facilities for earthquake mitigation, and lack of awareness and skills that would enable the community to manage the danger of earthquakes. Post-disaster reconstruction in Indonesia, therefore, provides opportunities to re-design housing and public facilities as well as to educate communities regarding better community development and sustainable development. As pointed out by many disaster researchers and practitioners in Chapter 3, post-disaster reconstruction presents opportunities to enhance the sustainability of development of affected communities by providing economic, social, and environmental advantages to rebuild the communities. Nevertheless, to take advantage of all of the opportunities available during a period of post-disaster reconstruction, a gender-aware and gender-sensitive approach to all processes that are part of post-disaster reconstruction are needed. In many cases within the process of reconstruction, however, such an approach is missing. Increasing vulnerability of women across affected communities is apparent. Thus, there is an opportunity for the researcher, through her work at the Centre for Women's Studies, to contribute gender mainstreaming and development knowledge toward the achievement of sustainable post-disaster reconstruction in Indonesia.

Therefore, the integration of gender mainstreaming strategies into post-disaster reconstruction in earthquake regions in Indonesia is one of solutions that can be proposed to achieve sustainable post-disaster reconstruction. As a result, this study aims to provide policy-relevant findings with regard various strategies to mainstreaming gender to enhance sustainable post-earthquake reconstruction. It is expected that doing so can enhance sustainable post-disaster reconstruction within earthquake regions in Indonesia. Having established the research aim, the researcher's next step was to conduct a literature review.

5.2.2. Literature review

Wellington *et al.* (2005) explain the funneling approach to the literature review, according to which the researcher uses the literature review to narrow a broader scope of research into a more specific area. In this study, the researcher used the funneling approach to determine the

precise research topic. A pre-existing interest in the gender and disaster management area encouraged the researcher to examine various gender issues following disaster across developing countries and Indonesia (Chapter 2, section 2.3). Some potential research themes on the role of gender in disaster management were identified from the preliminary literature review. In Chapters 3 (Section 3.3), gender issues were identified in all stages of disaster management. Through a more extensive literature review, the researcher narrowed this broad area into the more specific topic of gender and post-disaster reconstruction. An extensive literature review led the researcher to conclude that an increase in women's vulnerability and the overlooking of women's capacities are the main gender issues within disaster reconstruction that threaten the achievement of sustainability in the post-disaster reconstruction (Chapter 3, Section 3.4).

Moreover, as the researcher comes from a gender mainstreaming and development background, she is interested in linking the sustainability of post-disaster reconstruction with gender mainstreaming. As a person with a strong passion for gender mainstreaming and development, this gave the researcher the initial inspiration to look further into the linkage of gender mainstreaming on the sustainability of post-disaster reconstruction. As the researcher had some experience in working on gender mainstreaming and development, the scope was narrowed from gender and post-disaster reconstruction to gender mainstreaming and sustainability in post-disaster reconstruction. Also, given that gender dimensions play a major part in determining the sustainability of post-disaster reconstruction, the researcher found it necessary to investigate gender mainstreaming strategies that are linked to the sustainability of post-disaster reconstruction. Moreover, because women constitute a particularly vulnerable group, their concerns and interests should be mainstreamed within post-disaster reconstruction; the researcher, therefore, chose women as the focus of the gender mainstreaming in this study.

The next step was finding research gaps in the literature of gender mainstreaming and sustainable development. Using selected journal articles, books and institutional reports (see Chapter 4, Section 4.8), three research gaps were identified. The first research gap was the need to mainstreaming gender to improve post-disaster reconstruction sustainability. Gender and disaster scholars suggest that gender mainstreaming can provide new opportunities for enhancing sustainable development pillars through better access for women and men to participate in development, bringing the same opportunities in economic activities, and considering their needs and experience in building their environment (Norris *et al.*, 2008).

Second, although the need for integrating gender mainstreaming into post-disaster reconstruction has been emphasized by scholars, actual post-disaster reconstruction in developing countries reveals that gender mainstreaming is addressed marginally and is often missing within post-disaster reconstruction. For example, in their review of gender and resilience in several developing countries, Smyth and Sweetman (2015) report that although women have less access to rescue and relief and face much greater vulnerability during reconstruction, gender sensitive approaches are not well addressed by government and policy makers. The third research gap identified echoes the work of Aboobacker and Nakray (2011), who highlight that though gender mainstreaming is vital within development practice, the integration of this concept in thinking and practice of reconstruction is relatively new. On the other hand, studies in gender and development areas have well documented that integrating women capacities in development policies and a program is needed to achieve sustainable development (see, for example, Alston, 2014; Bradshaw, 2015). However, little research in the area of post-earthquake reconstruction investigates what and how women capacities should be integrated into post-earthquake reconstruction process. The three knowledge gaps detailed above encouraged the researcher to identify the research problem, aim and objectives of the study.

5.2.3. Research problem

As explained, the researcher used the research problem as the main organizing principle to guide the analysis that underpins this study. The researcher started from critical humanitarian issues that arose following natural disasters in Southeast Asia which severely affect women life and their families. Bradshaw (2015) reported that across affected countries in this region, women were more vulnerable than men. Oxfam (2005) reported women death toll caused by the tsunami and earthquake in Indonesia made up 70-80% of total victims. A large number of poor women is another critical issue following natural disasters in Indonesia. Bappenas (2009) reported that women poverty increased substantially from 21% to 33% following the tsunami and earthquake in the country. Accordingly, post-earthquake reconstruction in affected communities in Indonesia is mainly purposed to tackle the increasing and widening of women's poverty. Hence, mainstreaming gender is vital to achieving the purpose.

Given the need to emphasize gender mainstreaming to achieve sustainable development in developing countries, the researcher found it essential to combine women's issues within the context of post-disaster reconstruction, gender mainstreaming and sustainable development.

First, scholars and international donors have emphasized the need for sustainable post-disaster reconstruction. Kennedy *et al.* (2008) posit that sustainable reconstruction is centered on the idea of 'building back better,' which implies the need to link humanitarian relief with longer-term disaster risk reduction efforts. Accordingly, Broadbent (2007) suggests that sustainable post-disaster reconstruction is an approach to develop affected communities so that reconstruction is not only fulfill the current need but most importantly contributes to their future needs. Hence, sustainability of post-disaster reconstruction is considered as one important step of affected communities to achieve sustainable development. On the other hand, scholars in the area of gender and development point out that gender mainstreaming is vital to improving sustainable post-disaster reconstruction (see, for example, Drolet *et al.*, 2015; Smyth and Sweetman, 2015). However, sustainable post-disaster reconstruction could be achieved when women and men needs, knowledge, and experience can be integrated within reconstruction policies. Thus, this study identified its research problem as follows: how sustainability of post-earthquake reconstruction can be enhanced through various strategies of gender mainstreaming. With the identification of this research problem, the study continues with a formulation of its research aim, objectives and research questions in the sections below.

5.2.4. Research aim, objectives and research questions

After the researcher identified the research problem, then formulated the research aim, which reflects a broad statement of desired research outcomes. This research aims to provide policy-relevant findings with regard various strategies of mainstreaming gender to enhance sustainable post-disaster reconstruction. Following the formulation of the aim, the researcher was able to define research objectives, which explain the intended research outcomes in a detailed manner, as well as research questions, which set the boundaries of and give direction to the study. Table 5.1 presents the research objectives, research questions and expected results of this study.

Table 5.1 Research objectives, research questions and expected results

Research objectives	Research questions	Expected results
To investigate types of gender vulnerabilities which may affect the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.	To what extent is gender vulnerabilities an issue in post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia?	Several types of gender vulnerabilities are recognised in current policies and practices related to post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
To investigate types of gender capacities which may contribute to the sustainability of post-	To what extent can gender capacity enhance sustainability in post-	Several types of gender capacities exist within current policies and practices related

earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.	earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia?	to post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
To elaborate various strategies of mainstreaming gender which is purposed to contribute to enhancing the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.	What are strategies for mainstreaming gender into sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia?	Various gender mainstreaming strategies have been introduced by the government to enhance sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
To identify various benefits of mainstreaming gender for achieving sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia	To what extent does mainstreaming gender benefit sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia?	There are many benefits of mainstreaming gender for sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
To identify various constraining and enabling factors gender mainstreaming strategies into sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.	Which factors constrain and enable the mainstreaming of gender in the context of sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia?	There exist several key constraining and enabling factors related to mainstreaming gender in the context of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.

Having explaining research aim, objectives and research questions of the research, the next section discuss the research focus of the research.

5.3 Research focus

This research is focused on issues of gender mainstreaming and sustainability of post-earthquake reconstruction Bantul and Sleman district Yogyakarta Province Indonesia. Thus, this research was restricted only for both affected districts. Hence, the unit of analysis of this study is mainstreaming gender into sustainable post-earthquake reconstruction in the affected districts. ECOSOC (1997) defines the terms of mainstreaming gender as:

“a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated”.

Since women are a group whose concern and interests remain to be mainstreamed within the context of post-earthquake reconstruction, this research chose women as the focus of gender

mainstreaming in this study. The next section further describes the research methodology framework used in this study.

5.4 Research methodology framework

Scholars have established different forms of methodological frameworks. The researcher has adopted the ‘research onion’ framework of Saunders *et al.* (2009) because it provides a comprehensive and clear guideline which explain research philosophy to analysis. Figure 5.1 illustrates the six layers of the research onion framework from research philosophies to research techniques and procedures.

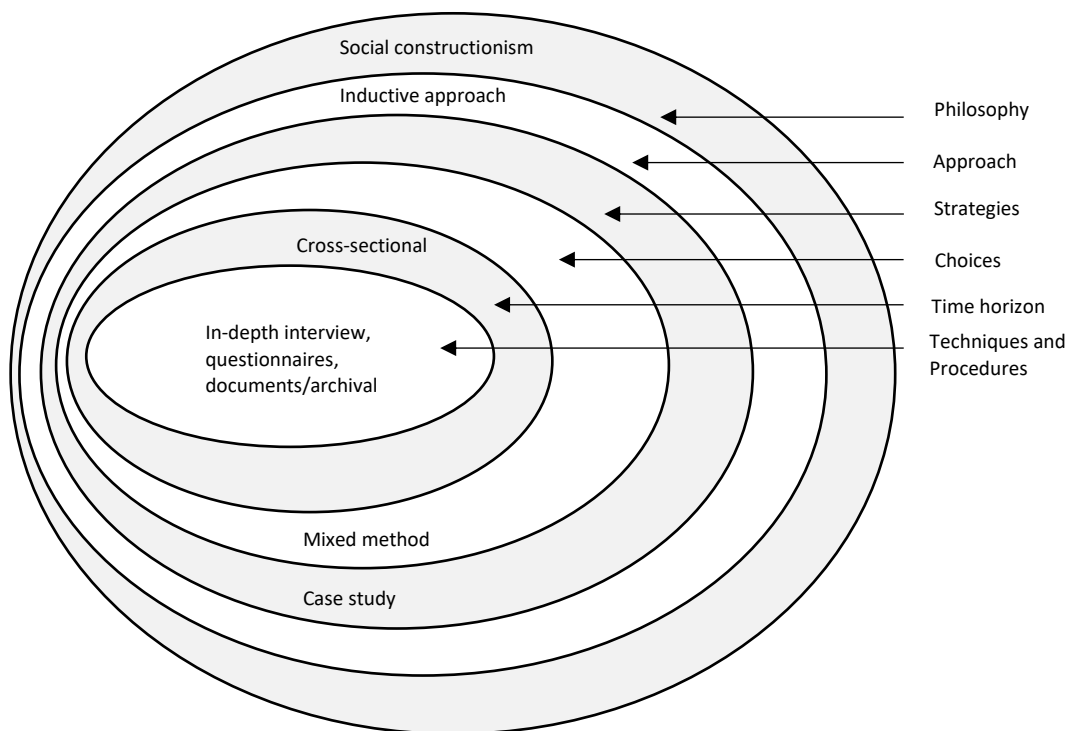


Figure 5.1. The research onion model (Source: Saunders *et al.*, 2009)

Saunders *et al.* (2009) explain that the layered structure of the framework shows that philosophy of research guides and links to research approach, research strategies, research choices to data collection and analysis. The next section elaborates this study’s research philosophy regarding the philosophy, approaches, strategies, and techniques used.

5.4.1 Research philosophy

Positivism and social constructionism are two opposing philosophical tradition recognised in science (Saunders *et al.*, 2009). Positivists argue that social phenomena should be measured

through objective methods, while social constructionists explain that social phenomena should be measured through subjective methods (Saunders *et al.*, 2009). Hence, this study is based on social constructionism as the researcher intends to explore and investigate how and why gender mainstreaming should be integrated within post-earthquake reconstruction. Figure 5.2 describes the research positioning within each of the two research philosophies.

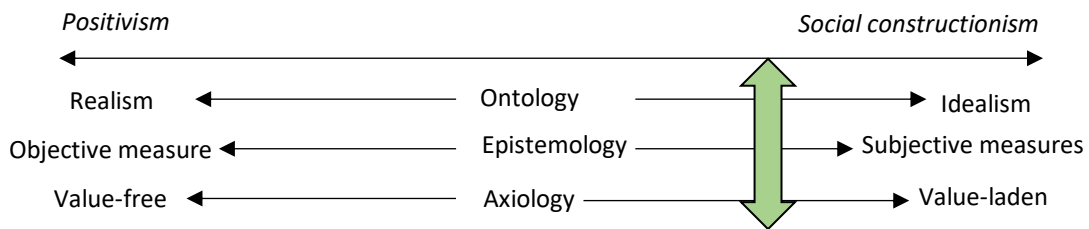


Figure 5.2 Research positioning between philosophies (Source: adapted from Saunders *et al.*, 2009)

The figure illustrates two opposing research philosophies, identifying their standpoints with regard to ontology, epistemology, and axiology. The stance of the present research is that of social constructionism, which relies on idealism and subjective measures and is value-laden, rather than on realism, objective measures and a value-free stance. The sub-sections below explain the position of this research within each philosophical concept.

5.4.1.1 Ontology

Social constructionism is concerned with the nature of reality; it, therefore, relies on idealism rather than realism (Saunders *et al.*, 2009). This research is positioned more in the direction of an idealistic stance as the conceptual meanings of gender mainstreaming, sustainable post-disaster reconstruction, and sustainable development may vary among individuals depending upon their views. Hence, this research is like most gender-based studies, which are highly subjective in nature (Fothergil, 1996).

5.4.1.2 Epistemology

Social constructionism uses subjective measures, which argue that the researcher is value-laden with inherent bias reflected by researcher's background (Hunt, 1993). This study emphasizes on how women and men make sense of post-earthquake reconstruction activities, especially through sharing their experience and knowledge through their language (Easterby-Smith *et al.*, 2008). Hence, this study focuses on subjective consciousness, which assumes that properties of

realities can be measured using subjective measures or the perceptions of research participants (Collis and Hussey, 2003). Based on this epistemological assumption, this research presupposes that women and men involved in post-disaster reconstruction programs have their views of how and to what extent reconstruction programs affect them.

5.4.1.3 Axiology

Social constructionism takes up a value-laden stance as its axiological undertaking. As such, the researcher's and research participants' values are strongly involved at the conclusion of this study. Also, most gender scholars believe that personal interaction with women in gender studies is of great importance to obtain insight into their perceptions and to understand the context of the phenomenon being discussed (Fothergil, 1996).

5.4.2 Research approach and strategy

Saunders *et al.* (2009) explain two types of research approaches: deductive and inductive. This research requires an inductive approach rather than a deductive approach. The general objectives of this research are to learn what has occurred in the process of promoting gender mainstreaming strategies within post-earthquake reconstruction in Bantul and Sleman district Yogyakarta province Indonesia. This research is not intended to test hypotheses. However, this research did not use inductive approach totally as in the initial stage of the research it used a deductive approach, particularly when developing the research problem, research questions, and conceptual framework. Accordingly, this research used case studies as the most appropriate research strategies that refer to research philosophical assumption used (Sexton, 2007).

Case studies can facilitate an understanding of research questions proposed in this study by emphasizing a detailed contextual analysis of how and why gender mainstreaming strategies works in enhancing sustainable post-earthquake reconstruction in earthquake-prone areas in particular areas of Indonesia. As Yin (2017) explains, if a research mainly focuses on a 'what' question (in this research, for example, what types of gender capacities which may affect the sustainability of post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia?) the researcher can use an exploratory case study as this type of question is a justifiable rationale for conducting an exploratory study. Further, Yin (2009) explains that case study is preferred research strategy when a researcher has little control the events and the researcher aim to garner an in-depth understanding of the events within its real life contexts. Thus, the selection of the case study in this research contributes to the investigation of the

process of mainstreaming gender into sustainable post-earthquake reconstruction in the real-life context at Bantul and Sleman district Yogyakarta Province Indonesia. Because this research examines a particular contemporary social phenomenon in which in-depth analysis of gender mainstreaming strategies and sustainable post-earthquake reconstruction on both affected districts, the case study approach proves to be the most suitable research strategy. The detailed case study design used in this study is presented in the next section.

5.4.3 Case study design

This research adopts the case study approach. Yin (2009) explains four designs of case study: single holistic case study, multiple holistic case study, single embedded case study, and multiple embedded case study. Further, Yin (2009) posits that multiple case design have more advantages than single case design. Thus, this research applied multiple-case study as it required breadth and depth analysis regarding how gender mainstreaming strategies integrated within sustainable post-earthquake reconstruction. The researcher selected the case of gender mainstreaming within post-earthquake reconstruction in two districts, Bantul and Sleman that represent two different social and political contexts as well as approach of reconstruction. In this research, a holistic approach focuses on the practice of and responses to gender mainstreaming in the conducting of post-disaster reconstruction. The approach looks at issues of gender and the position of gender in post-disaster reconstruction practice in both districts. Gender mainstreaming and reconstruction thus are perceived as a single unit of analysis that involves stakeholders such as policy makers, implementers, and beneficiaries.

After determining the research strategy, the researcher determined the steps to be taken using the strategy. Strauss (1987) details some useful steps in the case study approach. Case studies usually begin with data collection and analysis to build a theory or model using categorization. Data may include interviews and documents. The model emerges from the initial phase of the research and should present a clear sense of the 'theoretical elements and their connections with each other' (Strauss, 1987). In the last phase, the researcher carefully selects the data that can support the emerging concepts or theory. The next section deals with the process of theory building from case studies.

5.4.4 Theory building from case studies

This study contributes to the field by building some useful theories that apply to the mainstreaming of gender within post-disaster reconstruction activities. The present section

explains the steps that the researcher conducted to realize the research contribution. As explained in Section 5.4.2, this research did not adopt deductive approach overall. However, it also applied a deductive approach via an extensive literature review with the purpose of formulating a research problem, research questions and a conceptual framework. Subsequently, the research moved again toward the inductive approach using data collection before developing a final conceptual framework or theory. According to Eisenhardt (1989), the advantage of using a deductive approach in the initial definition of research questions in a case study is that it helps the researcher to create a well-defined research focus that then serves as a guide for collecting specific data systematically. Figure 5.3 illustrates the linkage between inductive and deductive approaches used in this study.

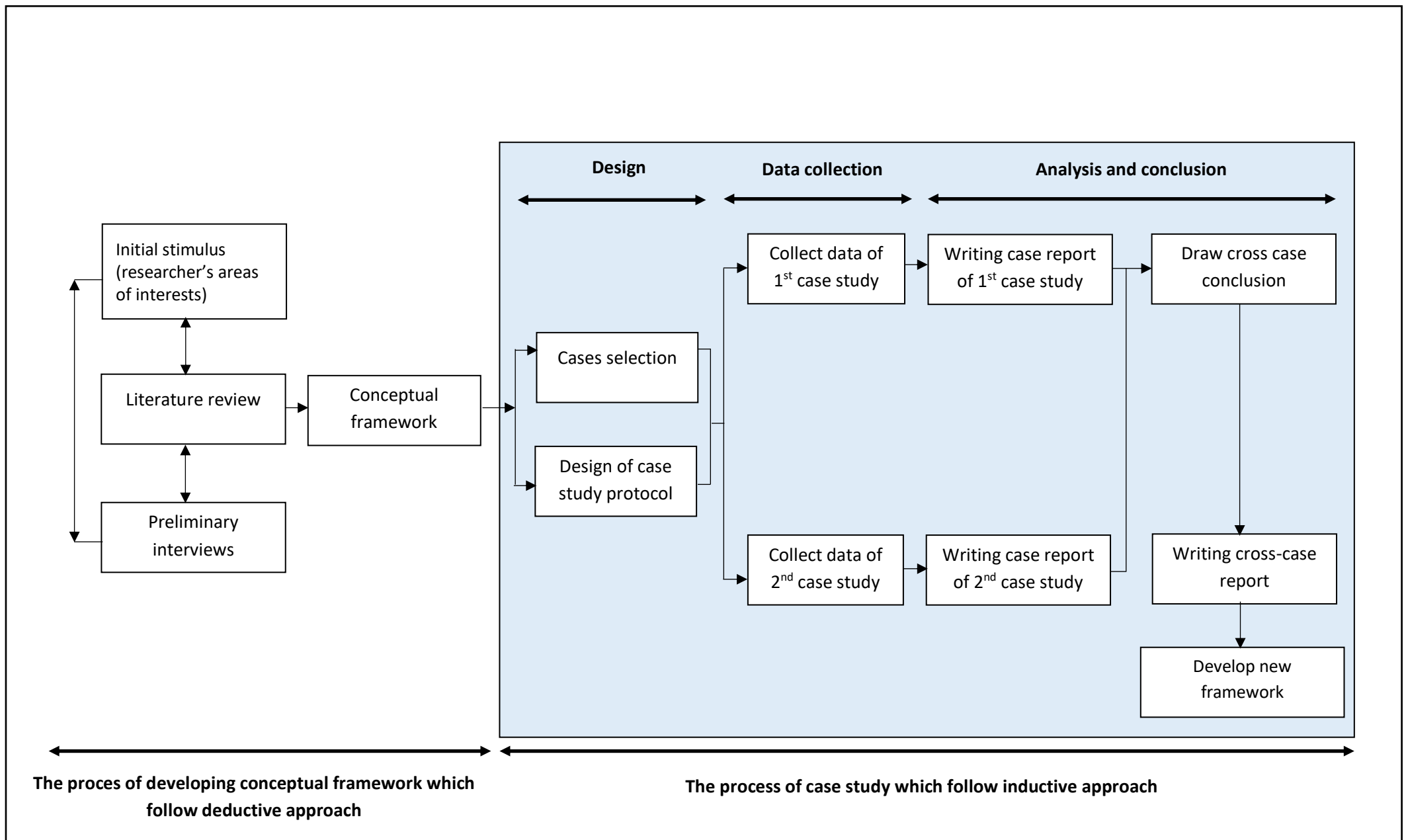


Figure 5.3 The linkage between inductive and deductive approaches in the research

The researcher developed a conceptual framework in the beginning phase which derived from literature review. The conceptual framework indicates how gender mainstreaming strategies contribute to sustainable post-disaster reconstruction. Subsequently, the multiple-case study was designed. Two district governments in Yogyakarta province were selected; the selection process is described in the next section. The data collection protocols were then conducted. The data collection was conducted in both cases using semi-structured interviews, documentation and questionnaire surveys. These process facilitated the researcher to develop the conceptual framework. Furthermore, expert interviews were conducted for data triangulation. Figure 5.4 describes the linkage of case studies, other supporting interviews and expected data from empirical evidence. As mentioned above, the next section describes the selection of case studies used in this research.

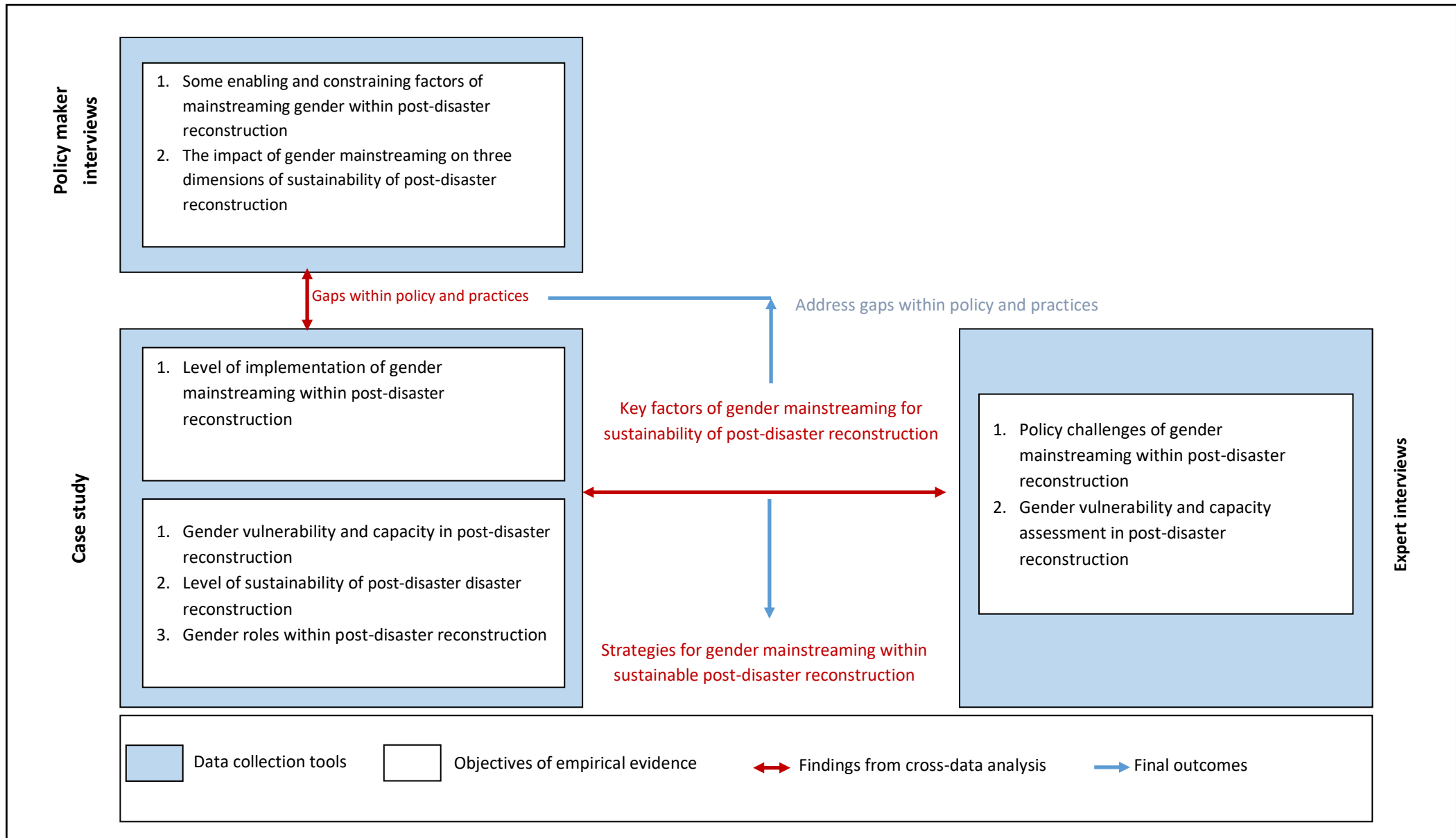


Figure 5.4. The linkage of case studies, other supporting interviews and expected data in this research

5.4.5 Selection of case study

Yin (2009) explains that selecting case studies is a major step in research because it involves building theory from the method. Hence, the researcher should select cases that can most suitably answer the research questions. In this research, the researcher applied theoretical sampling and purposive sampling rather than probabilistic sampling (Silverman, 2001). In other words, the researcher selected the case studies for practical and theoretical reasons. Practical reasons refer to the researcher's selection of cases that were of interest due to their inherent features or to processes of gender mainstreaming within post-earthquake reconstruction. The theoretical reasons for the researcher's selection of cases were their relevance and ability to answer the research questions.

After selecting the criteria for choosing the case studies, the researcher needed to identify the population of the study. According to Eisenhardt (1989), the selection of appropriate populations helps the researcher to determine the extent of the findings can be generalized. The literature review in this study highlighted various challenges of gender mainstreaming and of achieving sustainability in post-earthquake reconstruction in Indonesia. Thus, the study population of this research is post-earthquake reconstruction at sites in Indonesia. The case studies were selected from within this study population. Because this study aims to provide policy-relevant findings regarding gender mainstreaming strategies for sustainable post-disaster reconstruction, the first criteria for selecting a case is that case in which the process of mainstreaming gender is recognized as important but encounters challenges. Considering the specific context of post-earthquake reconstruction, gender mainstreaming practices, and timescales of implementation of post-disaster reconstruction, two cases of gender mainstreaming in post-earthquake reconstruction at two districts of Yogyakarta province, Indonesia were selected.

Firstly, the case of gender mainstreaming within post-disaster reconstruction in the district of Bantul (case study 1) and gender mainstreaming within post-earthquake reconstruction in the district of Sleman (case study 2) were made based on the purposive and theoretical sampling methods discussed above. Within both cases, three villages were selected for collecting data of beneficiaries. The villages were selected because of the substantial number of life loss and property fatalities. The key informants across three villages also faced different issues of reconstruction. Hence, other cases of post-earthquake reconstruction

within districts across Central Java were discarded due to the limited impact of the earthquakes and the resultant scale of reconstruction in those cases.

5.4.6 Research choices

After selecting the case studies, the researcher determined the research choices that would guide the methods of data collection and data analysis. In general, there are three research choices: qualitative, quantitative and mixed method. Collis and Hussey (2009) define qualitative research as focused on words to analyze the real world and attempting to describe people in natural terms. In contrast, quantitative research uses numbers to represent opinions or concepts. A mixed-method approach combines elements of both qualitative and quantitative methods.

In line with the research philosophical stance and the research objectives of this study, this research used the mixed methods approach. Haigh and Amaratunga (2010) point out that in construction management research, the researcher often prefers using mixed methods as they combine the strengths and limitations of both the quantitative and qualitative methods. Abowitz and Toole (2010) highlight additional advantages of using mixed method design, citing the potential for increased reliability and credibility of the research. The mixed method approach was also selected for this study as it allowed the researcher to implement appropriate methods for collecting and analysing data throughout the research process to achieve the objectives.

5.4.7 Time horizon

After deciding upon the research choices, the researcher determined the time horizon of the study by identifying the time frame of the study. Based on its time horizon, Saunders *et al.* (2009) divide research into two categories: cross-sectional and longitudinal studies. Cross-sectional design capture a certain phenomenon at only one point in time. In contrast, longitudinal designs capture a particular phenomenon over a period. This study investigated gender mainstreaming within post-earthquake reconstruction carried out at the same time by two district governments. Post-earthquake reconstruction was carried out after the 2006 Yogyakarta earthquake in both Bantul and Sleman. This study did not intend to study how gender vulnerability and gender capacity change over time in both places. Thus, the time

horizon of the research is cross-sectional. The next section presents the research techniques for data collection and data analysis in this study.

5.4.8 Research techniques

As discussed in the previous section, the mixed methods approach requires both qualitative and quantitative data. In this section, we discuss the research techniques used for data collection in this study.

5.4.8.1 Research techniques for data collection

Saunders *et al.* (2009) explain data collection techniques that often used from observation, document reviews, interviews, questionnaire surveys and review of audio-visual materials. In this study, the researcher used interviews, documentation, and questionnaires. In particular, this study involved interviews, documentation, and questionnaires on post-earthquake reconstruction from policy makers, implementers, beneficiaries, and experts in the field of gender and development as well as disaster management. These data were collected to exploring and investigating various gender vulnerabilities and capacities, benefits of mainstreaming gender, gender mainstreaming strategies, and key enabling/constraining factors of mainstreaming gender in the context of sustainable post-disaster reconstruction. The combination of research techniques used during data collection in this study was chosen to overcome the weaknesses inherent in any single data collection technique.

Yin (2009) posits that using multiple sources of evidence is of particular importance in conducting multiple case studies. Therefore, data triangulation technique with the use of multiple sources of evidence was applied in this research. Ghauri and Grønhaug (2005) explain that triangulation involves using a combination of data collection techniques to prove particular phenomenon within a study. By collecting data using different techniques, a more accurate conclusion can be reached. In this study, the researcher used interviews, documentations, and questionnaires to gather data regarding gender mainstreaming and sustainability of post-earthquake reconstruction in two districts in Indonesia. The next section explains each of the research techniques used in this study.

5.4.8.1.1 Interviews

Interviews are an essential source of data collection in case studies (Yin, 2009). Three types of interviews may be used: structured interviews, semi-structured interviews, and open-ended interviews (Easterby-Smith *et al.*, 2008). The research used semi-structured interview as it's the primary technique for collecting data of various gender vulnerabilities and capacities, benefits of mainstreaming gender, gender mainstreaming strategies, and key enabling/constraining factors of mainstreaming gender. The semi-structured interviews conducted with policy makers, implementers, and beneficiaries of post-earthquake reconstruction in Bantul and Sleman district Yogyakarta Province Indonesia. The characteristics of these semi-structured interviews are detailed in the following sections.

5.4.8.1.1.1 Interviews with policy makers

At this stage of the interview process, gender- and disaster management-related policy makers from Indonesia or working in Indonesia were interviewed. The policy makers consisted of state and non-state stakeholders such as NGO workers and international donors who were involved in post-earthquake reconstruction in Bantul and Sleman district. The policy makers' profiles are detailed in Table 5.2.

Table 5.2. Profiles of policy makers interviewed in Bantul and Sleman district

Interviewee	State organization	Role	Sex/age
Policy maker 1	District government development planning agency of Bantul	Director	A man 45 years
Policy maker 2	District government development planning agency of Bantul	Vice director	A woman 46 years
Policy maker 3	District government disaster management agency of Bantul	Director	A man 51 years
Policy maker 4	District government disaster management agency of Bantul	Vice director	A woman 46 years
Policy maker 5	District government Women's Empowerment Agency of Bantul	Director	A woman 54 years
Policy maker 6	District government Women's Empowerment Agency of Bantul	Vice director	A man 47 years
Policy maker 7	Java Reconstruction Fund	Director	A man 51 years
Policy maker 8	Java Reconstruction Fund	Vice director	A woman 46 years
Policy maker 9	District government development planning agency of Sleman	Director	A man 45 years
Policy maker 10	District government development planning agency of Sleman	Vice director	A woman 54 years
Policy maker 11	District government disaster management agency of Sleman	Director	A woman 51 years
Policy maker 12	District government disaster management agency of Sleman	Vice director	A woman 45 years

Policy maker 13	District government Women's Empowerment Agency of Sleman	Director	A woman 48 years
Policy maker 14	District government Women's Empowerment Agency of Sleman	Vice director	A man 45 years
Policy maker 15	Centre for Women's Empowerment, Gadjah Mada University	Director	A woman 55 years
Policy maker 16	Centre for Women's Empowerment, Gadjah Mada University	Vice director	A woman 41 years
Policy maker 17	Dome for the world	Project manager	A man 46 years

The interview guideline was prepared to collect information related to the general conditions of women and men policy makers during and after earthquake reconstruction at Bantul and Sleman district, the key informants' perception of the importance of gender mainstreaming strategy within reconstruction, its level of attainment within such policies, and influences of gender mainstreaming on the sustainability of post-disaster reconstruction. In semi-structured-style interviews, the discussions followed some general questions:

1. Question 1: What types of gender vulnerabilities and gender capacities were revealed during reconstruction?
2. Question 2: Why mainstreaming gender during post disaster reconstruction is importance?
3. Question 3: What strategies were used to mainstream gender into reconstruction?
4. Question 4: Do you think that gender mainstreaming can promote sustainability in post-disaster reconstruction?
5. Question 5: In what ways can gender mainstreaming promote sustainability in post-disaster reconstruction?
6. Question 6: What are enabling and constraining factors that may affect the mainstreaming of gender into sustainable post-disaster reconstruction?

The policy makers' interviews lasted for about 60-120 minutes. The next section discusses how the interviews with policy implementers were conducted in this study.

5.4.8.1.1.2 Interviews with policy implementers

Interviews were conducted with policy implementers who were responsible for implementing policies related to gender mainstreaming and disaster management at the district level. The policy implementers consisted of state and non-state stakeholders such as non-government organization workers and international donors involved in post-earthquake reconstruction in the country. The policy implementers' profiles are detailed in Table 5.3.

Table 5.3. Profiles of policy implementers interviewed at Bantul and Sleman district

Interviewee	State organization	Role	Sex/age
Implementer 1	District government women's empowerment agency of Bantul	Managing local women's empowerment programs	A woman 39 years
Implementer 2	District government women's empowerment agency of Bantul	Managing social security programs	A woman 45 years
Implementer 3	District government disaster management agency of Bantul	Managing local disaster risk reduction programs	A man 41 years
Implementer 4	District government disaster management agency of Bantul	Managing reconstruction and development programs	A man 41 years
Implementer 5	District government public works agency of Bantul	Managing local public infrastructure programs	A man 47 years
Implementer 6	Village head at Bantul	Managing reconstruction programs at village level	A woman 47 years
Implementer 7	Java Reconstruction Fund	Managing reconstruction programme at district government level	A man 31 years
Implementer 8	Java Reconstruction Fund	Managing reconstruction programme at district government level	A woman 34 years
Implementer 9	Java Reconstruction Fund	Facilitator of housing reconstruction programs	A woman 35 years
Implementer 10	Java Reconstruction Fund	Facilitator of economic productivity programs	A man 38 years
Implementer 11	District government women's empowerment agency of Sleman	Managing local women's empowerment programs	A woman 41 years
Implementer 12	District government women's empowerment agency of Sleman	Managing social security programs	A woman 33 years
Implementer 13	District government disaster management agency of Sleman	Managing local disaster risk reduction programs	A man 35 years
Implementer 14	District government disaster management agency of Sleman	Managing reconstruction and development programs	A man 34 years
Implementer 15	District government public works agency of Sleman	Managing local public infrastructure programs	A woman 45 years
Implementer 16	Village head at Sleman	Managing reconstruction programs at village level	A man 51 years
Implementer 17	Dome for the world	Housing construction field manager	A man 46 years

The interview guideline was prepared to capture the general conditions of women and men implementers during and after earthquake reconstruction, the process of gender mainstreaming, some policy implementation challenges, and the impacts of addressing and not addressing gender needs and concerns within post-earthquake reconstruction at the

district government level. In semi-structured-style interviews, the discussions followed some general questions:

1. Question 1: What types of gender vulnerabilities and capacities were revealed during reconstruction?
2. Question 2: Why mainstreaming gender during post disaster reconstruction is importance?
3. Question 3: What strategies were used to mainstream gender into reconstruction?
4. Question 4: Do you think that gender mainstreaming can promote sustainability in post-disaster reconstruction?
5. Question 5: In what ways can gender mainstreaming promote sustainability in post-disaster reconstruction?
6. Question 6: What are enabling and constraining factors that may affect the mainstreaming of gender into sustainable post-disaster reconstruction?

The policy implementers' interviews lasted for about 60-120 minutes. The next section discusses how the interviews with beneficiaries were conducted.

5.4.8.1.1.3 Interviews with beneficiaries

Interviews were conducted with beneficiaries who participate in the reconstruction program such as housing reconstruction, safe water and sanitation, cheap money credit for small scale enterprises, and small business training. The details pertaining to these beneficiaries are given in Table 5.4.

Table 5.4. Profiles of beneficiaries interviewed at Bantul and Sleman district

Bantul interviewee	Gender		Role
	Woman	Man	
Beneficiary 1	X		House, safe water and sanitation beneficiary
Beneficiary 2	X		House, safe water and sanitation beneficiary
Beneficiary 3	X		House, safe water and sanitation beneficiary
Beneficiary 4	X		House, safe water and sanitation beneficiary
Beneficiary 5	X		House, safe water and sanitation beneficiary
Beneficiary 6	X		House, safe water and sanitation beneficiary
Beneficiary 7	X		Business training and small scale credit beneficiary
Beneficiary 8	X		Business training and small scale credit beneficiary
Beneficiary 9	X		Business training and small scale credit beneficiary
Beneficiary 10	X		House, safe water and sanitation beneficiary
Beneficiary 11		X	House, safe water and sanitation beneficiary
Beneficiary 12		X	House, safe water and sanitation beneficiary
Beneficiary 13		X	Business training and small scale credit beneficiary

Beneficiary 14 Sleman interviewee	Gender		Role
	X		
	Woman	Man	
Beneficiary 15	X		House, safe water and sanitation beneficiary
Beneficiary 16	X		House, safe water and sanitation beneficiary
Beneficiary 17	X		House, safe water and sanitation beneficiary
Beneficiary 18	X		House, safe water and sanitation beneficiary
Beneficiary 19	X		House, safe water and sanitation beneficiary
Beneficiary 20	X		Business training and small scale credit beneficiary
Beneficiary 21	X		Business training and small scale credit beneficiary
Beneficiary 22	X		Business training and small scale credit beneficiary
Beneficiary 23		X	House, safe water and sanitation beneficiary
Beneficiary 24		X	House, safe water and sanitation beneficiary
Beneficiary 25		X	Business training and small scale credit beneficiary
Beneficiary 26		X	Business training and small scale credit beneficiary

The interview guideline for beneficiaries was prepared to capture information regarding the condition of women and men during and after earthquake reconstruction, how gender issues were addressed during reconstruction and the impacts of addressing and not addressing gender issues on the sustainability of reconstruction. In semi-structured-style interviews, the discussions followed some general questions:

1. Question 1: What were the conditions of women and men during and after earthquake reconstruction?
2. Question 2: To what extent did reconstruction programs satisfy the needs and concerns of women and men in this village?
3. Question 3: How were gender needs and concerns addressed and not addressed during reconstruction in this village?
4. Question 4: Why were gender issues successfully or unsuccessfully addressed during reconstruction programs in this village?
5. Question 5: What were the positive and negative impacts of addressing gender issues on the sustainability of reconstruction in this village?

The beneficiaries' interviews lasted for about 45-75 minutes. The next section explains how interviews with experts were conducted.

5.4.8.1.1.4 Interviews with experts

Interviews with eight experts were also conducted in Indonesia. The experts were selected based on their expertise in the disciplines of gender and development as well as disaster

management. The experts came from universities and centres for women’s studies in Indonesia; their profiles are detailed in Table 5.5.

Table 5.5. Profiles of experts interviewed

Expert	Organization	Expertise	Sex/Age
Expert 1	Centre for Women’s Studies, University of Gadjah Mada	Gender and development	A women 42 years
Expert 2	Centre for Women’s Studies, University of Gadjah Mada	Gender and development	A women 32 years
Expert 3	Centre for Disaster Management Policy, University of Gadjah Mada	Disaster management and development	A women 41 years
Expert 4	Centre for Disaster Management Policy, University of Gadjah Mada	Disaster management and development	A men 51 years
Expert 5	Centre for Women’s Studies, University of Jenderal Soedirman	Gender and development	A men 41 years
Expert 6	Centre for Women’s Studies, University of Jenderal Soedirman	Gender and development	A women 51 years
Expert 7	Centre for Disaster Management Policy, University of Jenderal Soedirman	Disaster management and development	A women 48 years
Expert 8	Centre for Disaster Management Policy, University of Jenderal Soedirman	Disaster management and development	A women 41 years

The same procedure detailed above was conducted. The interview guideline was prepared with the aim of capturing the informants’ insights of various issues regarding gender vulnerabilities and capacities, benefits of mainstreaming gender, gender mainstreaming strategies, and key enabling/constraining factors of mainstreaming gender for achieving sustainability in reconstruction in both cases. The semi-structured interviews of this study having been discussed, the next section explains the questionnaire survey as another technique for collecting data in this research.

5.4.8.1.2 Questionnaires

Questionnaire surveys have conducted this research as part of the case study and as a supplementary technique to the semi-structured interviews. Two types of questionnaire surveys were used in this study. Firstly, the questionnaire survey for policy makers and implementers consisted of questions intended to investigate the benefits of gender mainstreaming and to reveal some factors that hindered and enabled gender mainstreaming

in the context of post-disaster reconstruction. Secondly, the questionnaire survey for beneficiaries was used to investigate gender vulnerabilities and capacities during post-earthquake reconstruction as well as the impact of addressing gender needs and concerns on the social, economic and environmental dimension of reconstruction sustainability in both Bantul and Sleman district. Three different types of Likert scales were used to capture the opinion and behavioral determinants in this study. Throughout the analysis of the questionnaires, different values were assigned to each scale as presented in Table 5.6.

Table 5.6. Likert scales used within questionnaires and values assigned

Level of importance	Level of presence	Level of benefits	Values assigned
Very important	Present to a great extent	Very important	5
Important	Present	Important	4
Moderately important	Somewhat present	Moderately important	3
Of little importance	Present to a very small extent	Of little importance	2
Unimportant	Not present at all	Unimportant	1
No opinion	No opinion	No opinion	

Table 5.7. The description of respondents

Case study	Respondents	Number of questionnaires sent	Number of questionnaires received	Response rate
Bantul earthquake reconstruction	Beneficiaries	300	100 (55 women, 45 men)	33%
Sleman earthquake reconstruction	Beneficiaries	100	50 (30 women, 20 men)	50%
Bantul earthquake reconstruction	Policy makers and implementers	25	25 (13 women, 12 men)	100%
Sleman earthquake reconstruction	Policy makers and implementers	25	25 (12 women, 13 men)	100%

The questionnaire surveys in this study were not purposed for generalizing the findings; rather, they were conducted principally as a triangulation technique within the case studies. Thus, the targeted respondents for the questionnaire surveys in this study were stakeholders in post-earthquake reconstruction in Bantul and Sleman and beneficiaries of the reconstruction in both regencies. Fifty (50) completed questionnaires for policy makers, and implementers were returned within the two case studies with 25 per case, while 150 completed questionnaires for beneficiaries were returned within two case studies, with 50 for the Sleman reconstruction case and 100 for the Bantul reconstruction case. The details of the questionnaire respondents have presented in Table 5.7. The number of women and men

who returned questionnaires were relatively balanced. The questionnaires were pre-tested before being distributed to respondents to ensure logic of questions flow and respondents understanding of all the questions (Remenyi *et al.*, 1998). The questionnaires for policy makers/implementers and beneficiaries were tested in both locations before being distributed. The next section states how documents and archival records were conducted in this study.

5.4.8.1.3 Documents and archival records

Documents and archival records were used to help augment evidence collected from the interviews and questionnaires. In this research, the documents were collected from the community-based reconstruction project offices, the government bodies, and international donors (i.e. the World Bank and the United Nations Development Reports). Archival records mainly provide evidence in the form of traditional and historical stories of communities, statistical data, maps, and charts from the relevant agencies. These data sources are important for gaining a complete understanding of the chronological and historical aspects of the study. A list of the documents and archival records gathered for this study is presented in Table 5.8.

Table 5.8. List of documents collected in this study

Documents	Sources
Gender policy documents	
- Indonesian gender policy archives	- Indonesian Ministry of Women's Empowerment, Jakarta
- Bantul gender policy archives	- Bantul and Sleman District government offices
- Sleman gender policy archives	- BPBD (Local Agency for Disaster Management)
Post-disaster reconstruction policy documents	
- Indonesian post-disaster reconstruction policy archives	- Indonesian National Development Planning, Jakarta
- Bantul post-disaster reconstruction policy archives	- BPBD (Local Agency for Disaster Management)
- Sleman post-disaster reconstruction policy archives	- Bantul and Sleman District government offices
Gender-specific data related to post-disaster reconstruction	
• Environmental dimension of sustainable post-disaster reconstruction	- Indonesian National Planning, Jakarta
- Current condition of public infrastructure such as road, irrigation, water and sanitation within affected areas	- Gender Studies Centre, Yogyakarta
	- Local Women's Agency, Bantul and Sleman

- Current condition of housing within affected areas
 - Current condition of vulnerable areas and environment within affected areas
 - Economic dimension of sustainable post-disaster reconstruction
 - Current condition of poverty in affected areas
 - Current condition of economic activities in affected areas
 - Current condition of employment in affected areas
 - Social dimension of sustainable post-disaster reconstruction
 - Current condition of women’s and men’s participation in community activities
 - Current condition of education, health and access to education and health service within affected areas
- BPBD (Local Agency of Disaster Management) of Bantul and Sleman
 - District government Planning Agency, Bantul and Sleman

 - BPBD (Local Agency of Disaster Management) of Bantul and Sleman
 - District government Planning Agency, Bantul and Sleman
-

Having discussed all the research techniques used, the next sub-section attempts to identify the data collection techniques used alongside relevant research objectives of this research.

5.4.9 Research techniques for data analysis

The purpose of this section is to identify the research objectives alongside the ways in which they were achieved through the various research techniques used in this research. Table 5.9 elaborates the linkage between research objectives and data collection techniques used in this research.

Table 5.9. Research objectives and data collection techniques used in this study

Research objectives	Data collection used						
	Documents and archival records	Policy makers	Implementers	Beneficiaries	Case study	Semi-structured interviews	Expert semi-structured interview
To investigate types of gender vulnerabilities which may affect the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia	x	x	x	x	x	x	x
To investigate types of gender capacities which may contribute to the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.	x	x	x	x	x	x	x
To elaborate various strategies of mainstreaming gender which is purposed to contribute to achieving sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia	x	x	x	x	x	x	x
To identify benefits of gender mainstreaming strategies for achieving sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.	x	x	x	x	x	x	x
To identify constraining and enabling factors for achieving gender mainstreaming strategies into sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.	x	x	x	x	x	x	x

With the data collection techniques of this research having been discussed, the next section discuss techniques for analysing data used. This study applied qualitative and quantitative

data analysis as its broader data collection strategies. For qualitative analysis, the researcher used content analysis and cognitive mapping, while descriptive statistics analysis was used to analysis quantitative data from the questionnaire surveys. These three techniques are elaborated in the next section.

5.4.9.1 Content analysis

The researcher used qualitative content analysis for analysing semi structured interview (Schreier, 2012). This analysis was suitable as this research explores respondents' views about various issues of gender vulnerabilities and capacities, benefits of mainstreaming gender, gender mainstreaming strategies, and key constraining/enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction. This requires in-depth inquiry about respondents' attitudes and opinions about issues around gender mainstreaming and the sustainability of post-disaster reconstruction. Schreier (2012) explains that content analysis can be time-consuming due to the length of interviews. Hence, the researcher used *NVivo* computer software to help with the analysis of the interview data.

5.4.9.2 Cognitive mapping

Ackermann *et al.* (1992) explain that cognitive mapping helps researchers to structure complex qualitative data according to themes or topics that relate to the research objectives. In this research, cognitive mapping was used to display and to identify the interlinked issues and factors around gender mainstreaming and sustainable post-earthquake reconstruction in Bantul and Sleman district. The researcher used *NVivo* to facilitate the cognitive mapping process. The next sub-section explains how the researcher used *NVivo* for mapping the themes that resulted from the semi-structured interviews.

5.4.9.3 Data analysis using NVivo

The first step in this part of the data analysis process was transcribing the voice data recorded from the interviews into text format using Microsoft office documents. The transcript documents were transferred to the *NVivo* software. Next, the researcher proceeded to thoroughly examine the documents to identify the main themes related to the research objectives. *NVivo* used the term 'node' to identify each theme. The researcher used key words from the conceptual framework, research questions, data from interviews and the researcher's experience. In identifying nodes, the researcher applied both inductive and deductive methods. This analysis was conducted continuously until no new themes remained

to be identified. After the researcher had identified several tree nodes, she identified the relationship among the nodes. This procedure was conducted through cognitive mapping technique using *NVivo*. The last step was to map the different relationships among the nodes and themes of this study. Using *NVivo*, the researcher determined whether each relationship was causal or hierarchical. After finishing this process, the researcher then did an analysis of the survey. The next section presents how questionnaires survey were analyzed in this research.

5.4.9.4 Analysis of questionnaire surveys

Surveys were used as supplements to the interviews within both case studies. The survey was analyzed into three main findings: firstly, benefits of gender mainstreaming for sustainability in post-disaster reconstruction, secondly, gender vulnerability and capacity assessment, and thirdly, key enabling/constraining factors of mainstreaming gender into sustainable post-earthquake reconstruction. Likert scales were used to measure respondents answer. The survey data were analyzed using Stata software, Version 11.2. The researcher ensured that the data were entered with high accuracy (100%). The cleaning of the data was conducted by checking the existing outliers and missing data. The researcher checked thoroughly to ensure that any outliers and missing data were due to missing responses rather than to data entry errors.

The final datasets were then analyzed using descriptive statistics techniques and inferential statistics. First, the researcher used mean values of the questionnaire data to measure various indicators of gender vulnerability and capacity, enabling and constraining factors for mainstreaming gender and three pillars of sustainability of post-earthquake reconstruction. Secondly, the two-tailed *t-test* was used to examine whether some factors within types of gender vulnerability and capacity are categorized as very important factors than others. This research used mean ≥ 4.00 to determine certain factors are more important than others. The research used the mean equal and higher to 4.00 as the number indicated "important and very important" based on respondents' perception. The similar mean value was also used in the previous research (among others, Ophiyandri et al., 2013, Ismail et al., 2014, Nguyen and Chileshe, 2015). With each of this study's methods of data analysis having been discussed, the next section describes how the researcher established the quality of research.

5.4.10 Establishing the quality of research

Yin (2009) suggests the needs to enhance validity and reliability of case study design. Firstly, construct validity concerned with founding accurate operational measures of concepts and constructs being examined (Yin, 2009). Essentially, this entails ensuring that the data collection techniques and tools were correctly selected for the research. This study achieves this validity through using multiple sources of evidence to explain the same phenomenon. This research applied different techniques for collecting data, including interviews and questionnaires from various stakeholders. Secondly, internal validity can be achieved by confirming that the data analysis techniques were used correctly during analysis (Yin, 2009). This research attained internal validity through a cautious choice of research design, approach, and techniques. Moreover, it also used a conceptual framework and research question which are used to determine the focus of the study. Each of these processes facilitated the appropriate ways for data collection, data analysis, and conclusions. Thirdly, external validity means to what extent to which the findings of the research can be generalized in the broader contexts. Yin (2009) points out that case studies achieve external validity using replication logic. As a case study, then, the present research relied on analytical generalization, not on statistical generalization. Hence, the findings of this study can only be generalized to cases which have the same contexts. Lastly, reliability refers to the extent to which the data collection procedures used in this study can be repeated (Yin, 2009). A case study protocol was used to explain every step of data collection process in this research.

5.5 Summary of the chapter and links

This chapter presented and justified research method applied in this research. It started from deriving research aim, objectives and questions. Then it discussed research methodological framework to address research questions of this study. This research used a social constructionist view with regard to its philosophical assumptions. It used a multiple case studies as the primary research approach. Semi-structured interviews, documentation, and questionnaire surveys were used to collect data within the two selected case studies. It used content analysis, cognitive mapping and descriptive statistics for analysing data. The next chapter presents the conceptual framework used in this study.

Chapter 6

Research framework

6.1 Introduction

Chapter 5 presented the methodological process underlying this study. Chapter 6 presents how the conceptual framework was developed for this study. This chapter begins by offering several reasons for proposing a conceptual framework for this research, followed by a description of the key issues to be addressed in the framework. The final section explains the development of the framework for this study.

6.2 The need for a conceptual framework

The development of a conceptual framework for this study was essential at least for two reasons. Firstly, the conceptual framework illustrates the study's central concepts, the relationships among them, and the study's boundaries within each concept. Secondly, it provides a tentative theory of the phenomenon being investigated which will be developed through data collection and data analysis.

6.3 Key issues

Several key areas of the research identified from the literature review was used to develop the conceptual framework. These key areas include the prominence roles of post-disaster reconstruction, the concept of sustainable development and sustainable post-disaster reconstruction, the significance of gender mainstreaming in achieving sustainable post-disaster reconstruction, and the need for strategies to mainstream gender in the endeavour to achieve sustainable post-disaster reconstruction.

The prominence role of post-disaster reconstruction as a window of opportunity for sustainable development was explained in Chapter 3 (Section 3.4.1). The linkage between the concept of sustainable development and sustainable post-disaster reconstruction was also elaborated in Chapter 3 (Sections 3.4.2 through 3.4.4). The significance of gender mainstreaming to achieve sustainable post-disaster reconstruction as well as the need for

strategies to mainstream gender for sustainable post-disaster reconstruction was described in Chapter 4.

6.3.1 The prominence roles of post-disaster reconstruction

The literature review in Chapter 3 (Section 3.4.1) identifies post-disaster reconstruction as one of the stages within a disaster management. The term 'reconstruction' is defined as the actions taken to re-establish community after a period of rehabilitation after a disaster; these actions include the housing reconstruction and livelihood recovery (Bhadra and Pulla, 2014). In this definition, reconstruction covers all physical, social, economic, political and environmental sectors of affected communities (Palliyaguru and Amaratunga, 2011).

The literature review in Chapter 3 (Section 3.4.1) also asserts that, in terms of physical, social, political and environmental development, disasters provide windows of opportunity that can be used during the post-disaster reconstruction not only to reconstruct the affected areas, but also to improve the long-term socioeconomic and physical conditions of the affected population (Palliyaguru *et al.*, 2013; Kim and Olshansky, 2014; Mannakkara and Wilkinson, 2014, 2015). Hence, reconstruction is an opportunity to change a developing country's original economic development model and to move forward with urban and rural renewal (Haigh and Amaratunga, 2010). The fact that such opportunities exist in post-disaster reconstruction does not mean that the various actors involved in reconstruction will take advantage of them. In practice, it is too often the case that reconstruction work fails to benefit equally for both women and men and therefore it fails to contribute to long-term development in disaster affected countries (Bradshaw, 2001).

6.3.2 The concept of sustainable development and sustainable post-disaster reconstruction

The concept of sustainable development and sustainable post-disaster reconstruction were elaborated in Chapter 3 (Sections 3.4.2 through 3.4.4). Sustainable development is defined as 'development that meets the need of the present without compromising the ability of future generations to meet their own needs' (WCED 1987, p.43). Conceptually, sustainable development activities are considered to be activities that result in environmental protection, economic growth and social equity (Palliyaguru and Amaratunga, 2011). Sustainable development stresses the maintenance of natural resources for present and future generations (Redclift and Springett, 2015); it emphasizes a strong concern for

enhancing cultural diversity, social justice and fairness, and green development that benefits for current and future generation (WCED, 1987). Furthermore, the concept of sustainable development has environmental, economic and social dimensions, each of which forms the basis of a different interpretation of sustainable development (Smit and Pilifosova 2003). The environmental sustainability addresses a need for change in current practices in ecosystem management due to the ongoing depletion of the earth's natural resources. To achieve environmental sustainability, it needs the effective and efficient use of conservation strategies as well as maintenance of the carrying capacities of the affected ecosystems (Blewitt, 2014). The economic sustainability advocates that sustainable development should be achieved using an adaptive economic system to social-economic uncertainties and climate change (Black, 2005). Finally, the social sustainability takes into account the extent to which social values, social identities, social relationships, and social institutions can be retained and can adjust to future changes (Black, 2005; Blewitt, 2014).

The literature review in Chapter 3 (Section 3.4.2) also posits that post-disaster reconstruction in developing countries should be sustainable to take benefits of its development opportunities. The impact of post-disaster reconstruction on communities' livelihoods and their resilience in the face of future disasters must not be underestimated. Hence, it is vital that all efforts at post-disaster reconstruction actively seek ways to protect people and their environment, thus ensuring that the affected communities are less vulnerable in the future. In planning post-disaster reconstruction, actors should therefore also give a great deal of attention to the long-term changes that the reconstruction will trigger and whether those changes will mitigate the vulnerability of the concerned communities to future disasters. Accordingly, Broadbent (2007) defines sustainable post-disaster reconstruction as an approach to redevelop affected communities to fulfill their current and future needs. Sustainable post-disaster reconstruction implies that post-disaster reconstruction should aim to build back better communities and maintain all the benefits to enhance the quality of life of communities in the present and future time. Further, Broadbent (2007) emphasizes that post-disaster reconstruction is important to achieve sustainable development agenda as post-disaster reconstruction opens various opportunities for social, economic and environmental development for rebuilding better-affected communities. Sustainable post-disaster reconstruction is needed to ensure that development opportunities can benefit both present and future needs of affected communities. If sustainability is not considered, post-

disaster reconstruction efforts cannot contribute to generations to come and may result in unsustainable development outcomes such as lower quality or unsatisfactory reconstruction.

6.3.3 The significance of gender mainstreaming for achieving sustainable post-disaster reconstruction

The literature review in Chapter 4 points out that gender mainstreaming is fundamental to achieve sustainable post-earthquake reconstruction. Sustainable post-earthquake reconstruction can be achieved if policies and measures take into account women and men needs, interests as well as their knowledge and experience into the same account (Yonder *et al.*, 2005). However, increasing women's vulnerability and the neglect of women's capacities during reconstruction hinder women's potential to create sustainable reconstruction. The integration of gender mainstreaming thus offers many potential benefits for sustainable post-earthquake reconstruction. Promoting women's voices within reconstruction planning process improves awareness of those voices, which is a major step toward sustainable earthquake reconstruction. Within the reconstruction process itself, establishing the institutionalization of gender mainstreaming ensures the equal access, participation, and control of reconstruction benefits of both women and men. Hence, identifying and recognizing barriers within structures, procedures, and cultures that may hamper women's access to earthquake reconstruction process enhances gender equality within the affected communities. Integrating gender mainstreaming into post-earthquake reconstruction thus ensures that economic, social and environmental reconstruction benefits women and men equally in the affected communities.

6.3.4 The need for gender mainstreaming strategies to achieve sustainable post-disaster reconstruction

As illustrated in the literature review in Chapter 4 (Sections 4.2 and 4.3), gender mainstreaming is established within development literature and practice as a primary strategy for the promotion of gender equality. Gender mainstreaming is a way to ensure decision-making address men's and women's interests and needs. The aim is for policy to create gender equality. In the context of post-disaster reconstruction, increasing gender vulnerability and the overlooking of gender capacity have been identified as two main sources of gender inequality that must be addressed to enhance the sustainability of reconstruction and development. Thus, mainstreaming gender within sustainable post-disaster reconstruction requires a 'two-sided coin' strategy for reducing gender vulnerability

and for increasing gender capacity. The conceptual framework for this study was developed based on these key issues. The next section discusses the conceptual framework itself.

6.4 The development of a conceptual framework

This particular section presents the conceptual framework development of this study. It consists of main concepts identification retrieved from the literature review, the interrelationships among those concepts, and their boundaries.

6.4.1 The main concepts and its relationships

The preceding section indicated the key issues that contributed to the development of the conceptual framework's central concepts. This research comprises three main concepts: post-disaster reconstruction, sustainable development, and gender mainstreaming within the context of post-earthquake reconstruction. As explained in the previous section, post-disaster reconstruction provides opportunities to build sustainable communities. However, increasing gender vulnerability and overlooking gender capacity during earthquake reconstruction poses a challenge to the enhancing of sustainability in post-earthquake reconstruction and development. Hence, the integration of gender mainstreaming into post-earthquake reconstruction requires the introduction of strategies to address gender vulnerability and to promote gender capacity. To achieve effective implementation of both of these sets of strategies, policy makers must be aware of several constraining and enabling factors.

6.4.2 Research boundary

This research was conducted in Indonesia, a developing country severely affected by earthquakes and consequently in need of massive housing reconstruction. Particular attention was given to the experience of Bantul and Sleman district Yogyakarta Province in implementing gender mainstreaming strategies in post-earthquake reconstruction activities.

6.5 The conceptual framework of the study

Figure 6.1 presents the conceptual framework for this study which is conceived by combining the main concepts, their interrelationships, and their boundaries as elaborated in Section 6.4.

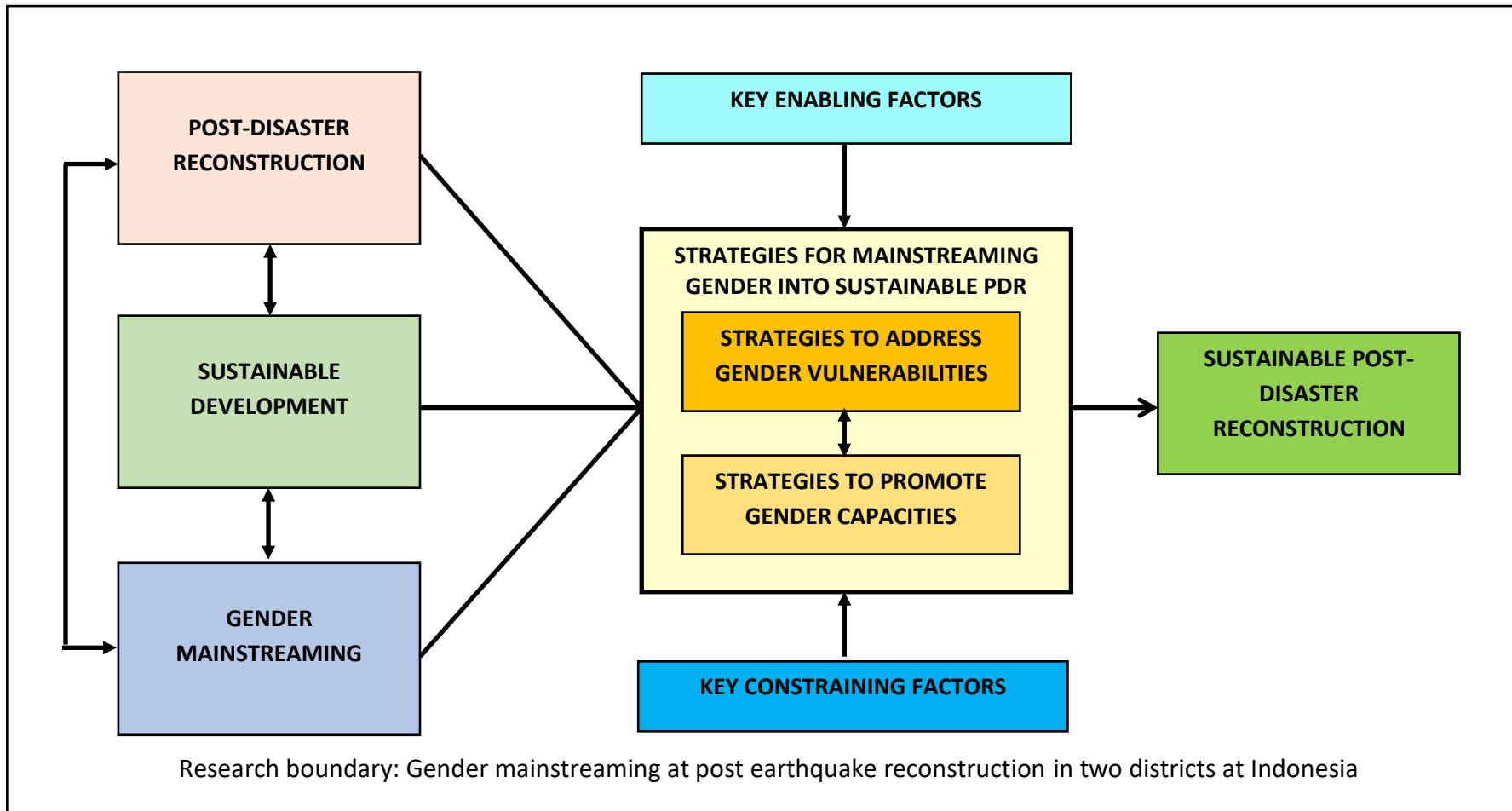


Figure 6.1 The conceptual framework of the research

6.6 Summary of the chapters and links

This chapter discussed how the conceptual framework was developed for the present study. The process of the conceptual framework development involves the integration of three aspects: the main concepts of this study, the interrelationships of those concepts and their boundaries. The conceptual framework was created with the aim of clarifying the main idea of the research. After discussing the conceptual framework development, the following chapter presents the data analysis undertaken for this study.

Chapter 7:

Case study 1: Gender mainstreaming and sustainable post-earthquake reconstruction at Bantul district

7.1 Introduction

Chapter 5 and 6 presented the research methodology and conceptual framework used in the research. This chapter discusses the data analysis of the interview and questionnaire survey in case study one: gender mainstreaming and sustainable reconstruction at Bantul district. The chapter is divided into two parts: part 1 presents the qualitative data analysis, while part 2 presents the quantitative data analysis.

This chapter begins by describing the socioeconomic contexts of Bantul district. Then, an explanation is given of the immediate situation of the district after the earthquake. After which, the process of the reconstruction is expounded upon. The last two sessions represent the qualitative and quantitative data analysis. Qualitative data analysis is based on interviews conducted with informants (i.e. policy makers, implementers, and beneficiaries). The quantitative data analysis is based on the survey data of beneficiaries, policy makers and implementers.

The focal analytical determination within this chapter is the identification of gender vulnerability and gender capacity revealed during Bantul's reconstruction. Secondly, an explanation of the institutional framework and various gender mainstreaming strategies that are in place to address gender vulnerability as well as further strengthen gender capacity within the district. Thirdly, a description of the various benefits of integrating gender mainstreaming for the sustainability of reconstruction at Bantul is presented. Finally, it identifies the enabling/constraining factors for mainstreaming gender into sustainable post-disaster reconstruction in the district. The next section begins with the description of socioeconomic contexts of the Bantul district.

7.2 Socio economic background of Bantul district

Bantul is one of the districts of Yogyakarta province which located at the Central of Java Island. Figure 7.1 illustrates the map of Bantul district. The Bantul areas cover around 506.85 km² which equal to 15% of the Yogyakarta areas. Bantul's geography is unique and contrast. North Bantul can be categorised as urban areas and more developed, while South Bantul is dominated by rural villages which less developed and poor. Bantul district has 17 sub-districts or kecamatan and 75 villages.



Source: Bantul in figures, 2008

Figure 7.1 Map of Bantul district

According to the District Bureau Statistic report (2008), the population in Bantul was 820,541 in 2004 with population density was around 1,611 persons per km², counted from a total area of 507 km². Table 7.1 shows the demographic situation of Bantul compared with other districts in the Yogyakarta province.

Table 7.1 Demographic summary of Bantul district

Areas	Population (1000s)	% in province	% in Indonesia	Area km ²	Density per km ²
Yogyakarta province	3,224	100	1.5	3,133	1,047
Sleman	945	29	0.5	575	1.644
Bantul	820	25	0.4	507	1.611
Gunung Kidul	687	21	0.3	1,431	480
Yogyakarta city	396	13	0.2	33	12,192
Kulon Progo	376	12	0.2	586	641

Source: Bappenas, 2006

About 54% population of Bantul work in small and medium enterprises that producing leather goods, souvenirs made from wood, bamboo, or fabrics, leather puppets, earthenware vessels, and painting/batik. Therefore, the main economic sector is trade and services despite agriculture that role as a principal source of domestic financial, as can be seen in Table 7.2.

Table 7.2 Bantul district domestic earnings 2005 and 2006

Year	2005		2006	
	Rupiah (million)	%	Rupiah (million)	%
Farming	542,192	15.43	514,321	17.42
Mining	22,784	0.65	14,011	0.47
Processing industry	523,515	14.90	421,064	14.26
Electricity and clean water	29,001	0.83	31,120	1.05
Building	321,011	9.13	381,922	12.94
Trade, hotel, restaurant	782,914	22.28	523,190	17.72
Transport/communication	452,410	12.87	319,111	10.81
Bank/monetary institution/housing	321,171	9.14	311,391	10.55
Service	519,651	14.79	436,228	14.78
Total	3,514,649		2,952,358	

Source: Bantul Bureau of Statistics, 2007

The average educational level of Bantul people is quite high compared to the national average level. According to the Central Bureau Statistic Data 2008, around 34% of Bantul people graduated from college or university, while the average national level was 11% in the same year. In 2008, the primary school enrolment rates were 98% (with similar school participation rates for boys and girls) which is

above the national primary school enrolment rate (96%). in the health sector, the number of public health centres in the bantul regency was 26, one state general hospital, seven private general hospitals, 15 child birth clinics and 27 polyclinics; there were 69 doctors and 30 dentists (BPS, 2008).

7.2.1 Bantul after the earthquake in 2006

At 5.5 am (local time) on 27th May 2006, Bantul was hit by a powerful earthquake at 5.9 on the Richter scale. It affected not only Bantul district, but also other districts which are parts of Yogyakarta Special Province (Sleman district, Kulon Progo district, Gunung Kidul district, and the city of Yogyakarta) as well as several districts in Central Java Province. Therefore, Bantul district was the most severe district. The following interview transcript vividly describes the situation experienced by a (female) victim in Bantul.

Surviving the earthquake

...Ran out of her house when she felt the earth and ground move. She saw many houses wobble before they collapsed. "The roof of my house swayed like waves in the ocean. But the strange thing was trees around my house did not fall down or even move at all," she said. "We were in a state of panic." She saw a coconut tree in front of her house that had not fallen down. So, she held onto it. Then, she realized that her husband and children were still inside. She thought that if she went back inside, she would be just another casualty and so she waited outside for the tremors to stop. Her husband and one of her children were injured from being hit by fragments of the roof that caved in. Her child's back was fractured, while her husband suffered minor injuries. "There was something good behind my selfishness. Allah granted me safety so that I could serve my child, my husband, and other family members recovering from their injuries," She recalled. "There was one wall that did not collapse and that is where my injured child was. If that wall had collapsed, my family would have perished," She said. The economic losses suffered by her family because of the earthquake were estimated to be around USD 8,300 (Interview with beneficiary 1).

A mother's strength:

She was asleep when the earthquake hit. When the earth jolted, she woke up and tried to leave the house. After falling several times, she managed to get out. "The earthquake was so strong. I tried to get up and run, but I kept falling," she said. Then she remembered that her only child was still in the house and she ran back inside. She grabbed her child and tried to get out of the house, but was unable to do so. She fell, hit her head and her feet became buried in debris. She could not move. She kept screaming for help and someone came to her assistance after the first tremor stopped. "Thank God my child was safe. Because I hugged him tightly the debris fell on me," the 30-year-old mother recalled. Her back and feet were slightly injured but she and her child were all right. The rear part of her house was ruined. All of her possessions were damaged, including her motorcycle. The total loss was estimated to be around USD 4,400 (Interview with beneficiary 1).

The earthquake has resulted in various development issues within Bantul. Figure 7.2 presents coding of main development issues resulting from interviews taken with earthquake victims, policy makers and implementers. The informants highlight various issues related to environment, social, and economic sustainability they faced following the quake.

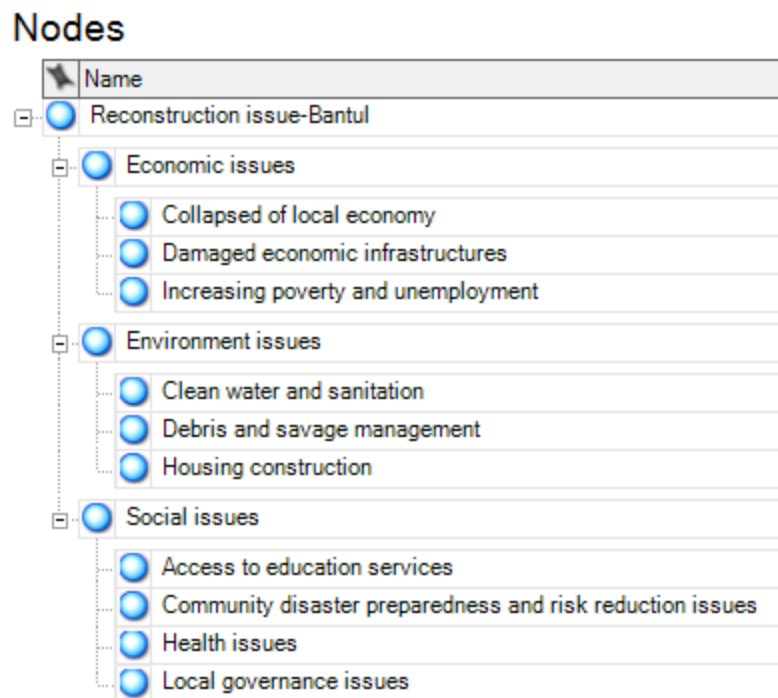


Figure 7.2 Post-earthquake reconstruction issues in Bantul

The affected area in the Bantul district was geographically small but with a high density of population. The shallow epicenter of the earthquake made the damage was widespread, particularly in houses that most were old, not well constructed or not followed basic earthquake resistant methods. The total number of death was massive at about 10,271 individuals (Figure 7.3). The quake was also left 779,287 people homeless. The estimated loss from the quake was at USD3.1 billion (Bappenas, 2006).

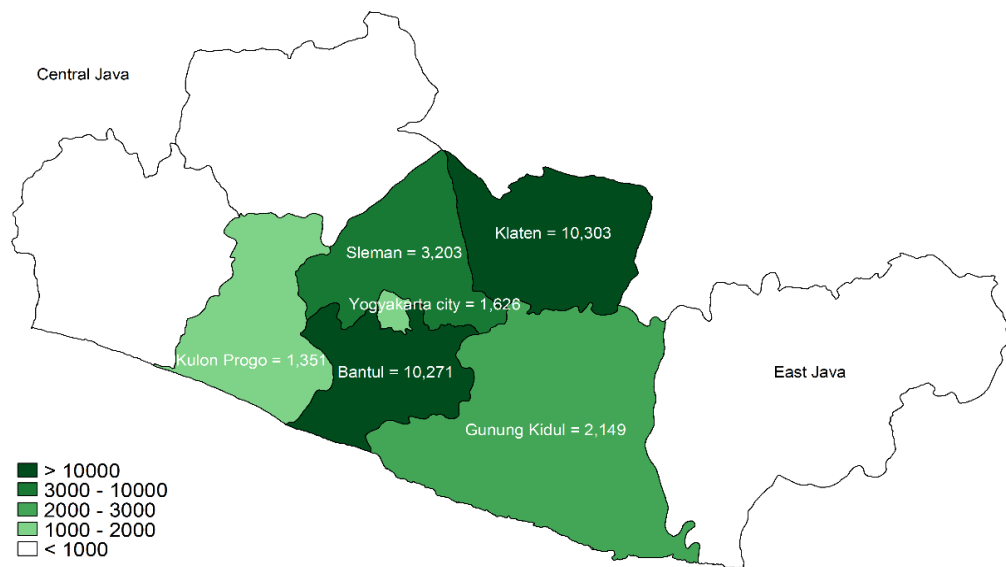


Figure 7.3. Number of death caused Yogyakarta earthquake 2006 (Source: Bappenas, 2006)

The earthquake caused damaged on every sector in the district. Bappenas (2006b) reported the total loss of electricity transmission and distribution were estimated 375 billion rupiahs. The damage to road and railway were 90.2 billion rupiahs. The quake cost water supply damage at about 85.6 billion rupiahs, while telecommunication infrastructures sectors lost for about 7 billion rupiahs. In the education sector, the quake destroyed 949 of school buildings in the district. Moreover, in the small and medium enterprises sectors, more than 1.3 million workers were jobless. The debris management was a crucial issue following the quake. The volume of waste resulted from the quake was very large reached 2.25 million m³. As the government had lack experience in managing the disaster, they faced difficulties in disposing all the trash outside Bantul.



Satellite photo of villages damages from Bantul earthquake



Houses damages from Bantul earthquake



Government office damage from Bantul earthquake



School building damages from Bantul earthquake

Figure 7.4 Damage of housing and public infrastructures resulted from Bantul earthquake (Source: JRF, 2011)

Bantul generates little of its revenue as the proportion of own revenue on district budget only 6% (Bappenas, 2006). Other fiscal sources of Bantul district comes from the central government through general allocation fund which is a function of fiscal decentralization in the country. The quake resulted in district economic collapsed as the district GDP decreased from 33.2 billion rupiah in 2005 to 21.1 billion rupiah in 2006 (BPS 2008).

Moreover, the earthquake also lead to mental health issues particularly for vulnerable groups such as women-headed households, children, elderly and families with serious injured. As reported by PSKP UGM (2011), trauma was high in the affected communities. Children face bad dream and sleeping problems, feeling scared and unsafety. Likewise, women-headed households suffered mental depression when they remembered her husband and children died. Elderly and families who face permanently injured due to the quake were also feeling scared, and unsafety live in their hometown.

7.2.2. Bantul post-earthquake reconstruction 2006

Soon after the earthquake, the Indonesian government and International donors provide their support. The reconstruction consortium consists of seven International donors from the European Union, Asian Development Bank, Netherlands, United Kingdom, Denmark, Canada, and Finland) provided USD 94.06 million to rebuild Bantul (Table 7.3). Moreover, the government also allocated one trillion rupiahs for reconstruction activities in Bantul (JRF, 2011). Learning from Aceh Tsunami, the government tried to improve their capacity for responding the quake by implementing a better recovery plan.

Table 7.3 Donor contributions Java Reconstruction Fund

Source	Contribution in US\$ million
European Commission	1.17
Netherlands	12.00
United Kingdom	10.77
ADB	10.00
Canada	6.53
Finland	1.99
Denmark	1.60
Total contribution	94.06

Source: World Bank, 2011

The government responds quite quickly. Soon after the quake, the government provided a cash transfer for the victims with 90 thousand rupiahs and 10 kilograms of rice per individual. Not only that, the government also provided clothes and kitchen equipment for the victims. As reported by Java Reconstruction Fund (2011), in total the government spent USD 22 million for providing foods and clothes during an emergency. Moreover, the government and donors built shelters across villages in the district so that the victims and their families can sleep safely. Free healthcare facilities and emergency were provided in the shelters. The government was also working with the

International Organization for Migration (IOM) for providing logistics and medical services for the victims. IOM also implemented the program for preventing and treating victims with trauma and depression.

The government and donors then established the program for housing and public infrastructures reconstruction as well as livelihood recovery. They provided USD 77.4 million or 82% of total budget for housing and public infrastructures reconstruction, while USD 17.2 million for recovering livelihoods of the victims (Java Reconstruction Fund, 2011). To manage housing reconstruction and livelihood recovery, the government and donors have established a community-based approach post-disaster reconstruction called '*Rekompak*'. The government and donors used the term to represent a community-based approach for Bantul reconstruction of housing and affected community public infrastructures. The following transcript explains what '*Rekompak*' is.

"... In Indonesian Rekompak means: unity, cohesiveness and creating a whole - and that's what the project did. It brought beneficiaries and communities together to rebuild their houses and their settlements" (Interview with policy maker 7).

"Most of the time we look at the victims of disaster as helpless people with no capacity, in need of some sort of charity. Rekompak, however, believes that these people have the capacity to be participating in the reconstruction" (Interview with policy maker 8).

"In the Rekompak community-driven approach, the beneficiaries are at the centre of the action. All decisions are made by the community members themselves: confirming who is eligible for assistance, how the community will be planned, what types of houses will be built, the community infrastructure that is needed and how maintenance will be handled" (Interview with policy maker 9).

“The Rekompak approach requires homeowners to be in charge of the reconstruction or rehabilitation of their homes. This leads to higher levels of both quality and satisfaction as compared to other approaches to reconstruction of housing after disasters. Under the Rekompak project, disaster-affected communities were given the opportunity to rebuild their homes and community infrastructure with funding channelled directly to them through the government’s budget in the form of block grants. Homeowners could reconstruct the houses by themselves, together with their neighbors, or with the help of hired laborers under the supervision of the homeowner. Facilitators provided technical assistance and supervision. Beyond the core requirements of quality and standards, the approach allowed flexibility in applying individual preferences and personal style to housing design, resulting in high beneficiary satisfaction” (Interview with implementer 8).

“Rekompak is based on the principles of transparency and participation. Beneficiaries take part in planning the reconstruction of their communities, making decisions through a participatory process regarding who is eligible to receive benefits, where, what, and how to rebuild, and how the money is spent. They are involved in all aspects of the construction process and oversee fund management. All transactions and records are open and transparent. Effective complaint handling mechanisms help ensure accountability and deter corruption” (Interview with policy maker 8).

“The Rekompak approach empowers communities to make decisions and to organize their own settlement recovery, giving them a sense of control of their future after emerging from a past beyond human control. Working together with family members and/or neighbors to reconstruct their communities has a restorative effect on the spirit, and the aspect of neighbour helping neighbour is integral to the approach.....” (Interview with implementer 9).

As a community-driven approach, the *Rekompak* gives affected communities full of responsibilities in building houses. As explained by informants, they create a group of 10-15 families to take charge for building their houses. Each groups working together and have to decide how they will build the house, who will get first, and what contribution of each families. A key element of the *Rekompak housing* approach is the development of a community spatial plan by each village which is used as a guidance to rebuild houses. Village teams were also created to rebuild priority public infrastructures. Then, facilitators who trained by the Ministry of Public Works were assigned to support affected communities for preparing and implementing the projects. Grants from the Multi Donor Funds and Java Reconstruction Funds were deposited directly into community accounts. Funds were released in instalments based on reconstruction progress as defined by agreed-upon milestones.



Aids in emergency phase



Donor gives aids



Community reconstruction planning



Housing reconstruction

Figure 7.5 Aids emergency to housing reconstruction at Bantul district (source: JRF, 2011)

The spirit of the community-based approach was embodied within *Rekompak* project. The project focused on rebuilding lives while rebuilding communities. It aimed to empower women and men within communities to become leading agents of their reconstruction and to engage effectively with district governments. Hence, *Rekompak* gives community groups, and district governments control over planning decisions and investment resources. All of these were built in the mechanism through which communities are entrusted with funds and authority, and facilitated and empowered to interact with other local stakeholders.

The rehabilitation and recovery process in Bantul is quite fast. Less than two years, most victims were able to back into their homes. Figure 7.6 illustrates the process from emergency stage to housing reconstruction phase conducted at Bantul.



Figure 7.6 Earthquake reconstruction process in Bantul from emergency shelter, transitional shelter to permanent shelter (source: JRF, 2011)

Firstly, the emergency shelter was established soon after the quake so that the distribution of basic needs (foods and health) can be effectively distributed. Secondly, the transitional shelter was built to accommodate so that victims can access public goods easily. Such transitional shelters were built to prepare for permanent housing reconstruction. The government and donors were built about 7,300 temporary housing in Bantul (Java Reconstruction Fund, 2011). Thirdly, permanent housing reconstruction was implemented by involving affected communities to response local needs and wisdom as well as developing a sense of collective solidarity with the affected communities. As a result, the *Rekompak* project was able to build 15,000 seismic resistant core permanent houses across villages at Bantul by 2008 (Java Reconstruction Fund, 2011).

Furthermore, the donors have also produced important results in supporting small and medium enterprises by working closely with the government. The projects total US\$17.2 million are implemented to recover community livelihoods. The community livelihood projects were mainly purposed to improve the economic well-being of the victims through improving access to finance, replacing business assets, improving business skills, and providing technical assistance. By the end of June 2011, the projects were successfully involved more than 3,564 small and medium business at Bantul. The program was able to restored and improve the local business so that it made a significant impact on the beneficiaries' income, particularly women. Moreover, the program was also involved capacity building for improving the district government capacity for promoting livelihood recovery as a part of an exit strategy and ensuring the sustainability of the program benefits after the donor finished the projects in June 2011.

The next section presents qualitative findings which show the importance of addressing gender mainstreaming for sustainability of reconstruction at Bantul. It highlights that gender mainstreaming strategies within sustainable reconstruction should not only incorporate strategies for protecting women and men vulnerability but also strategies for promoting women and men capacity. Both strategies are needed to create gender equality and women empowerment, which are both fundamental for sustainable reconstruction.

7.3 Qualitative data analysis

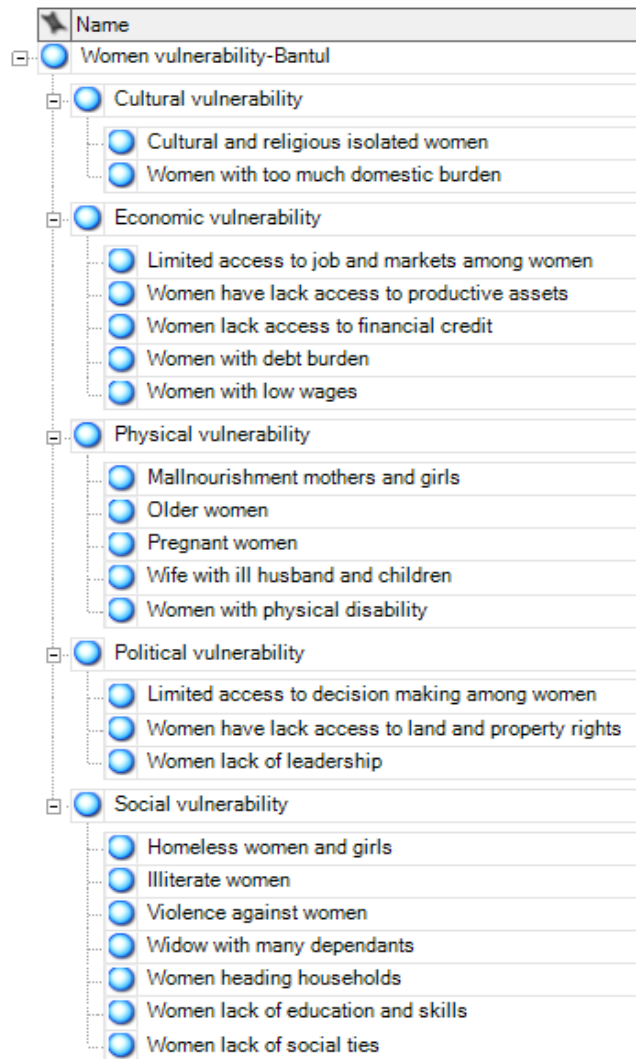
This section presents data analysis from interviews with key informants (i.e. policy makers, implementers and beneficiaries). It begins by presenting various types of gender vulnerability and capacity revealed during Bantul's reconstruction. Then, it elaborates on the institutional framework for mainstreaming gender, and various strategies of gender-mainstreaming have been introduced by the Bantul government to address gender vulnerability and to strengthen gender capacity during reconstruction. Thirdly, it shows various benefits of these strategies for sustainability of Bantul's reconstruction. Finally, it explains enabling/constraining factors for integrating gender mainstreaming within post-disaster reconstruction in the district.

7.3.1 Gender vulnerabilities and capacities within post-earthquake reconstruction at Bantul district

7.3.1.1 Gender vulnerabilities

The interviews with women and men beneficiaries as well as women and men policy makers and implementers identify types of gender vulnerability appearing within post-earthquake reconstruction in Bantul. Figure 7.7 presents coding structure of gender vulnerabilities revealed within post-earthquake reconstruction in this district.

Nodes



Nodes

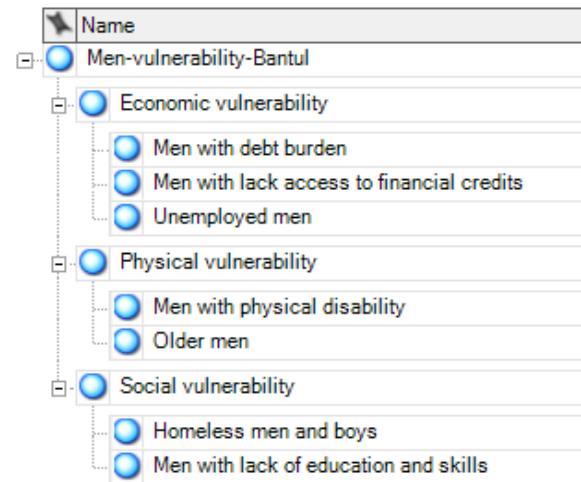


Figure 7.7 Gender vulnerabilities within post-earthquake reconstruction in Bantul district

Women are placed as the most vulnerable group during the Bantul earthquake 2006. They accounted for the majority, amongst the 6,012 killed and 35,012 injured (58% of total victims) (BNPB, 2010). This research found most of the dimensions of gender vulnerability exist during the earthquake at Bantul. However, it shows that social vulnerability is the biggest issue, while cultural vulnerability is the least issue following the quake.

Gender vulnerabilities in Bantul:

In our culture, women are put behind. Women are not the leader. Their main jobs are cooking, washing and cleaning the house. Our religion also asks that women have a main job to support the husband by looking after him and the children. These, to some extent, make women more vulnerable than men during reconstruction, since they have too much domestic burden upon them. However, most importantly their roles and access to public services is limited and depends on their husband (Interview with beneficiary 2).

Since my husband died, I have to be responsible for everything in this house. With four children two of them are teenagers and another two are still under five...it is very hard for me to look after them (Interview with beneficiary 3).

The earthquake destroyed all we have, our houses, our business and everything. To start our business, we need money but sometimes it is difficult to get credit from the bank because we have to provide assurance. Some people in this village get cash from loan sharks but this makes it difficult for them in the end, as the loan shark asks for very high interest (Interview with beneficiary 4).

Both women and men losses their jobs following the earthquake. However, most of women were unable to get jobs quickly because of limited job opportunities for them and most importantly most of them have to stay at home to look after their children (Interview with beneficiary 5).

Women's unemployment rate rose following the earthquake. Substantial loss of productive assets particularly equipment, tools, supplies and business space are main factors of women's unemployment and poverty in Bantul at that time. The chance to get good jobs for women became even harder since most of them have a lack of skills and are lowly educated (Interview with policy implementer 3).

I worked on a road project at the time. I remembered that I had to work from 8 am to 4 pm with a rest of 1 hour between 12 am and 13 pm. I got wages of Rp. 20.000, - a day, while fellow men got Rp. 30.000, - for the same jobs (Interview with beneficiary 9).

Some women and children suffer from one or more forms of malnutrition following the quake. This including low birth weight, stunting, underweight, vitamin A deficiency, iodine deficiency disorder and anaemia (Interview with policy maker 6).

Gender vulnerabilities in Bantul:

Older and pregnant women, women with ill spouses and children with physical disabilities are also amongst the most vulnerable groups during the earthquake and reconstruction process in Bantul. Their weak physicality is the main factor that they suffer from public services access, particularly food and healthcare. Women face double burdens as they responsible to look after children and elderly families. In some cases, some women sometimes have to eat at last and least due to limited stock of food in family. Without support from relatives, some elderly women cannot live longer (Interview with policy maker 5).

All properties in this house belong to my husband and I as a Javanese woman have a job to look after my husband's properties. We do not have control to sell over these properties (Interview with beneficiary 4).

In some villages, we found that men dominate during the community meeting for deciding reconstruction planning and for distributing various programmes from local and national government. Lack of woman leadership and decision-making access in these areas seem to be important factors that cause women vulnerability. Simply put, when women do not have access to decide what they need, the planning and assistance do not reflect what they really want (Interview with policy implementer 3).

Homeless women and girls are among the most vulnerable, particularly in the urban areas at Bantul. Without a home, their security and safety was in danger. In some areas, issue of rapes and violence against women were reported following the earthquake in Bantul (Interview with policy maker 4).

According to informants, several social issues exist following the quake. Those social issues include an increasing number of women-headed household, homeless, lack of access to basic needs, and increasing violence against them. Increasing women who have to live without families' increases risks of violence. On the other hand, women unemployment is the major economic issues. Women who were able to work have to accept low wages. Moreover, in small business sectors, women face issues such as lack of financial credit, productive assets, and increasing debt. In term of physical vulnerability, it shows that disable, pregnant and elderly women have affected severely. Most of them have lack access to basic health services which they need. Moreover, the low political participation of women in planning and implementation due to lack of leadership exist during reconstruction. Interviews with several women raised concerns regarding men domination in

resources allocation during planning and implementation. This unequal resources allocation in some cases increases not only women's vulnerability but also children's vulnerability within families.

7.3.1.2 Gender capacities

Despite the vulnerability of Bantul women to earthquakes, they can make a difference during reconstruction through their capacities to improve economic, social and environmental vulnerability within the district. Figure 7.8 presents coding structure of various gender capacities, which appears within reconstruction, resulting from interviews with women and men beneficiaries, as well as women and men policy makers and implementers.

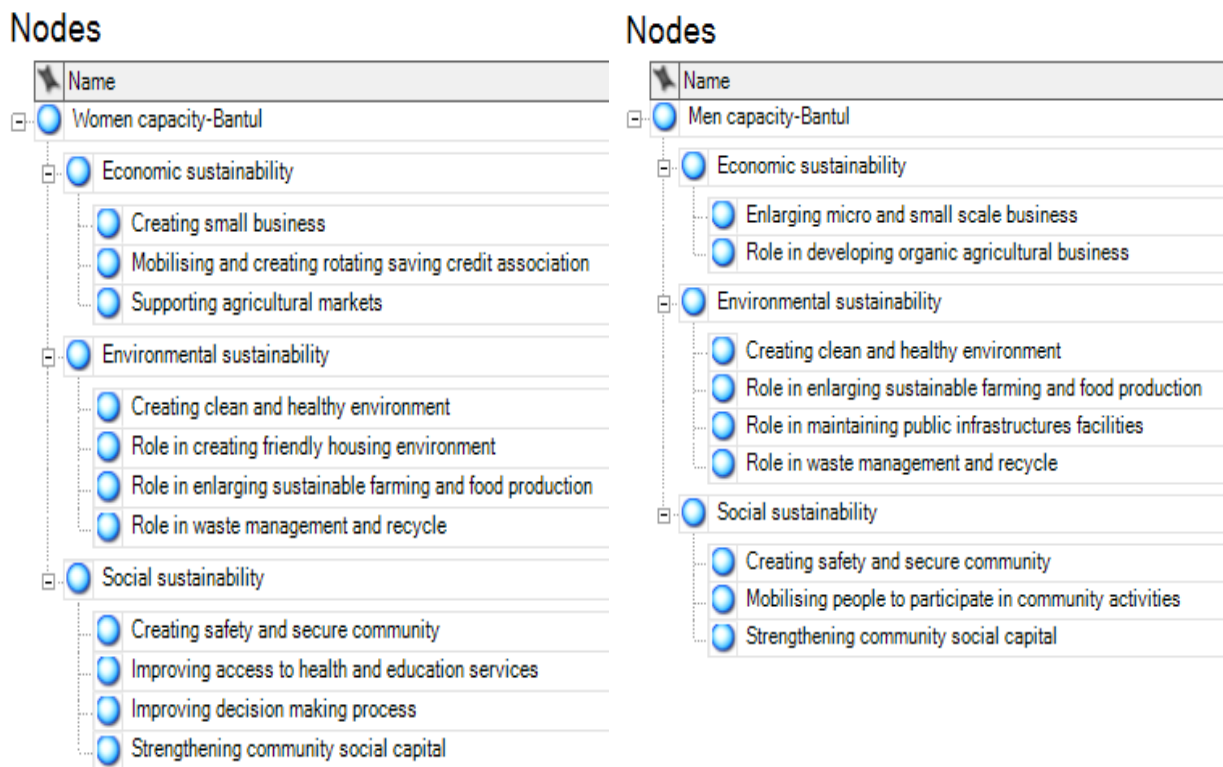


Figure 7.8 Gender capacities within post-earthquake reconstruction in Bantul district

This research found that active roles of women groups across the villages during reconstruction. The roles of women voluntary organization, women ROSCA's (Rotating and Saving Credit Associations), and PKK (*Program Kesejahteraan Keluarga*) have a vital role in achieving sustainable reconstruction in Bantul especially in maintaining houses, clean water, and sanitation across the villages which also

help to protect the ecosystem. Regarding economic sustainability, women grassroots organization create ROSCA's to increase their financial access. In the ROSCA's, every member has access to the funding without any substantial guarantees like requirements of formal Bank. Through ROSCA's, women owned small business can start and run their business very soon. Moreover, the government and International donors also used these ROSCA's for providing business skills and technical assistantship as well as distributing cheap financial credit. As reported by 2011, the program able to distribute more than 10,000 loans to the small and medium business at Bantul. The financial credit amounting to USD 5 million have been allocated to 26 ROSCA's and microfinances that women grassroots groups managed most.

Gender economic capacity in Bantul:

To solve the limited fund to start our business we create "arisan" or ROSCA's. In arisan, we can collect some money to start our small business. In ROSCA's we also do many economic activities such as selling foods and other products of our groups. We are able to saving the profits to run our business. Thus, through ROSCA's we have profits as well as empowerment (Interview policy implementer 6).

Women have main roles in developing micro, small and medium enterprises or commonly known and referred to as UKM (Usaha kecil dan menengah) in Bantul before, during and after reconstruction. In every village, women are organising themselves by establishing "Kelompok Swadaya Masyarakat" and "Badan Keswadyaan Masyarakat". Kelompok Swadaya Masyarakat is a group of 4-5 UKM that are organised together. In UKM women and men discuss many issues about their small business and they use these groups to mobilise themselves in getting technical assistance from the district government. BKM is a small credit provider organization in the village which is mainly organised by women. Through BKM, women gain cheap and easy access to administration credit from the government (Interview with policy maker 4).

Through establishing traditional markets, women in the Bantul village create markets for their agricultural produce. Not only that, but they also cooperate with modern markets such as supermarkets in Yogyakarta city to help sell their agricultural products (Interview with policy implementer 6).

This research also found that women and men's capacity in improving the sustainability of environment across the villages. For example, women have endorsed to use of organic farming so that they can avoid the danger of pesticide for their land. In most agricultural areas at the district,

organic rice, fruits, and vegetables are popular and have become iconic products of those areas since reconstruction. The following transcript explains such gender capacity.

Gender environmental capacity in Bantul:

All women and men in the village work together every Sunday to clean and irrigate, road and public facilities in the villages. We call this activity “kerjabakti” or village labor which is a part of our community culture. Through this routine “kerjabakti” [led by the village head] we are able to maintain a clean and healthy environment in the village (Interview with policy implementer 6).

Women in our village also have a key role in introducing and implementing organic rice and vegetables. These organic agricultural products not only have higher prices but are also better for our land in the future. With such advantages, farmers in our village now begin to change their agricultural plantation from non-organic to organic produce (Interview with policy implementer 6).

Reconstruction gives women the chance to create a friendly housing environment. Women across the village have an important role to complete these activities. They collect seeds and small trees around villages and they then organise themselves by working together with young girls and boys in the village to plant across the village road and within their houses. As a result, within three years, Bantul villages have become green with trees (Interview with policy implementer 6).

I can say that women in the Bantul village are in charge of domestic waste. Women have main roles to manage domestic waste since the waste are generated from our houses. We working together with village government to build a garvage collection places. We also encourage political leaders here to campaign the importance of public health and waste management across the villages. Bantul Administration Women Welfare also work to deal with these and other related issues (Interview with policy implementer 5).

Across the villages, the active roles of women groups in creating green housing were also shown. Along the gardens and roads, they plant vegetables and herbs called *TOGA (Tanaman obat keluarga)*. Women groups are also actively involved debris management through creating artistic handicrafts from the plastic and paper debris. They also regularly conducted *kerja bakti* and participate in the *kampong* improvement programs which aims to maintain a clean and healthy environment around the villages.

In terms of social sustainability, women groups working together with the government, donors and community members during reconstruction to establish security and safety of their villages. The spirit of Javanese cultural tradition of *gotong royong* encourage women and men to actively

involved in creating secure and safety social environment. Not only have that, the spirit strengthened solidarity among affected victims during reconstruction. Across the communities, each individuals are happy and willing to help each other in the spirit of solidarity and cooperation in social and business activities. The following interview transcripts explain the gendered social capacity at Bantul district.

Gender social capacity in Bantul:

Women have a pivotal role in building and strengthening social capital. Women mobilise and organise people in the village to join in village labor, cooperative, Kelompok Swadaya Masyarakat and gotong royong which provides a media to build trust in the community during and after reconstruction (Interview with policy implementer 3).

Women also work together with men in the village to help create the feeling of safety and security. For example, women organise themselves to be involved in the morning village security monitoring - called "Ronda pagi", while men have been responsible for the monitoring of village security at night-time (Interview with beneficiary 10).

During and after reconstruction, access to public services particularly clean water, health and school are vital for all villagers, through spirit "gotong royong" or self-help, young women help vulnerable villagers [particularly old women and children] to get that access by asking for assistance from the district government or by establishing village health posts or Posyandu to give services (Interview with beneficiary 10).

Women are also actively involved in village decision making. For example, during reconstruction they were involved from administrating target groups of reconstruction to delivering reconstruction programmes. This significantly improves decision-making such as creating programmes that better target the needs of beneficiaries (Interview with beneficiary 8).

The next section presents the institutional framework of gender mainstreaming at Bantul's reconstruction. Then, it discusses various gender mainstreaming strategies that have been introduced by the Bantul government to address gender vulnerability and to strengthen gender capacity during reconstruction.

7.3.2 Institutional framework and strategies of gender mainstreaming at Bantul district

An effective post disaster reconstruction implementation brings development opportunities to improve the condition of women and to create gender equality. The district government needs to address this issue through developing institutional framework and strategies of mainstreaming

gender. The implementation of gender mainstreaming at Bantul is the responsibility of the women empowerment agency. As a cross-cutting issue, this agency has established coordination with other agencies at the district to introduce the strategies. This section begins with a description on institutional frameworks for mainstreaming gender within the district. Then, it explains various strategies of gender mainstreaming conducted by the district government during reconstruction.

7.3.2.1 Institutional framework for mainstreaming gender

The implementation of gender mainstreaming strategies in Bantul is the responsibility of district women-empowerment agency. This institution is working together with the district disaster-management agency and other stakeholders in formulating and implementing local policies for addressing gender issues within the reconstruction process. Figure 7.9 describes the organizational structure of the district women-empowerment agency in Bantul.

A government career bureaucrat who has more than 20 years' experience working in the women empowerment field leads the district women-empowerment agency. To conduct her job, she is supported by the gender and development advisory boards, which consists of experts from governments, non-government organizations, and universities. This advisory board has the main task of formulating district gender mainstreaming policies and plans of action in various cross-cutting issues. The district women-empowerment agency has three main organizational units. Firstly, planning and policy unit, which has the main task of supporting advisory boards and the head of the agency in formulating gender, related policy. This unit has three main unit: women empowerment, family welfare, and family planning and reproductive health. Secondly, gender and development training unit, which has the task to improve the local institutions capacity building for mainstreaming gender. For example, this unit provides several gender sensitive training and budgeting to other district agencies. Thirdly, line agencies that have the main task of implementing all programs and projects formulated.

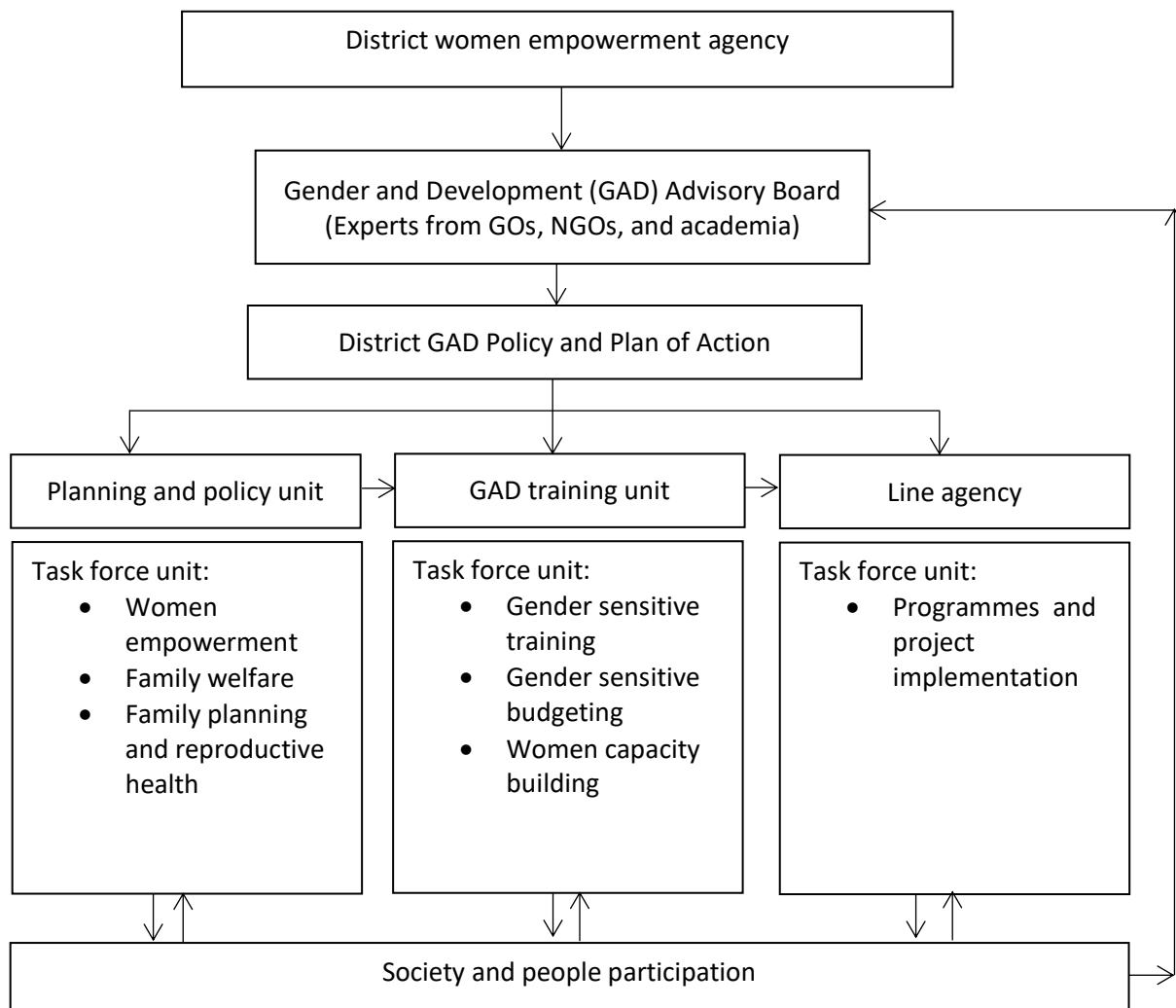


Figure 7.9: Organizational structure of district women empowerment in Bantul district
(Source: The Bantul Women Empowerment Agency, 2012)

The planning and implementation process within the agency is inclusive, aiming to involve all community members, giving them a role and voice in planning and decision-making. For example, to ensure that every policy and decision making takes into account women's and men's needs, women and men have been given more opportunities to identify and to prioritize gender mainstreaming programs that affect all communities because of the women's participation during the planning process. Hence, the programs have likewise generated to a higher satisfaction of beneficiary and greater community ownership sense of the planning process as well as the new

assets. Within the reconstruction processes, a greater range of women community members is risen in the formulating and implementing of disaster preparedness strategies through the planning process that gives contributions to the reconstruction's goal of rebuilding more resilient communities. The next section presents various strategies that have been introduced by the Bantul government during reconstruction.

7.3.2.2 Gender mainstreaming strategies for sustainable post-earthquake reconstruction

Based on interviews with policy makers and implementers, it has identified various strategies that have been introduced by the Bantul government to reduce gender vulnerability and to strengthen gender capacity during reconstruction. Figure 7.10 presents the coding structure of these strategies.

Nodes

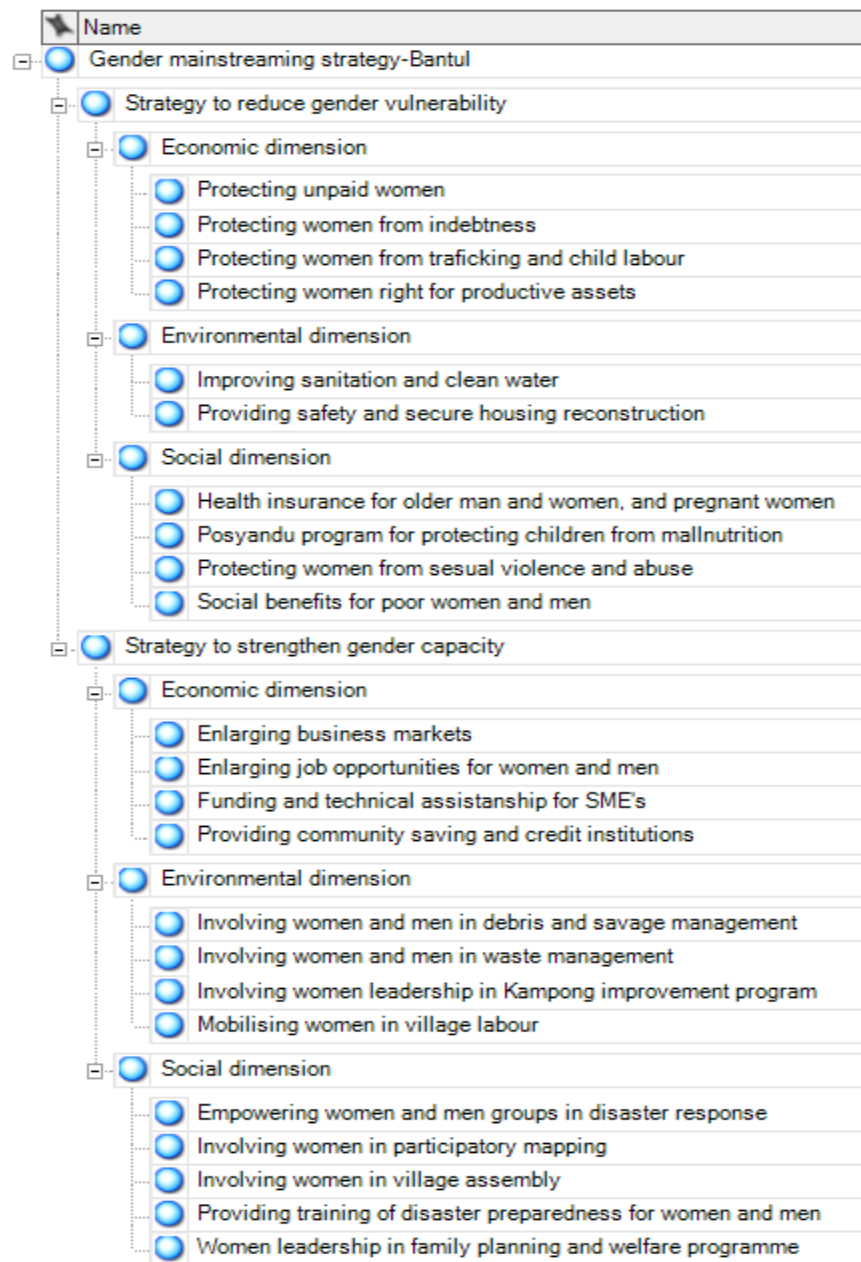


Figure 7.10 Gender mainstreaming strategies within post-earthquake reconstruction in Bantul district

7.3.2.2.1 Strategies to reduce gender vulnerabilities

Various strategies to reduce gender vulnerability were implemented by Bantul district government. These strategies can be divided into three main dimensions. Firstly, an economic dimension which includes various programs for protecting women from indebtedness, protecting child workers and trafficking, protecting unpaid women, protecting women rights in productive assets, and social safety nets for vulnerable women and men. The following interview transcript presents a strategy to reduce economic vulnerability.

Strategies to reduce gender economic vulnerabilities:

Several strategies implemented to reduce women from economic vulnerability on Bantul. These strategies include programmes for protecting women from indebtedness (i.e. providing small and cheap loans), protecting child workers and trafficking (i.e. strengthen regulation of jobs agents), protecting unpaid women (i.e. implementing minimum wage should be paid for women during reconstruction work), protecting women wright in productive assets (i.e. strengthen legal low for women to have land or home ownership certificate), and social safety nets for vulnerable women and girls (i.e. providing women and girls healthy and free food) (Interview with policy maker 1).

Earthquake in Bantul destroyed economic sector severely. To protect women and people we as a government tried to response quickly by implementing social safety nets programmes for them. The main aim of this program is to provide basic needs for women and poor people across affected areas (Interview with policy maker 2).

The social safety nets programme is intended to protect women and all community members from shocks during an earthquake in Bantul. The high degree of women vulnerability, increases their risks. Therefore, such social safety nets need to be implemented to help protect them from other risks (Interview with policy maker 5).

We receive free food from the government. The government also provides small loans for us which we can gain access to through Kelompok Swadaya Masyarakat. The government also gives us home and land certificate as well... (Interview with beneficiary 14).

Earthquakes in Bantul damaged sources of women livelihood, decreased their access to food and incomes, while increased their workloads. This leads to a decline in their socioeconomic situation and increases their economic vulnerability. Women's indebtedness was likely to rise in Bantul because of their borrowing increases. In some cases, trafficking women and girls also occur due to economic burdens on the family following the earthquake. Thus, economic support such as small

loans of cash or other goods, sharing of equipment and sharing of child care and other forms of labor are needed to reduce their economic vulnerability. The government also implements social safety net programs, such as providing free food for them. To protect women from economic exploitation, the government establishes and strengthens regulation to protect them from unpaid work, especially in reconstruction projects.



Women participation in planning water and sanitation programmes in Bantul during reconstruction



Man participation in planning water and sanitation programmes in Bantul during reconstruction

Figure 7.11 Women and men participation in planning, decision making and implementing safe, clean water and sanitation programs in Bantul district (Source: The researcher field research document)

Gender mainstreaming within environmental dimension in Bantul district government, include improving sanitation, safe water, and providing safety and secure housing reconstruction. Water is fundamental to health during reconstruction and women are playing a significant role in providing and managing of both. Bantul's earthquake destroyed water and sanitation facilities. Health and environment issues occur such as diarrhoea and polluted water. Realizing the vital role of women in managing water and sanitation, the Bantul government actively involves them from the beginning of implementing programs for providing clean and safe water and sanitation. For example, women are actively involved in discussing within their communities for access to water supply, evaluating water sources, analyse supply patterns, and sometimes lobby relevant authorities. Women and men also discuss the decision-making around the type and building of the toilet. For example, because

the location of the toilet can be a major determining factor in women's use of the facility for reasons of security and privacy, the policy makers have to discuss with women in the community before building the toilets. As a result, women are not only happy with the sanitation location and building, but they are also happy to look after the sanitation building.

Strategies to reduce gender environmental vulnerabilities:

We have two strategies in mainstreaming gender into a sustainable environment during reconstruction. The first strategy is that of providing and improving clean water and sanitation, which is implemented through block grant[s] for each community (Interview with policy maker 1).

Our gender policy document specifically includes the water and sanitation sector. The main goals is to empower all community members in providing access to clean water and sanitation in affected communities. The strategy in turn has defined a budget of 1.4 Billion rupiah over a five year period. The inclusion of equal opportunities for women and men in water and sanitation in the district government development plan also mandates for sub-districts and village governments in Bantul to actively involve women and men in from planning, decision making, and implementing such programmes (Interview with policy maker 2).

To reduce women vulnerability due to lack of sensitive-earthquake housing reconstruction, we implement safety and secure housing reconstruction by promoting women concerns and needs during reconstruction process. For example, ensuring women voices for designing, reconstructing and retrofitting their houses. For instance, because women spend most of their time at home particularly in the kitchen they ask to have a [direct] exit door from the kitchen to outside of the house, so that when an earthquake strikes, they can quickly run outside (Interview with policy implementer 2).

We collaborate with women's grassroots organizations to monitor and also evaluate the housing reconstruction process in every affected village (Interview with policy maker 3).

To reduce women vulnerability in housing ownership, we implement equal policy in permanent housing ownership by using the name of wives and husbands equally in their new houses (Interview with policy maker 4).

During reconstruction we learned how to build a safe and secure house. Now, we know what to do and to look after our houses. Imagine women like us – housewives – who can learn how to build a house. It's usually a man's job (Interview with beneficiary 7).

The goals of water and sanitation programs are ensuring access and control of water and sanitation by empowering women and men groups during reconstruction. The strategy, in turn, has defined a budget of 1.4 billion rupiahs over a five year period. The inclusion of equal opportunities for women and men in water and sanitation in the district government development plan also mandates for sub-districts and village governments in Bantul to actively involve women and men in the planning, decision making, and implementing of such programs. With participation of women and men in maintaining water and sanitation programs, the sustainability of these programs improves.

Safety and secure houses are vital for women. As family caregivers, household managers and home-based workers, women must be central to the design, siting, and construction and retrofitting of local housing and community facilities. Realizing that importance, Bantul district governments actively involved women in the process of reconstruction. For example, women have their voices to design kitchens so that every kitchen has an exit door for moving out when an earthquake occurs. Moreover, to ensure secure and safe houses for women, the government collaborates with women groups to monitor and evaluate the housing reconstruction process in every affected village. To reduce women vulnerability in housing ownership, the government implement an equal policy in permanent housing ownership by using the name of both wives and husbands in their new house.

Bantul district government also implements strategies to reduce women social vulnerability. According to interviews with policy makers, this strategy is divided into four areas: (1) health insurance programs for elderly and disabled women; (2) *Posyandu* programs for protecting children from mal-nutrition; (3) programs for protecting women from sexual violence and abuse; and (4) social benefits for poor and elderly women. The following interview transcript shows these strategies.

Strategies to reduce gender social vulnerabilities:

We have four strategies to reduce social vulnerability following an earthquake: (1) health insurance programmes; (2) Posyandu programmes for protecting children and pregnant women from mal-nutrition; (3) programmes for protecting women from sexual violence and abuse and (4) social benefits for the poor especially poor and elderly women (Interview with policy maker 3).

We provide free health insurance for the poor so that they can access healthcare for free (Interview with implementer 5).

Posyandu has a vital role for providing healthy food and healthcare for children and pregnant women. Through Posyandu, women and children can get free meal and vitamin A (Interview with policy maker 5).

We have tried to prevent and to protect women from violence and abuse through replacing lost and mislaid personal documents; assessing and mapping the risks these groups are exposed to; increasing the security around women's accommodation, and; strengthening family reunification services (Interview with policy maker 2).

To support poor people, we provide cash transfers for about IDR 200-300 [thousands] for the poor each month during 24 months (Interview with policy implementer 4).

Health insurance programs called “*Jaminan Kesehatan Masyarakat*” is prioritized for elderly women who unable to access expensive cost of health services. District government provides the fund for them so that they can access health services free. The budget for health insurance is from district government as well as national government budget. According to policy makers, Bantul district government covered about 5,056 poor people and elderly women in 2006.

Posyandu or “Health and Nutrition Integrated Service Centre” is women groups activities which provide services from maternal and child health, immunization, and family planning. *Posyandu* is supported by the local and national government under the Ministry of Health. *Posyandu* programs in Bantul started in the 1980s. During the reconstruction, *Posyandu* has vital roles in providing health services for village communities particularly children and pregnant women. A *Posyandu* usually serves 50-60 children and pregnant mothers. In the *Posyandu* nutrition programs, vitamin A supplementation was given to infants and under five children at least twice a year. The *Posyandu*

program is conducted every month at every village level. The operation of *Posyandu* is supported by medical doctors or midwives from the sub-district health center or *Puskemas*.



Figure 7.12 *Posyandu* in Bantul district during post-earthquake reconstruction 2008 (Source: The researcher field research document)

During reconstruction, women and children are often at higher risk of sexual violence and abuse. Adolescents, widows, unaccompanied girls, women headed-households and women living in poverty face high risks of trafficking, forced marriage, survival sex, and forced prostitution. To protect them from violence, Bantul district government has implemented programs to prevent and protect them such as replacing lost personal documents and increasing providing security guards around shelters. The government also provides social benefits for poor and senior women to help them survive during reconstruction. The government gives fresh funds of IDR 200-300 thousands for each poor family every month over the course of 24 months. Although this amount is not enough, it helps the poor during their hard times.

7.3.2.2.2. Strategies to strengthen gender capacities

Based on policy makers' interview, there are some strategies to help strengthen gender capacity in order to achieve economic sustainability in Bantul. These strategies include (1) enlarging job opportunities particularly for women; (2) funding and providing technical assistance for micro, small

and medium enterprises; (3) enlarging business markets; and (4) providing community and saving credit institution. The following transcripts show strategies to strengthen gender economic capacity conducted by the Bantul government.

Strategies to strengthen gender capacities

To strengthen gender economic capacity following an earthquake, we have four strategies (1) enlarging job opportunities for women; (2) funding and providing technical assistance for micro, small and medium enterprises; (3) enlarging business markets; and (4) providing community and saving credit institution (Interview with policy maker 4).

We work together with the Java Reconstruction Project in livelihood recovery project. This project is intended to provide technical assistance to more than 3,000 micro and small enterprises (most of them are women owned enterprises). More than 2,800 micro and small enterprise operators have improved business skills and more than 2,265 now have better access to markets (Interview with policy implementer 8).

Working with the state-owned bank (PT Permodalan Nasional Madani (PNM)) and microfinance institutions (MFIs) such as Bank Perkreditan Rakyat (BPR), the project has set up a revolving loan fund to serve micro, small and medium enterprises affected by the earthquake...more than 1,100 medium and small-scale enterprises have received loans with an average value of US\$775 per loan. The projects are providing much needed economic revitalization support for women. Nearly half of the beneficiaries of the technical assistance activities are women. More than 40% of the beneficiaries are women (Interview with policy maker 7).

Both livelihoods projects were extended until June 2011 to allow additional time to meet their objectives as well as develop exit strategies and strengthen capacities of district governments to continue livelihood recovery activities after the projects closed in 2011. Approximately US\$2 million is under consideration as additional financing for the two livelihoods projects. These funds would allow the projects to reach additional beneficiaries and enhance sustainability (Interview with policy maker 1).

Bantul district government implement labor intensive approach or they called “*padat karya*”. Through this approach, the government and donors prioritize local people to work on reconstruction projects. To give equal opportunity for women and men, the government implements open recruitment so that women and men who have skills and ability can work on the reconstruction projects.

The government also works together with the Java Reconstruction Project in livelihood recovery projects. This project is intended to help micro, small and medium enterprises by providing technical assistance, providing cheap loans and enlarging their markets. According to interviews with project coordinators, this project provides technical assistance to more than 3,564 micro and small enterprises (most of them are women owned enterprises). More than 2,800 micro and small enterprise operators have improved business skills and more than 2,265 now have better access to markets.



Women work in house reconstruction: they are not only paid but also learn how to build safe and secure house



Small-scale business in Bantul with majority runs by women

Figure 7.13 Women work in a house reconstruction and small-scale business in Bantul district
(Source: The researcher field research document)

The livelihood recovery project is also showing good progress. Working with the state-owned bank (*PT Permodalan Nasional Madani (PNM)*) and microfinance institutions (MFIs) such as *Bank Perkreditan Rakyat (BPR)*, the project has set up a revolving loan fund to serve small and medium business affected by the earthquake. Moreover, the government also encourage communities to establish community and saving credit institutions that provide financial services for community members to access fund. As of June 30, 2010, a total of 1,744 eligible SMEs have received financial or technical assistance through the project. More than 1,100 medium and small-scale enterprises have received loans with an average value of USD775 per loan (Java Reconstruction Fund Progress Report, 2011). The projects are providing much needed economic revitalization support for women.

Nearly half of the beneficiaries of the technical assistance activities are women. More than 40% of the recipients of microfinance loans under the project are also women.

With regards to strategy to strengthen gender capacity in environmental dimensions, policy makers explain that they implement four strategies: (1) involving women in debris and salvage management; (2) involving women in waste management; (3) involving women in *Kampung* improvement programs, and; (4) mobilizing women in village voluntary labor. The following transcripts present strategies to strengthen gender environmental capacity in Bantul.

Strategies to strengthen gender environmental capacities:

We have four strategies [in place] to strengthen gender capacity related to sustaining the environment during the reconstruction [phase] in Bantul. Firstly, involving women in debris and salvage management through empowering women groups in implementing waste recycle in creative way (i.e. handicrafts made from waste, rubbish bank arcade, vertical garden using plastic bottles). Secondly, involving women in waste management will empower them in the community waste management. Thirdly, involving women in Kampung improvement programmes and fourthly, mobilizing women in village voluntary labor (Interview with policy implementer 1).

Women in the Bantul village are in charge of domestic waste. Women in Bantul have much to contribute and the fact that most of the waste is generated from homes. They start by mobilize themselves providing private garbage collection service. Then, approaching the Bantul Administration Women Welfare and Bantul parliament members to support their activities (Interview with policy implementer 5).

We have Bantul Administration Women Welfare which works together with the community in promoting the role of women in environment sustainability such as implementing create waste management, Kampung improvement programmes and village labor (Interview with policy maker 2).

The biggest-component of environment-related damage and loss was debris management and salvage. To solve this problem, the government worked together with the community to manage it. For example, involving women and men in collecting and selecting debris that could be reused directly in reconstruction. Moreover, women groups are also actively involved in implementing created waste recycle activities such as rubbish bank arcades, vertical gardens from soda bottles, and handicrafts.

The district government has also established Bantul Administration Women Welfare which works together with the community in promoting the role of women in promoting environmental sustainability such as implementing create waste management, *Kampong* improvement programs, and village labor. For example, the Bantul Administration Women Welfare encourages women groups to participate in Kampong improvement programs. Women and men in these groups have leading roles in improving the living environment through community activities such as maintaining basic physical and social infrastructures from repairing roads, bridges and footpaths to providing water supply and sanitation, public taps, drainage canals, and solid and human waste disposal facilities. These result in better quality of facilities and services within the villages such as footpaths, lighting, health centers, and living space. Across the villages, it also shows improving access of citizen to clean water and sanitation, availability of private toilets, and less frequent flooding outside their homes.

Strategy to strengthen gender capacity within social dimension include (1) empowering women community groups in disaster response; (2) involving women in participatory mapping; (3) involving women in village assembly; (4) providing disaster awareness training for women, and (5) women leadership in family planning welfare programs. The interview transcripts below show various strategies conducted by the government to strengthen gender capacity during reconstruction.

The earthquake gives lessons to the government that empowering women in disaster response is vital to increase women capacity to respond to the disaster. The earthquake has proved that women with adequate and the right knowledge to respond to the disaster can make better choices to save families and communities. Various activities have been implemented to empower women community groups in Bantul in domestic disaster responses such as food and medical relief, stockpiling and distribution of relief supplies, the collection of donations, and volunteer activities. The government also invites women groups with young women members to participate in volunteer activities in disaster response. The volunteer activities include activities such as gathering information, administering first aid, preparing hot meals, tracing, and transporting and distributing relief supplies.

Strategies to strengthen gender capacities:

Bantul district government has five strategies to strengthen gender capacity within social dimension[s]: (1) empowering women community groups in disaster response[s]; (2) involving women in participatory mapping; (3) involving women in village assembly; (4) providing disaster awareness training for women, and (5) women leadership in family planning welfare programmes (Interview with policy maker 2).

We have implemented various activities to empower women community groups in Bantul particularly in domestic disaster response[s] such as food and medical relief, stockpiling and distribution of relief supplies, collection of donations, and volunteer activities. We also invited young women members to participate in volunteer activities in disaster response[s]. The volunteer activities includes activities such as gathering information, administering first aid, preparing hot meals, tracing, and transporting and distributing relief supplies. (Interview with policy implementer 1).

To improve gender capacity in disaster awareness, district government and Java Reconstruction Project provide training of disaster awareness for women, such as preparing a disaster mitigation plan and building early warning system based on local community, knowledge, and tools (Interview with policy maker 2).

The government used participatory mapping reconstruction with a gender lens to identify women and men's needs and concerns of reconstruction. It encourages vulnerable and/or marginalised group to involve in the process of reconstruction. For instance, more opportunities for them to present their idea and opinion related to the reconstruction of their housing like room designs, footpath designs for evacuation and choosing of more earthquake-resistant materials (Interview with policy maker 4).

In order to promote women leadership in the reconstruction process, the government encourages them to become members of village assembly or Badan Perwakilan Desa. Through village assembly, they have a legitimate power to articulate women needs and concerns within the district government development planning (Interview with policy maker 2).

Women leadership in Bantul is also shown in family planning welfare programmes. The programmes are implemented together with Posyandu programmes in which women leader[s] also have main roles (Interview with policy maker 2).

The earthquake in Bantul also gives lessons that vulnerability to disaster is closely linked with lack of preparation of the community to response to the disaster. To improve gender capacity in disaster awareness, district government and the Java Reconstruction Project provide training of disaster

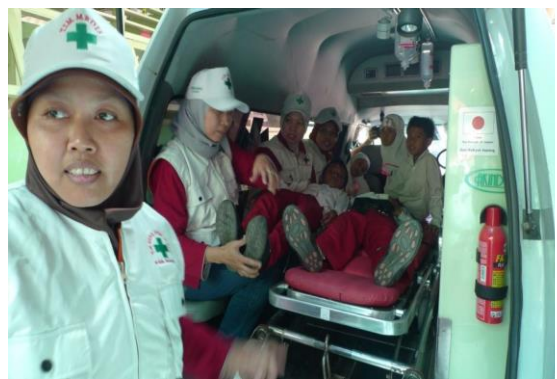
awareness for women, such as arranging a disaster mitigation plan and building community-based early warning system using local knowledge and tools.



Women groups with results of participatory mapping in Bantul



Women and men discussed together in participatory mapping activity in Bantul



A disaster response drill in Bantul in 2012. The projects successfully integrated disaster risk reduction and preparedness into local level recovery, leaving communities better prepared and more resilient to disasters

Figure 7.14 women and participatory mapping during post-disaster reconstruction at Bantul district (Source: JRF, 2011)

The government used participatory mapping reconstruction with a gender lens to identify women and men's needs and concerns of reconstruction. Men and women groups work together to identify the location of houses, public spaces, community roads, drainage systems, water supply and electrical circuits. The facilitators helped women and men groups organize themselves and carry out

community mapping. This is an integrated process that promotes higher participation from marginalized groups during reconstruction that will give greater voices for women and the poor in the process of project identification and deciding the priorities that affect the whole community.

To promote women leadership in the reconstruction process, the government encourages them to become members of the village assembly or *Badan Perwakilan Desa*. Through the village meeting, they have a legitimate power to articulate women's needs and concerns within the district government development planning. Women leadership in Bantul is also shown in family planning welfare programs. The programs are implemented together with *Posyandu* programs in which women leaders also have main roles. The genuine participation and leadership of women in those activities and institutions alongside men are proactively seeking to improve the sustainability of the reconstruction.

The next section presents various benefits of introducing gender mainstreaming for sustainability of reconstruction at Bantul. It shows that all efforts of Bantul government which are supported by the International donors and communities give various benefits for improving economic, social and environmental sustainability after reconstruction.

7.3.3 The benefits of gender mainstreaming into sustainability of post-earthquake reconstruction at Bantul district

This section presents the benefits of gender mainstreaming on sustainability of post-disaster reconstruction at Bantul. There are two main areas of reconstruction in this district: (1) rebuilding of housing and community infrastructures and (2) recovery of livelihoods. Rebuilding housing includes building temporary shelters, resistant houses and community infrastructures.

More than USD 77.4 million was allocated to *Rekompak* to build earthquake resistant houses and community infrastructures. After temporary shelters had been built to provide immediate refuge, the government of Indonesia's priority was to build permanent houses. Using the *Rekompak* approach, district government, partners, and volunteers were quickly mobilized to begin the reconstruction process in Bantul. Disaster risk reduction was included in all activities to ensure homes were earthquake-resistant and communities were better prepared to face possible future disasters. In addition to the houses and activities supported with the donor grant funds through the

Rekompak project, the Government of Indonesia also applied the *Rekompak* approach more broadly for its overall housing reconstruction programs in Bantul, using the Government's funds. Through this approach, nearly 35,000 houses were rebuilt in Bantul in less than two years (Bappenas, 2011).

Livelihoods recovery focused on enhancing finance access, tracing and regaining resources and assets, and also providing technical support to improve business skills to about 3,564 Small and micro enterprises (SMEs) across Bantul, particularly in affected areas. Regarding the projects, a total USD 17.2 million was committed to the recovery of livelihoods (JRF, 2011). Moreover, these projects establish support for women to revitalize economic activities that much needed. SMEs managed by women, especially in food and snack processing as well as handicraft production, were among the most suffered by the earthquake. JRF reported more than 40 percent of the beneficiaries are women (JRF, 2010). The project support provided these women entrepreneurs the assistance related to resources and skills enhancement with the aim to redevelop and improve their business and in the end will help them to gain higher incomes. Furthermore, women beneficiaries report they gain more power and influence in voicing their idea and opinion during decision-making process within their family and community.

Seven years after the earthquake, there are substantial achievements in the reconstruction of communities and the rehabilitation of livelihoods. The Bantul local economy substantially increased since the earthquake. Friendly housing environment is seen elsewhere across villages in Bantul. A culture of self-help tradition has been widely practiced. Across the villages, the tradition of voluntary labors and gotong royong are maintained. Figure 7.15 shows the progress of sustainable development following reconstruction in Bantul according to interviews with beneficiaries, policy makers, and implementers. Meanwhile, table 7.4 presents the condition of Bantul before and after the earthquake.

Nodes

Name
[-] Sustainable performance-Bantul
[-] Economic sustainability
<input type="radio"/> Growing of SME's
<input type="radio"/> Increasing job opportunities
<input type="radio"/> Reducing poverty
<input type="radio"/> Supporting local economic growth
[-] Environmental sustainability
<input type="radio"/> Enlarging earthquake resistance houses
<input type="radio"/> Friendly house environment
<input type="radio"/> Growing organic farming
<input type="radio"/> Increasing areas with earthquake warning system
<input type="radio"/> Increasing areas with evacuation roads
<input type="radio"/> Providing clean water and sanitation
[-] Social sustainability
<input type="radio"/> Improving education and education services
<input type="radio"/> Increasing kampong improvement programs
<input type="radio"/> Increasing Posyandu groups
<input type="radio"/> Increasing security and safety environment
<input type="radio"/> Reducing community conflicts

Figure 7.15 Progress toward sustainable reconstruction in Bantul district

Table 7.4 Bantul district before and after earthquake

	Before earthquake	After earthquake	
	2005 (one year before earthquake)	2007 (one year after earthquake)	2013 (7 years after earthquake)
<i>Social</i>			
Percentage village with access to primary and secondary school	76%	52%	86%
Percentage village with access to high school	54%	32%	73%
Percentage village with access to college and university	11%	7%	21%
Percentage village with access to public health centre	79%	49%	85%
Percentage village with access to hospital	61%	34%	72%
Number of villages <i>kerjabakti</i> voluntary labors	432 groups	512 groups	1562 groups
Number of villages <i>kampong</i> improvement groups	421 groups	612 groups	1671 groups
Number of villages <i>Posyandu</i> groups	720 groups	956 groups	1620 groups
Number of community social insurance groups	320 groups	867 groups	1421 groups
Number of community policing groups	653 groups	981 groups	1056 groups
Percentage of citizen social participation in community groups	76%	87%	90%
Number of social conflicts	41 cases	30 cases	15 cases
Number of crime	420 cases	570 cases	290 cases
Percentage of social trust	92%	94%	98%
<i>Economy</i>			
Number of active village cooperatives	321 groups	867 groups	1862 groups
Number of active small and medium scale enterprises	1578 enterprises	1931 enterprises	2761 enterprises
Number of ROSCA's group within villages	1908 groups	2871 groups	3671 groups
Percentage of unemployment	7%	9%	5%
Percentage of poor household	15.67%	30.10%	14.21%
District GDP per capita	4.9 million rupiah	4.4 million rupiah	8.1 million rupiah
District own revenue	33.2 billion rupiah	23.1 billion rupiah	46.1 billion rupiah
<i>Environment</i>			
Pollution density	15%	21%	9%
Percentage of slum areas	12%	15%	6%
Number of community waste recycling group	845 groups	1521 groups	1671 groups
Percentage of household who access clean water and sanitation	85%	54%	87%
Percentage village with disaster early warning system and evacuation system	0%	53%	92%
Percentage village with safety and security system	0%	45%	61%
Percentage village with disaster risk and management training	0%	56%	90%

Source: Indonesia Village Potential Census 2005-2013, Bantul Central Bureau of Statistics 2005-2013

7.3.3.1 Economic sustainability

Economic sustainability means the use of various strategies for using existing resources through responsible way so that it can be benefited for longer time. Economic sustainability is not just about realising high economic growth, but it is more about understanding that economic growth is only sustainable if it simultaneously improves the quality of life and the environment (United Nations, 2015). Signal of economic sustainability following earthquake reconstruction in Bantul are described by women and men key informants in the following interview transcript.

Economic sustainability indicators:

“Bit by bit I rebuilt the shop. Every week I went to the local BUKP (Badan Usaha Kredit Pedesaan or Rural Credit Facility) with my small amount of savings of IDR 150,000 a week (about US\$15). BUKP could see my progress from zero to having a good record so two years ago when I wanted more capital to buy more stock for my shop, they offered me the loan. Now I sell mattresses and have increased the amount of commodities I store, such as oil and sugar. Next, I plan to sell stoves and cabinets. I have never borrowed money before but I had no fear because of the low interest rate. If BUKP wasn’t there I wouldn’t have been able to have that reserve” (Interview with beneficiary 4).

She is 75 years old and she has been weaving since she was a child. However, the women will be the first to admit that their weaving was not held in high regard in the past. The material was not considered good enough quality for clothing but instead had more practical purposes. “Only locals used the fabric – as lurik gendong, that is to carry things on their backs to the mountains or fields. It definitely wasn’t considered fashionable,” she said. And more importantly, it made very little profit – as little as IDR 1,000 (or about US ten cents) per piece of lurik gendong. When the 2006 earthquake hit, many weavers were badly affected. As well as losing their houses, about half the weavers in the village lost their weaving equipment. In October 2009, the livelihoods recovery programmes were started. Training was offered in weaving skills, helping the crafters to improve the quality of their products and to diversify into other types of fabric, colours and techniques. New equipment and raw materials were provided and the weavers also learned business skills such as calculating expense and profit, as well as marketing. The end products now are hand-loomed fabrics called lurik and ikat used in clothing, and an innovative technique introduced by the technical assistance team, resulting in batik on lurik, which is called lurik, a fabric that has become quite popular. “We wouldn’t ever have thought of combining the two,” she said. The group’s work has been exhibited in fairs and exhibitions across the region, leading to lucrative contracts with, for example, government departments who want traditional fabrics for work uniforms. Initially the women worried that the prices they charged at the exhibitions were too high, and were amazed when they sold their entire stock. “It taught us about the market value of our work,” she admits. “We have gone from having no experience to having so much,” she said. The women describe their plans for expansion and getting their products to a wider market. Nevertheless, they insist it’s their self-reliance and confidence as a group, and this sense of community “togetherness” that they most value now. She said, “We are at our happiest when we have orders coming in, and we’re all working our hardest to meet the demand. That is a great feeling” (Interview with beneficiary 5).

Economic sustainability indicators:

We feel there is a lot of economic improvement since the earthquake hit Bantul. Micro, small and medium scale now has easily access to funding. They also have better technical skills to produce quality product. Moreover, they also have better marketing and investment management, which is important for their business sustainability (Interview with policy maker 1).

A local loan officer for local bank says, "Most of the people who borrow from us have a vision or dream to do something for themselves. Without our facility they wouldn't get a chance to do this." He became a loan officer shortly before the earthquake. He says the worst effect of the earthquake was the loss of capital for small businesses. "Once people got over the initial trauma though, they got back on their feet and began to apply for loans from us." He raises the same issue about the loan sharks, saying "We've been very successful in suppressing the power of the local rentenir or lintah darat (loan sharks) who come around when people are most in need. The great part of the job is to be able to genuinely help these people and to provide capital to help them start a better livelihood – and a better life" (Interview with policy implementer 1).

We have a confident economic growth since the reconstruction. Our gross domestic product has grown 3-5 per cent [on average] over the duration of seven years. District own resources revenue has grown [to almost double] from 23.1 billion rupiah to 46.1 billion rupiah. Unemployment rate in this district has decreased sharply. The number of poor people has also decreased substantially ... this progress is very good for our future development (Interview with policy maker 1).

Seven years after the earthquake, substantial improvement has been achieved regarding economic sustainability in Bantul. The economic reconstruction has produced substantial results in supporting SMEs. Technical assistance and asset replacement program were able to reach more than 3,564 small business (Java Reconstruction Fund Progress Report, 2011). Meanwhile, the financial assistance was able to reach more than 3,721 total beneficiaries which are surpassing the initial targets by more than 1,200 (Bapenas, 2011). The program also successfully replaced the beneficiaries productive physical assets (i.e. livestock, equipment, tools and facilitates) damaged with 95% of the assets being used by beneficiaries. The project was reported that over 87% of small business' beneficiaries able to recover and increase their sales and profit at the end of the project (JRF, 2011).



Figure 7.16 Micro, small and medium enterprises in Bantul district after earthquake reconstruction (Source: Bappeda Bantul documents)

The success of economic livelihood reconstruction in Bantul district positively affects the local district economy. Unemployment rates in this district decreased sharply from 9 percent in 2007 to 5 percent in 2013. Percentage of poor people also decreased from 30.10 percent in 2007 to 14.21 percent in 2013. District own resources revenue has almost doubled from 23.1 billion rupiahs to 46.1 billion rupiahs, and this has boosted the citizen economic welfare as indicated by the improving district gross domestic product per capita from 4.4 million rupiahs in 2007 to 8.1 million rupiahs in 2013 (Bappenas, 2011).

7.3.3.2 Environmental sustainability

Post-earthquake reconstruction at Bantul was also able to increase environmental sustainability. The progress of achieving environmental sustainability in Bantul after reconstruction can be seen from the experience of key women and men informants as described in the following interview transcript.

Environmental sustainability indicators:

“We received training for planting organic farming such rice and vegetables. These training helps us to increase our income since the price of organic product is more expensive than non-organic product” (Interview with beneficiary 6, a 41 years old woman)...“Organic farming also substantially reduces our expense of chemical fertilizers prices. I can save money for buying pesticide and chemical fertilizer at about 900.000 rupiah” (Interview with beneficiary 7).

“Now we all know the evacuation route, so when there is danger we know where to run. Also, with the walkie talkies Rekompak provided, we can communicate which areas are dangerous and in which directions we should run in case of disaster” (Interview with beneficiary 7).

“The creation of safe communities is essential in a country like Indonesia where various types of natural disasters occur every year. The involvement of district governments is a key to success in developing and implementing Disaster Risk Reduction plans. The Community Settlement Plans integrated disaster risk reduction plans and communities in Java learnt how to identify potential disasters that could affect their settlements. Beneficiaries learnt how to review previous village development plans and develop new ones with appropriate facilities that would lead to safer communities” (Interview with policy maker 5).

“More than 300 Javanese villages built disaster-mitigating infrastructures, such as retaining walls and evacuation routes with help from Rekompak. District governments are now better equipped to support the spatial planning process and extend that support to other communities. In addition, national and district governments have improved disaster risk reduction planning and management skills ”(Interview with policy maker 5).

“More than 300 villages built disaster-mitigating infrastructure such as retaining walls and evacuation routes. District government and communities also built specific evacuation mechanism for vulnerable women, elderly and children including providing community protection unit, mass transportation, emergency unit, communication, and healthcare services” (Interview with policy implementer 3).

“The Java earthquake in 2006 demonstrated that even more emphasis was needed on disaster risk reduction. Many homes - and lives - could have been saved in Java if basic anti-seismic measures had been used in construction. Poor construction methods without adequate reinforcement left brick and cement walls and heavy clay tile roofs to crumble down on occupants. Because of this experience, both Rekompak and the Government’s overall reconstruction in Java set stricter seismic-resistant building standards in place for all reconstructed houses. Two prominent universities in Java, Diponegoro University in Semarang and Gadjah Mada University in Yogyakarta, were commissioned by Rekompak to inspect every house built under the project and provided certification that 96 percent of the houses met the standards for earthquake resistance. Rekompak’s commitment to building safer houses helped to reduce vulnerability and spread awareness and skills in earthquake resistant construction methods to reduce the impact of similar disasters in the future ”(Interview with policy maker 4).

In Bantul, the message about quality materials that meet seismic-resistant standards was widely understood. Before Rekompak came to the village many people had used 8 or 10 millimetre reinforcement bars for their homes instead of the 12 millimetre bars required by Rekompak. One local shop, sensing a marketing advantage, hung a banner outside stating “We Sell JRF Bars.” Whilst it certainly wasn’t the intention of organizers to use the JRF as a brand, it was a good indicator that the beneficiaries understood the importance of buying the correct size reinforcement bars (Interview with policy implementer 3).

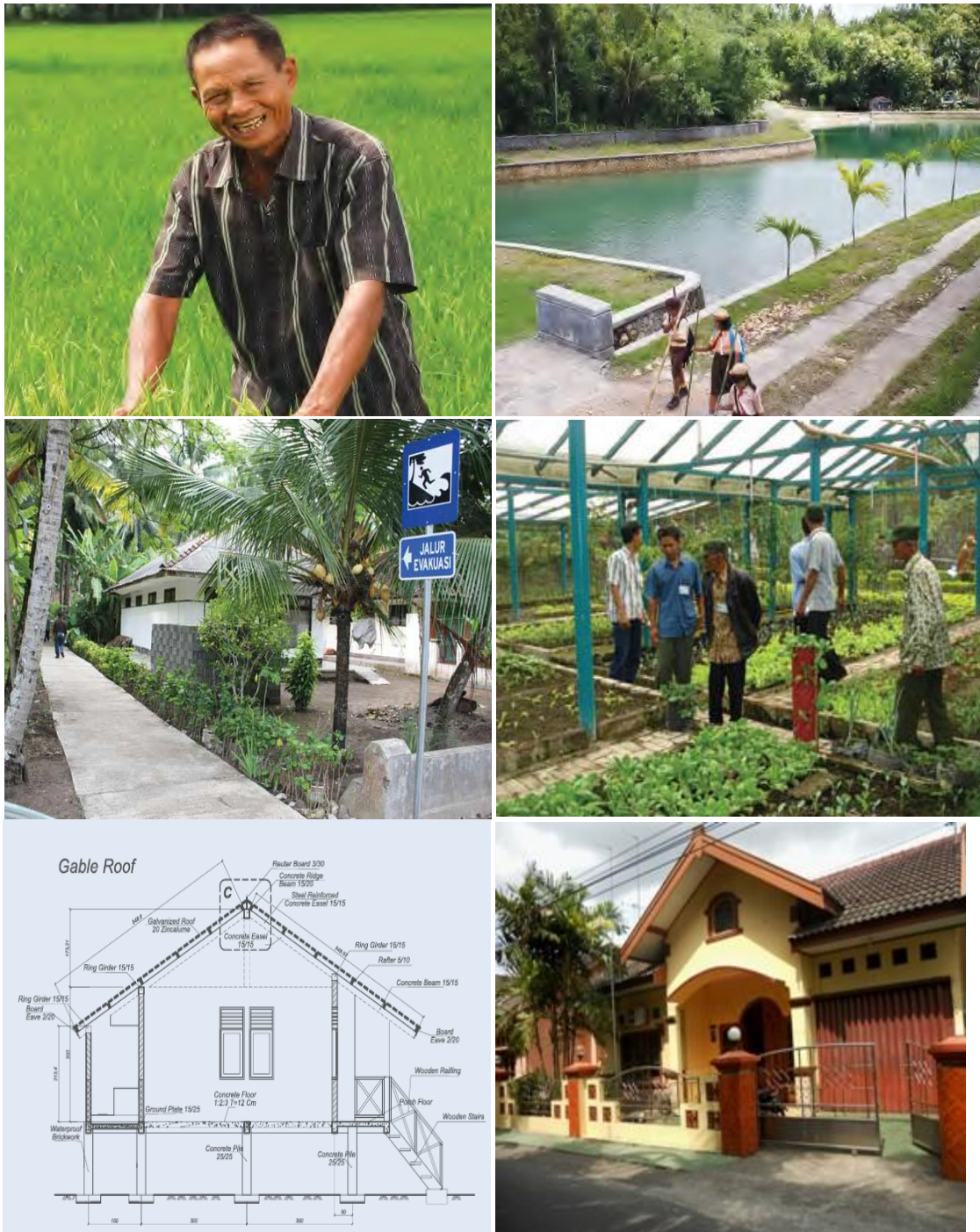


Figure 7.17 Organic farming, clean water system, evacuation route and housing construction standard in Bantul district after reconstruction (JRF, 2011).

Environmental sustainability was an early concern for Bantul's reconstruction and remained an essential focus throughout reconstruction process. Guidelines were developed and monitored to assure that there was minimal effect on the environment because of the reconstruction works. Issues considered include sanitation, waste management, the use of reconstruction materials like timber, and the role of communities and government in environmental management. When large-scale reconstruction is required, locally sourced building materials such as wood must be carefully managed to assure minimal environmental damage.

Because of the large number of houses had to be rebuilt after the earthquake, wood not only became scarce but the price soared dramatically, and there was fear that the huge volume of timber needed for the reconstruction could result in the destruction of Bantul's forests. Reconstruction addressed these environmental concerns by putting in place strategies for reducing the use of timber by, for example: using light weight steel for the roof trusses of houses and schools; reusing existing timber as much as possible; using scaffolding made of bamboo and; and providing regular supervision on the use of timber. In Bantul, timber sourcing was much less of an issue than in Aceh or Nias. Nevertheless, mitigating efforts were implemented to prevent adverse environmental impacts. When trees needed to be removed to accommodate the widening of roads and pathways or for drainage, for example, one locally available tree was planted for each tree removed. In cases where communities needed to relocate, proper environmental and social safeguard procedures based on World Bank standards were followed to ensure that no adverse impacts occurred. Relocation sites of more than five hectares were required to undergo an environmental impact analysis to ensure proper land usage of the sites and suitable construction methods. In some cases, some communities chose to relocate either because sites were deemed too dangerous for people to live in, and landslide-prone areas.

The Bantul earthquake demonstrated that even more emphasis was needed on disaster risk reduction. *Rekompak's* commitment to building safer houses helped to reduce vulnerability and spread awareness and skills in earthquake resistant construction methods to minimize the effect of similar disasters in the future time. Housing construction should be based on seismic-resistant houses standard. Checklist for building seismic-resistant houses is provided such as:

- The building layout should be simple, symmetrical, integrated and uniform in order to eliminate the possible effects of torsion. Building structural elements (foundation beam, support columns, and tie beams) must be strongly and solidly connected to each other.
- The foundation must be built on firm, stable soil and must be rigidly bound with a foundation beam.
- Buildings must have supporting columns (beams, reinforced concrete and steel) for every 12-square-meter wall. Supporting columns must be bound to the foundation beam and tie beams.
- Buildings must be made of good quality bricks/concrete bricks.
- Columns must be anchored to the foundation beam or to the foundation.
- Walls must be anchored to the surrounding columns and beams, using 6-millimetre anchors with a length of 50 centimetres. The spacing between the anchors must not exceed 30 centimetres.
- Gaps in walls for windows and doors are better when symmetrical and not too wide.
- Mortar must be of the correct ratio of cement, sand and water.
- A precise ratio of cement, sand and pebbles must be used for all concrete elements in the building, with appropriate reinforcing.
- Wooden, concrete or steel tie beams must be properly tied to the columns.
- Roof structures must be made of dry wood, and use correct and strong joint construction.
- Roof coverings must be made of light materials (Java Reconstruction Project, 2008).

The creation of safe communities is essential in a country like Indonesia where various types of natural disasters occur every year. The involvement of district governments is a key to success in developing and implementing disaster risk reduction plans. The community settlement plans integrated disaster risk reduction plans and communities in Bantul learned to identify potential disasters that could affect their settlements. Beneficiaries learned how to review previous village development plans and develop new ones with appropriate facilities that would lead to safer communities. More than 300 Bantul villages built disaster-mitigating infrastructures, such as retaining walls and evacuation routes with help from *Rekompak*. District governments are now better equipped to support the spatial planning process and extend that support to other

communities. In addition, national and district governments have improved disaster risk reduction planning and management skills. Today, almost all earthquake prone areas in Bantul have early warning systems and evacuation systems.

Furthermore, the livelihoods programs are generating important lessons learned. The programs have created more innovative approaches to fill the livelihood recovery needs from communities within post-disaster conditions and have provided positives results. For example, the programs introduced organic farming, which is not only beneficial for environmental protection but also assists the local community groups and particularly women since it gives side jobs that provides additional family income. Women grassroots organization has involved in various activities to maintain the environment. For example, they have introduced the organic farming system for food production and reducing the use of pesticide. In several areas across Bantul the organic farming products are well-known, mostly for organic rice and vegetables and became one of tourist attraction. The roles of women in building friendly environment around housing can be found in a lot of villages that be done by many women grassroots mobilise themselves to plant green trees along village roads and garden. They also established *TOGA (Tanaman obat keluarga)* groups with intention to preserve the indigenous herbs for medical and cooking spices purposes by plant those herbs in front of the house, backyard garden, pot, and any other spare land. Furthermore, women also involve in debris and waste management in their communities through an activity to recycle them creatively (i.e building vertical garden using plastic bottles, making handicrafts from wood, plastic and other waste, and making rubbish bank arcade). In addition, women were very active to participate and to involve in *kampoeng* improvement programs (village improvement programs) by join the voluntary labor or *kerja bakti* to maintain village's public infrastructures and keep the village clean and healthy.

The signal of improving environmental sustainability in Bantul is seen from various indicators. For example, the pollution density decreases from 21% in 2007 to 9% in 2013. Percentage of slum areas also decreased to almost double. The number of community waste recycling groups across villages increased to almost triple following reconstruction. The percentage of households who were able to access clean water and sanitation also increased sharply from 54% to 87% (Bappenas, 2011).

7.3.3.3 Social sustainability

Social sustainability refers to the community capability to build processes and structures that should meet the needs of the present member and also provide the ability of next generations to preserve a better community. It is generally similar in environmental sustainability concept which concerns the future generations to have the equal or even better access to social resources like education, human rights, security, culture, and welfare. The following interview transcript describes some signals of social sustainability in Bantul following reconstruction. Both women and men key informants agree that reconstruction in their place contributes to creating social sustainability.

Progress of social sustainability indicators:

Seven years on from the earthquake disaster, we feel that our community has achieved a lot of progress. In general, now we feel happier and more satisfied with the current situation. For example, we now have better access to education, since the reconstruction we have successfully built many primary and secondary schools so that our children have greater access to education. Public health centres and community healthcare services have also been established across villages. Now we can easily go to access healthcare... (Interview with beneficiary 1).

Now, we feel that we live in a more secure and safe community. We never see crime and social conflicts in our community...everything is going very well since the reconstruction (Interview with beneficiary 2).

I think most people know that all neighbors in our community have a strong relationship and strong trust...all community members are happy to engage in community programmes both from the district government and community initiatives...they are happy and willing to actively be involved...(Interview with beneficiary 3).

The community-based approach enhances community ownership. Not only that we see that it also strengthen local governance. For example, it able to increase accountability and contribution of communities. The occupancy rate of houses reconstruction across the villages was 99 percent which means most of villagers were satisfied with the housing reconstruction (Interview with policy maker 4).

Seven years after the earthquake, substantial improvement has been achieved regarding the social sustainability of reconstruction in Bantul. For example, regarding education and health services, both men and women gain better access to education and health services. Some community organizations, such as village voluntary labors (*kerjabakti*) and community health services (*Posyandu*) groups where most women actively participate in community development increase substantially in 2013. With support Bantul district government, villagers have established

community social insurance groups to protect poor and older people from getting better health services access. The number of such community social insurance groups in Bantul increased following the reconstruction process.



Figure 7.18 Education and health services in Bantul district after earthquake reconstruction
(Source: JRF, 2011 and *Bappeda* Bantul documents)

Some *Kampong* improvement groups also increased following reconstruction. Such groups have important roles to improve the living environment across disaster-affected areas through activities such as maintaining basic physical and social infrastructures from repairing roads, bridges and footpaths to providing sanitation and clean water supply, public water outlets, drainage facilities, and public bath rooms and toilets. The most positive impact of *Kampong* Improvement Programs in Bantul was the better quality of the village for its residents since there was an upgrading of some

facilities, i.e., footpaths, public road lighting, *PAUD* (early age education/play group), village health facilities (*Polindes*), Public Park or garden, and housing density reduction. Additionally, there is an improvement in access to clean water by building pipe system from the water spring to the houses, upgrade the private toilets and sanitation within houses that much better than the condition of the public wash and toilets facilities.

The awareness of Bantul's community to build a safe and secure environment of the communities following the earthquake has been recognised by their active roles in community policing groups within neighbourhoods. The number of community policing groups or *siskamling* (*sistem keamanan lingkungan*) in Bantul has increased substantially since reconstruction. In Bantul, *siskamling* currently takes on three different forms: the SATPAM (*satuan pengamanan*, or security guard), the so-called HANSIP, and the much older *ronda* (night guard). SATPAM guards are responsible for protecting commercial and public buildings and spaces, while HANSIP and *ronda* guards patrol residential neighborhoods. The SATPAM and HANSIP guards are low-paid workers, while the *ronda* is made up of volunteers providing non-paid, obligatory community services. Following reconstruction, *ronda* groups in Bantul increased. The *ronda* is not only conducted during night time but in the day time when women lead patrols around the environment of a village or neighbourhood. As most women know better of all villagers, they have an impressive ability to recognise details that indicate a threat. For example, they may notice a person because he or she is a stranger to the neighborhoods. With such community, policing groups number of crime and social conflict across villages in Bantul decreases. For example, reports of Village Potential Census 2013 show that the number of crime incidents in Bantul decreased from 570 cases in 2007 to 290 cases in 2013. The number of social conflicts also decreased from 30 cases in 2007 to 15 cases in 2013.

The next section presents constraining and enabling factors for mainstreaming gender within reconstruction at Bantul. This study found that there are more numbers of enabling factors than constraining factors that affect the mainstreaming gender in Bantul's reconstruction. These factors may be the reasons of the effectiveness of integrating gender mainstreaming strategies in the district.

7.3.4 Constraining/enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district

The interview found two constraining factors for integrating gender mainstreaming in Bantul's reconstruction: (1) traditional culture of bureaucracy and (2) low capacity of bureaucrats. The enabling factors from community include women participation, women leadership, and rich community social capital. Meanwhile, enabling factors from government are the high commitment of district government leaders and availability of gender policy framework. This study also shows enabling factors from donors, which supports the reconstruction programs from beginning to the end. Figure 7.19 presents coding structure of enabling conditions and constraining factors of integrating gender mainstreaming within post-disaster reconstruction in Bantul district.

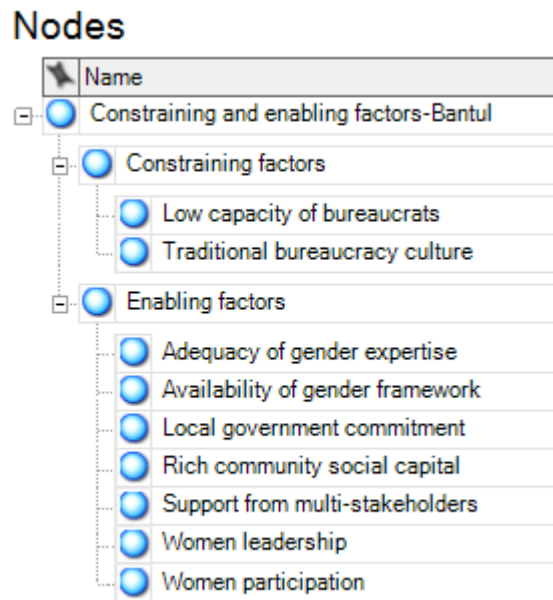


Figure 7.19 Constraining and enabling factors of mainstreaming gender within post-earthquake reconstruction in Bantul district.

7.3.4.1 Constraining factors

7.3.4.1.1 Traditional bureaucracy culture

Key informants explain that traditional bureaucracy culture exists within some senior staffs at the Bantul government office. The resistance of senior members to give women more chances to participate within reconstruction appears due to their belief that women roles in domestic jobs or

the informants said as “*konco wingking*”. *Konco wingking* means that women's main jobs is on the back of her husband or family, her main job is to look after her husband and family by doing cooking and washing. Therefore, they believe it is prohibited for women to work outside their homes. In some cases, this traditional bureaucratic culture challenges women leadership during reconstruction. For example, some senior bureaucrats in Bantul were not happy when various strategic positions in reconstruction programs was led by women bureaucrats. However, later on after the women leaders showed that they are capable of doing their job, the senior bureaucrats did not complain and even supported these women leaders. The following interview transcripts explain this traditional culture.

Traditional bureaucracy culture

We found some senior members of district government staff quite resistant to giving more chances to women participating during the reconstruction phase. This is because some of them still cling to the traditional Javanese culture which believes that those women roles in domestic jobs or the informants known as “konco wingking”. Konco wingking means that a woman's main job is on the back of her husband or family, her main job is to look after her husband and family by doing cooking and washing (Interview with policy maker 4).

Some senior bureaucrats in Bantul were not happy when various strategic positions in the reconstruction programme were led by women bureaucrats. However, later on, after the women leaders showed that they are capable of doing their job, the senior bureaucrats did not complain and even supported the women leaders (Interview with policy maker 4).

For us the “Konco wingking” culture is not relevant anymore. This kind of [machismo] belief should be removed from governmental practices, because its roots run contrary to helping establish women and men as possessing equal chance to participate during the development phase (Interview with policy maker 5).

Key informants also explain that this culture is rooted in traditional Javanese belief, which strongly influences senior members of district government bureaucrats. However, for young bureaucrats' staff this traditional Javanese culture is not relevant anymore. For young bureaucrats who are educated in a modern university they understand that this kind of machismo belief should be removed from governmental practices; as its roots run contrary to helping establish women and men as equals in gaining an opportunity to participate during the development phase.

7.3.4.1.2 Low capacity of bureaucrats

Low capacity of bureaucrats is another issue, which challenges the implementation of gender mainstreaming strategies within reconstruction in Bantul. Results from interviews with key informants show that some bureaucrats do not understand what the meaning is of gender mainstreaming and how to mainstream gender within the process of development and reconstruction. Some senior staff members also misinterpret gender mainstreaming. For them, gender mainstreaming is all about women who want to occupy the roles of men in society called “*pengambilan peran laki-laki oleh perempuan*”.

Low capacity of bureaucrats

*Yes, there are some challenges which we want to implement in gender mainstreaming strategies within reconstruction. The concept of gender mainstreaming for some staff especially senior staff is relatively new. So, some of them do not know and understand what the meaning of gender mainstreaming is and how to mainstream gender within the process of development and reconstruction... We also found that some senior leaders misinterpret gender mainstreaming. For them, gender mainstreaming is all about women who want to occupy the roles of man in society called “*pengambilan peran laki-laki oleh perempuan*” (Interview with policy maker 4).*

We also see that some young bureaucrats who understand the meaning of gender mainstreaming that they do not have enough technical capacity to put the concept in to district government policy and programmes (Interview with policy maker 1).

We found the role of gender experts from International donors and universities is vital in tackling these challenges. They provide us training and workshop on gender mainstreaming within reconstruction policy and practices. In this training and workshop, they explain how to put gender-mainstreaming issues in the reconstruction process. The experts also provide technical assistance within each of the reconstruction programmes implemented by the district government (Interview with policy implementer 1).

Moreover, some young bureaucrats who understand the meaning of gender mainstreaming do not have enough technical capacity to put the concept in to district government policy and programs. Therefore, the role of gender experts from International donors and universities is vital in supporting these bureaucrats. For example, during reconstruction planning, they provide training and workshops on gender mainstreaming within reconstruction policy and practices. During this training and workshop, they explain how to put gender-mainstreaming issues in to the reconstruction

process. The experts also provide technical assistance within each reconstruction programme implemented by [local] governments.

7.3.4.2 Enabling factors

This section elaborates on some supporting conditions of integrating gender mainstreaming within earthquake reconstruction in Bantul. Based upon interviews with key informants, it has identified some enabling factors from the community (i.e. women participation, women leadership, and rich community social capital), enabling factors from the government (i.e. high commitment of district government leaders and availability of gender policy framework), and enabling factors from donors (i.e. support the reconstruction programs from beginning to the end).

7.3.4.2.1 Women participation

Women participation within the Bantul district government is high. Women are mobilised and have organised themselves through *arisan* (ROSCAs), *Posyandu* (village health centres), Programs *Kesejahteraan Keluarga* (Family Welfare Programs), *Usaha Kecil Menengah* (Small and Medium Scale Enterprise) and *Kerjabakti* (Village Labor). These groups are involved from the beginning to the end of reconstruction. The government and the *Rekompak* projects promoted women's participation in these groups in all aspects of community planning and decision making of reconstruction and recovering livelihoods. Here the groups discuss a model for proposed reconstruction of their settlement based on the community settlement plan, which they helped their community develop after the earthquake.

It is important that women's voices are not just heard, but also their voices were counted. In the reconstruction projects, women were supported to actively involve in the community planning process. The intent was to focus on several of the key challenges faced by women during post-disaster reconstruction and on their needs especially about housing and community infrastructure. The government and *Rekompak* project facilitated and encouraged meaningful opportunities for women to be involved in discussions and decisions. Ensuring full participation of women and meeting their needs was more successful in some cases than in others. Factors contributing to how successfully women had involved whether women had a role in community decisions before the disaster and whether or not a particular community already valued women's opinions.

Women participation in Bantul:

Prior to the earthquake, ibu Ratna and her husband Pak Heru owned a house located in Pandak Bantul. Their home was one of many destroyed by the earthquake in 2006... When it came time for Ibu Ratna and her family of four to rebuild their home, the Bantul government and Rekompak projects were there to assist them. The family actively participated in community preparation activities that led to the formation of a household group. The group of nine included four women who made up 44 percent of the group, a much larger percentage than the usual 10 – 20 percent... Labor supply was a persistent problem in the construction of houses in the village. The women in Pandak understood the serious implications this posed in terms of the housing group's ability to finish their houses on time, and they filled in for the limited supply of workers. Ibu Ratna, who is in her forties, quarried sand and carried construction supplies such as bricks and sand from pile to pile within the construction site. She stated that this involvement in the physical construction allowed her to personally supervise and check on progress. The savings generated by doing simple construction chores herself were utilized to purchase other materials for her house (Interview with beneficiary 9).

With the help of the community settlement planning process, women in Jetis Bantul, played an active role in preparing for possible future disasters. Of the 30 volunteers chosen to participate in the Disaster Risk Reduction planning in each neighbourhood, 20 were women (Interview with policy implementer 1).

According to Ibu Sri, one of the beneficiaries, the reason so many women became involved was because they had become aware of the higher risks facing women. Of the more than 650 earthquake Jetis Bantul, a disproportionately high number were women and children. A number of the small kiosks on the beach were run by women, and many women were in their homes when the quake struck. Ibu Sri knew a number of the women who died and this was one of the driving forces for her to get involved. She and her group of volunteers spend their spare time spreading the message of disaster-preparedness. "We're everywhere! Village meetings, public gatherings at the mosque, we are there with our campaign materials," she said proudly (Interview with policy implementer 2 and beneficiary 2).

Recognizing the limited role that women traditionally play in community affairs, the government and *Rekompak* aimed to involve women from the outset. Progress was measured by the average of women participation rate during the planning process in the community and the rate of women participation as committee members. Holding some separate formal and informal meetings for women ensured women's opinions were recorded and considered in reconstruction project implementation. This is important in situations where women are traditionally unlikely to state their opinions and ideas if men are around. Engaging women in decision-making processes is a challenge

that requires continuous effort. Regular monitoring and evaluation are also required, and when targets are not reached, it is important to be flexible in trying out and implementing different approaches.

The reconstruction projects trained and used women facilitators to include gender sensitive considerations in project implementation. Women facilitators were welcomed by female beneficiaries who felt that women better-understood issues of concern to them. The facilitators encouraged women to participate in the design and building of their own homes and the layout of their communities. Some women beneficiaries provided ongoing oversight, rather than building their own homes, but ensured that the homes being built were of good quality. They learned about book keeping, procurement of construction materials, and construction quality standards and supervision – activities previously mostly handled by men.

Labor was in short supply in most villages and the work contributed by women positively influenced the home and community infrastructure construction progress. In most cases, the reconstruction of communities would not have finished as quickly without the assistance of women. Women who had never picked up a construction tool stepped in and cleared rubble, hauled heavy wheel barrows, and laid crushed stones and sand in preparation for building roads. Women served on committees and wrote reports. They supplied much needed additional labor and were empowered to take part in decision making. Some managed this more successfully than others, but for many women, this level of participation opened a pathway to greater self-reliance. Some women, for example, built own homes, participated in village meetings and were elected to the village assembly and the project committees.

7.3.4.2.2 Women leadership

Women leadership is high in Bantul. Shortly after the earthquake, women groups mobilized themselves to look for their daily requirements for their family, such as milk and biscuit for their children, blanket and clothes for elders, and many others. They also found the safe location to evacuate and save their wealth. During reconstruction, women leadership is vital to ensure the voice of women articulated in the reconstruction plan, to ensure women participation in reconstruction implementation, monitoring and evaluation.

Women leadership in Bantul appears through the role of women's groups in promoting their concern and interest during reconstruction. For example, women groups organized themselves for surveying to identify the most needed families following the quake. At the beginning of reconstruction, women groups meet the staff of Bantul district government that responsible for reconstruction design to report the findings and also their village decisions of reconstruction. They also regularly encourage the staffs from the district government to attend village assembly meetings in their villages so that they able to share important decisions with all affected families.

Recognizing the vital role of women to achieve effective reconstruction, the district government and the "*Rekompak*" project decided to establish a women group that should participate in the Repair and Strengthen Housing Programs. The project was organized by 450 women's groups throughout villages within the district. Most of women attend these events so that they able to evaluate reconstruction program and discuss how women groups can involve and lead the program. From the discussion, they proposed an idea to choose one of their members as formal information and communication assistance who has the main job to inform and communicate with the Bantul government. They negotiated with the government and donor so that the assistance can be paid and has a formal position for doing their job. Through this way, the voices of women groups can be recognized formally by the government. To do this job, women leaders should have the capacity to inform, motivate and monitor houses owners. To improve the groups' capacity, *Rekompak's* project provides leadership training and technical assistantship to 550 women leaders who were selected by their groups. In these training, women leaders learn about basic construction techniques for building earthquake resistance house and how such construction can help their communities in the future.

Women groups were also involved in planning and designing the houses. They worked with the government to ensure the community needs addressed in the housing reconstruction. As their role in the reconstruction has increased, trust to women leaders from communities has increased. In some villages, women leaders were selected as villages' assemblies' representatives or *Badan Perwakilan Desa*. As a village assembly representative, she was able to directly communicate with the top district officials to complain any issues such as when a signal of corruption issues in housing reconstruction. As a result, the top of district officials trusts women groups to work with them in purchasing and transporting reconstruction materials in some villages.

7.3.4.2.3 Support from multi-stakeholders

The stakeholders included NGOs, International donors, and universities. All played an important role, as well as creating a significant force in the efforts to deal with the reconstruction in Bantul. NGOs help district government to provide assistance during the reconstruction process. For example, they provided support to the district government in assessing damage and the economic costs of planning and financing during the reconstruction period.

Support from donors

Support from NGOs during Bantul reconstruction was abundance. They are actively involved from the beginning to the end of reconstruction. During the planning stage, they worked together with district government in assessing damage and economic costs... (Interview with policy maker 2).

We used many ways to ensure gender components included in the reconstruction process in Bantul. First, during planning stage we help district government to include gender components in assessing damage and economic cost. In particularly, we help them to identify vulnerable women affected by the earthquake. Second, during implementation we help district government to recruit women volunteers who help the community so that construction also meets the needs of women. Third, we were also involved during monitoring and evaluation so that women needs and concerns are included... (Interview with policy implementer 1).

Support from NGOs during Bantul reconstruction was abundant. They were actively involved from the beginning to the end of reconstruction. During the planning stage, they worked together with district government in assessing damage and economic costs... (Interview policy maker 2).

The support from International donors was so huge during the reconstruction in Bantul. They were really helpful, not only in providing funding but also in giving many technical assistance for us... (Interview with policy maker 2).

The donors through Rekompak project and district government requires gender components in the reconstruction planning process checklists. This practice helps us to ensure that gender components are integrated within the process of reconstruction planning...(Interview with policy implementer 1).

In order to give equal opportunities for reconstruction jobs, the donors require the Rekompak project to open equal recruitment for women and men... In order to support the process of promoting gender concerns and interest within the reconstruction process, the donors through the Rekompak projects help us to recruit gender mainstreaming specialists from universities as well as from non governmental organizations (Interview with policy maker 5).

According to an interview, in this stage, they always try to ensure the gender component to be included in assessing damage and the economic cost. NGOs are also involved in the implementation process. They help district government in recruiting *relawan* or women volunteers to help the community so that construction also matches the women needs and concerns. NGOs in Bantul also actively involves in the monitoring and evaluating the process to ensure that gender concerns and interests are accounted.

Support from donors was huge during the Bantul reconstruction. The Java Reconstruction Fund received approximately USD 94 million from seven donors to rebuild homes, communities, and livelihoods in Bantul. The donor not only gives funds, but they also provide various technical assistance during the reconstruction process. With regards to promoting gender mainstreaming during the reconstruction process, the donors involved during the reconstruction planning ensure that gender concerns are included in the planning process. For example, the donors through *Rekompak* project and district government require gender components in the reconstruction planning process checklists. This practice helps them to ensure that gender components are integrated within the process of reconstruction planning.

During reconstruction implementation, the donor also requires the *Rekompak* and district government to ensure equality of women and men participation in the reconstruction implementation. For example, to give equal opportunity for reconstruction jobs, the donors also require the *Rekompak* project to open equal recruitment for women and men. During monitoring and evaluation, the donors also support the women concerned, and reconstruction results are highlighted within the monitoring and evaluation process. To support the process of promoting gender concerns and interest within the reconstruction process, the donors through the *Rekompak* projects help to recruit gender mainstreaming specialists from universities as well as from non-governmental organizations.

7.3.4.2.4 Rich social capital

Rich community social capital is another factor that allows gender mainstreaming in Bantul to be effectively introduced. The reason behind district government and International donors' reliance on community participation in the reconstruction programs was that Bantul has a rich social capital which in local language is called "*gotong royong*". The mean of *gotong royong* is related to situation

when community members are doing works altogether voluntary and without being paid. It also can be understood a cooperation within group member and/or with other groups in doing public works. Its spirit leads men and women to actively participate in post-disaster reconstruction projects.

Rich community social capital

As Javanese people, we have a cultural tradition called “gotong royong” which refers to collective work among women and men for common good in the community. The spirit of this cultural tradition was very important during reconstruction as it encourages women and men both in affected communities and non-affected communities to work together providing any assistance that they can do (Interview with policy implementer 5).

Bantul differs with other locations in Indonesia, in terms of rich community social capital that helped establish the village. The Bantul people called this social capital the term “gotong royong” or self-help collaboration within and between community groups. The spirit of gotong royong has strongly encouraged the community both women and men to become actively involved in the reconstruction programme (Interview with policy implementer 3).

Solidarity amongst women and men is very important in mainstreaming gender issues and concerns during the planning stage. For example, strong solidarity influences community members in their decision to prioritise vulnerable women that should receive the programmes very first. Without such strong solidarity, we can never make such a good decision (Interview with policy implementer 1).

Gotong royong is also vital during the construction of the house. Women and men in the community more interested to use their own materials and design in reconstruction of their houses through gotong royong rather than give it to contractors. Therefore, the rejected contractor will build their houses when the community are not able to decide what they want for their houses. Women for example cannot design their own kitchen and backyard if the contractors build their house (Interview with policy implementer 1).

During livelihood recovery, strong trust amongst women within Usaha Kecil Menengah (Small and Medium Scale Enterprise) is vital for sustainability of donor funds... Our Posyandu also relies on strong solidarity amongst women. For instance, women in Bantul mobilise themselves to collect foods, milks and vegetables and they then distribute it to elderly people and children across the village during reconstruction (Interview with policy implementer 6).

The interview with community members, facilitators, donors and policy makers show that this social capital is a very important factor to integrate gender issues within the reconstruction process. For example, in the planning stage the solidarity amongst community members influences the decision to prioritise vulnerable women that should be received in the programme first. During the

reconstruction, women and men in the community are more interested to use their own design and materials to build their houses rather than give them to contractors. Therefore, the rejected contractor will build their houses when the community cannot decide what they want for their houses. Women for example cannot design their own kitchen and backyard if the contractors build their house. The reason is the local community have better understandings and knowledges about the social characteristics of their surroundings and the needs to have a full control of housing reconstruction in their place.

The role of community social capital also appears during livelihood recovery in Bantul. Women solidarity is a vital factor for an effective implementation of *Posyandu* (village health centres), *Programs Kesejahteraan Keluarga* (Family Welfare Programme), *Usaha Kecil Menengah* (Small and Medium Scale Enterprise) and *Kerjabakti* (Village Labor) in Bantul. For example, strong trust among women within *Usaha Kecil Menengah* (Small and Medium Scale Enterprise) is vital for sustainability of donor fund. Strong solidarity among women is also vital for effective implementation of the *Posyandu* programme to protect elderly people and children from malnutrition in Bantul. For instance, women in Bantul mobilise themselves to collect foods, milk, and vegetables and then distribute it to elderly people and children across the village during reconstruction.

7.3.4.2.5 Head of district government commitment

Results from interviews with all stakeholders and beneficiaries show high political commitment of Bantul's district head. Most of the informants explain that perhaps due to the head of Bantul district government being a woman, the commitment to mainstream role of women is highly represented during reconstruction. However, it is not only gender, which makes the district government head, committed but also that she has knowledge and awareness of the big potential of women in making an effective reconstruction process. For example, Mrs Sri Suryawidati (the head of Bantul district government) explains her strong vision and mission to encourage women across villages in Bantul to involve in the post-disaster reconstruction programs.

The head of district government herself is a role model in which she worked tirelessly in supporting the Bantul community from the beginning to the end of reconstruction. For example, she worked together with the district women empowerment agency and district management agency in

formulating and implementing local policies for addressing gender issues during reconstruction. The Bantul's advisory board focuses on several issues to reduce gender vulnerability, particularly protecting women against any violence, increasing women access on small business, improving voices of women in decision making, providing maternal and reproductive health. Moreover, they also involved many women groups in formulating and implementing disaster awareness strategies in the planning process which brought an important effect on rebuilding stronger and more resilient communities.

High commitment of the head of district government

One of the most important factors why gender mainstreaming in Bantul is effectively implemented during the earthquake reconstruction is the high commitment of Mrs Sri Suryawidati as the head of Bantul district government. As a leader, she has a strong vision and mission to encourage women across Bantul to participate in the reconstruction process...She worked tirelessly in supporting the community from the beginning until the end of reconstruction (Interview with policy maker 5).

Mrs Sri Suryawidati has a strong commitment to gender issues during reconstruction. This commitment can be seen from her policies and programmes for protecting women against any violence, increasing women access on small business, improving voices of women in decision making, providing maternal and reproductive health ...To implement these programmes she also encourages women groups across villages to involve in every process of reconstruction (Interview with policy implementer 1).

As a leader, Mrs Sri Suryawidati always gives us a good example by practising what she said at every opportunity. For example, in many opportunities she worked together with communities in village labor activities and gotong royong. Hence, she gives a good example of behaviour to communities to work together and supported each other in rebuilding their communities during hard times (Interview with beneficiary 2).

She mobilised women groups across villages in Bantul to get involved in reconstruction and livelihood recovery projects. She mobilised women across villages to engage in planting various organic rice, fruits and vegetables which have become an iconic product of the district. Mrs. Sri Suryawidati also encourages women groups to engage in ROSCAs and micro, small and medium enterprises programs. She worked with *Rekompak* Project so that provide cheap loan for 26 women based microfinance across the Bantul amounting to USD 5 million. Moreover, the head of district always tries to be a role model for their communities. For example, in many instances, she worked together with communities in village labor activities and *gotong royong*. Hence, she gives a good

example of behaviour to communities on how to work together and support each other in the rebuilding of their communities during hard times.

7.3.4.2.6 Availability of gender policy framework

Results from interviews with stakeholders also show that the availability of gender policy framework in Bantul is a very important factor so that gender issues can be mainstreamed within the earthquake reconstruction. The framework provides guidelines for the district government stakeholders to implement gender mainstreaming program. The local gender mainstreaming framework grounds itself in the national constitution, legislation and various international and regional instruments which Indonesia is a signatory. The following transcript shows the informants explanation about the existing gender policy framework within the Bantul government organization.

Availability of gender mainstreaming policy framework

Bantul district government has formulated a gender mainstreaming policy framework, which is based on the national constitution, legislation and various international and regional instruments within Indonesia. All local institutions should follow this framework in implementing their programmes which are funded by district government (Interview with policy maker 5).

The gender mainstreaming policy framework helps us as a guidance when addressing various gender issues during reconstruction. For example, it helps us on how to integrate gender issues during planning, implementing, monitoring and evaluating the reconstruction programmes in Bantul. This framework gives us a useful guide on how to ensure gender needs and concerns within all the process (Interview with policy maker 5).

The framework requires that all the processes of reconstruction funded by district governments be formulated using gender sensitive budgeting. For example, all reconstruction programmes formulated should account for their impact on women and men needs and concerns (Interview with policy maker 5).

To ensure that gender mainstreaming is achieved within the process of reconstruction, the policy framework provides the development of policies and the implementation of plans at all levels of district government. Hence, this framework advocates the gender focal points in all public institutions in Bantul district governments. The framework also requires that all the processes of reconstruction funded by district governments be formulated using gender sensitive budgeting. For

example, all reconstruction programs formulated, should account for their impact on women and men as well as women and men needs and concerns.

7.3.4.2.7 Adequacy of gender expertise

The effective implementation of gender mainstreaming strategies in the Bantul reconstruction process is also related with the adequacy of gender expertise. Results of interview with stakeholders explain that support of gender expertise from International donors and academic institutions was numerous during reconstruction. The gender experts help Bantul district government from the beginning of the reconstruction process. For example, the experts work together with the head of district government, district district government planning agencies, and district women empowerment agency to ensure reconstruction-planning address various gender vulnerability and gender capacity in Bantul. During implementation, the experts help the facilitators to ensure the process of reconstruction aware of gender issues such as how to find effective ways to engage women participation during reconstruction.

Adequacy of gender expertise

We have received abundant help of gender expertise from International donor and academic institution during the reconstruction. They have a vital role for ensuring gender needs and concerns are addressed within planning, implementing, monitoring as well as evaluating the reconstruction programmes (Interview with policy maker 2).

Gender expertise from International donors as well as from The Gadjah Mada University help is to integrate various gender issues during reconstruction with our existing gender mainstreaming policy framework. They worked together with us in determining and matching various gender issues in the district government gender mainstreaming framework so that it can be easily used as a guideline for each stakeholder in the local institutions in delivering reconstruction programmes (Interview with policy maker 5).

The experts work together with the head of district government, district district government planning agencies, and district women empowerment agency to ensure reconstruction-planning address various gender vulnerability and gender capacity in Bantul. They also help the facilitators to ensure the process of reconstruction aware of gender issues such as how to find effective ways to engage women participation during reconstruction. Moreover, the role of the gender expert is substantially important to evaluate the implementation of gender mainstreaming strategies during the reconstruction process and provide feedback to government and donors for improvement (Interview with policy implementer 1).



Gender expert helps stakeholders during reconstruction planning



Gender expert helps stakeholders during reconstruction planning

Figure 7.20 Gender experts help stakeholders during reconstruction planning at Bantul district (Source: BPBD Bantul documents)

Likewise, in the process of evaluation, the gender expert's role is substantially important to evaluate the implementation of gender mainstreaming strategies during reconstruction process and provide feedback to government and donors for improvement. For example, the expert found that funding for livelihood recovery programs are more effective when it is delivered through women groups rather than men groups. This finding is very important for district government policy makers and donors to engage women groups to improve the effectiveness of livelihood recovery programs in Bantul. After presenting the results of qualitative analysis, the next chapter presents the results of quantitative surveys based on questionnaires of 100 respondents gathered from two villages at Bantul district governments.

7.4 Quantitative data analysis of case study 1: Gender mainstreaming and sustainable post-earthquake reconstruction at Bantul district

This section presents results of quantitative data gathered from survey of women and men respondents at Bantul district. The survey questionnaires have three purposes: firstly, to investigate various types of gender vulnerability and gender capacity revealed during reconstruction. Secondly, to identify various benefits of integrating gender mainstreaming for creating sustainable

reconstruction at Bantul. Thirdly, identify constraining/enabling factors of mainstreaming gender into sustainable reconstruction in Bantul.

7.4.1 Gender vulnerabilities and capacities within post-earthquake reconstruction at Bantul district

In this survey, the respondents are divided into two categories: (1) beneficiaries of reconstruction programs and (2) policy makers and implementers. The survey distributes questionnaires randomly for 55 women and 45 men in two villages in Bantul who are the target groups of earthquake reconstruction. Meanwhile, 25 respondents of policy makers and implementers (13 women and 12 men) are asked their perception of the benefit of mainstreaming for sustainability of reconstruction. This section presents the survey findings regarding types of gender vulnerability and capacity within the Bantul reconstruction. Firstly, it begins by presenting types of gender vulnerability according to women and men beneficiaries and then by presenting types of gender capacity revealed in Bantul.

7.4.1.1 Gender vulnerabilities

Table 7.5 presents the result of descriptive statistic and *t-test* of the most prominent types of gender vulnerabilities during Bantul's reconstruction according to women respondents. One sample *t-test* result shows all variables are at 1% indicating the significance level of each types of gender vulnerabilities. Three types of physical dimensions (i.e. women with disabilities, pregnant women, elderly women), four types of social dimension (i.e. homeless women, widow with many dependants, women heading household), and two types of economic dimensions (i.e. women with debt burden and women with lack of productive assets) of gender vulnerabilities are the most important factors according to beneficiaries' survey. These types of gender vulnerabilities have the highest mean.

Table 7.5. Types of gender vulnerabilities within post-earthquake reconstruction based on women beneficiaries' responses at Bantul district

	Mean	<i>t</i>	SD	<i>p-value</i>	rank
<i>Social vulnerability</i>					
Homeless women	4.80	58.562	0.553	0.000	1
Widows with many dependants	4.68	58.435	0.571	0.000	2
Women heading household head	4.65	56.632	0.543	0.000	3
Violence against women	4.55	56.631	0.541	0.000	4
Women living alone	3.73	56.631	0.541	0.000	5
Lack of skills among women	3.72	56.673	0.551	0.000	6
Lack of access to education and training for women	3.70	57.672	0.562	0.000	7
Women illiteracy	3.69	57.321	0.582	0.000	8
<i>Economic vulnerability</i>					
Women with debt burden	4.79	53.762	0.601	0.000	1
Lack of productive assets among women	4.64	55.432	0.554	0.000	2
Lack of access to jobs and markets among women	3.62	46.672	0.598	0.000	3
Lack of access to credit among women	3.61	47.762	0.578	0.000	4
Women with low wages	3.59	53.622	0.501	0.000	5
<i>Physical vulnerability</i>					
Women with disabilities	4.96	47.621	0.671	0.000	1
Pregnant women	4.84	46.342	0.567	0.000	2
Old women	4.83	38.762	0.542	0.000	3
Malnourishment women and girls	3.93	38.762	0.541	0.000	4
<i>Cultural vulnerability</i>					
Lack of social ties among women	4.63	55.430	0.564	0.000	1
Cultural isolation among women	3.63	46.463	0.515	0.000	2
Domestic overburdening of women	3.62	46.421	0.511	0.000	3
Religious isolation among women	3.62	46.671	0.591	0.000	4
<i>Political vulnerability</i>					
Lack of women's leadership	4.82	55.431	0.551	0.000	1
Lack of access to decision-making among women	3.61	46.364	0.523	0.000	2
Limitation of women's voices and participation	3.61	46.573	0.561	0.000	3

On the other hand, Table 7.6 describes the results of descriptive and *t-test* analysis for the same variable based on men respondents. Again, results of a one sample *t-test* show all variables are significant at 1% indicating the significant level of each types of gender vulnerabilities.

Table 7.6 Types of gender vulnerabilities within post-earthquake reconstruction based on men beneficiaries' responses at Bantul district

	mean	t	SD	p-value	Rank
<i>Social vulnerability</i>					
Homeless women and men	4.88	58.563	0.541	0.000	1
Widow with many dependants	4.76	58.653	0.521	0.000	2
Women heading household head	4.73	58.532	0.541	0.000	3
Women living alone	4.65	56.451	0.522	0.000	4
Lack of access to education and training for women	3.77	56.321	0.512	0.000	5
Lack of skills among women	3.73	57.231	0.533	0.000	6
Women illiteracy	3.72	57.333	0.514	0.000	7
Violence against women	3.71	57.331	0.511	0.000	8
<i>Economic vulnerability</i>					
Women and men with debt burden	5.00	53.871	0.602	0.000	1
Lack of productive assets among women	4.95	55.765	0.556	0.000	2
Lack of access to jobs and markets among women	3.71	46.671	0.590	0.000	3
Lack of access to credit among women	3.71	47.112	0.577	0.000	4
Low wages among women	3.69	53.213	0.522	0.000	5
<i>Physical vulnerability</i>					
Women and men with disabilities	4.99	47.621	0.673	0.000	1
Pregnant women	4.98	46.342	0.562	0.000	2
Older women and men	4.93	48.763	0.544	0.000	3
Malnourishment among women and girls	4.93	43.764	0.542	0.000	4
<i>Cultural vulnerability</i>					
Lack of social ties among women	4.69	53.753	0.612	0.000	1
Cultural isolation among women	4.63	55.431	0.561	0.000	2
Religious isolation among women	3.63	47.465	0.514	0.000	3
Domestic overburdening of women	3.62	46.611	0.591	0.000	4
<i>Political vulnerability</i>					
Lack of access to decision-making among women	4.44	55.435	0.552	0.000	1
Limitation of women's voices and participation	3.61	47.365	0.521	0.000	2
Lack of women's leadership	3.61	46.575	0.562	0.000	3

Overall, the results are quite similar. However, men beneficiaries have different perceptions in the importance of several questions. For example, while women put violence against women as the higher rank of social dimension of vulnerability, most men beneficiaries put this variable into the lowest rank. In political dimension of vulnerability, most women answer that women lack of leadership as the highest rank. In contrast, men answer it in the lowest rank, indicating that they perceive less importance of the role of women leadership in the reconstruction.

After describing the type of gender vulnerability based on women and men beneficiaries' response, the next section presents beneficiaries' response on gender capacity revealed during reconstruction in Bantul. In order to capture the different responses of women and men, the description is presented according to the women and men response.

7.4.1.2 Gender capacities

This section presents women and men's response to gender capacity revealed within reconstruction in Bantul. Table 7.7 presents women response regarding types of gender capacities in the reconstruction. Firstly, women identify five women's capacity that was revealed during reconstruction. These capacities include: mobilizing and creating ROSCA's, active role in improving micro, small and medium scale enterprises, enlarging women entrepreneurship and enlarging partnership with investors. Secondly, they found building and strengthening community social capital, creating safety and secure community, improving access to basic public services, and improving decision making are women's capacity in the social dimension. Thirdly, women perceive that creating a clean and healthy environment, implementing food production and farming more sustainable, role in creating friendly housing environment, waste management and maintaining public infrastructures are among the most important women capacity reveals during post-earthquake reconstruction. The results of a one sample *t-test* show all variables are significant at 1%.

Table 7.7 Types of gender capacities within post-earthquake reconstruction based on women beneficiaries' responses at Bantul district

	mean	<i>t</i>	SD	<i>p-value</i>	Rank
<i>Economic capacity</i>					
Mobilizing and creating rotating saving credit association	5.00	58.564	0.552	0.000	1
Active role in improving micro, small and medium scale enterprises	4.99	58.631	0.551	0.000	2
Active role in supporting agricultural markets	4.98	58.531	0.561	0.000	3
Enlarging women entrepreneurship	4.96	58.632	0.553	0.000	4
Enlarging partnership with investors	4.94	58.632	0.570	0.000	5
<i>Social capacity</i>					
Building and strengthening community social capital	5.00	58.563	0.554	0.000	1
Creating safe and secure community	4.99	58.532	0.552	0.000	2
Improving access to public services	4.98	58.535	0.572	0.000	3
Improving village decision making	4.97	58.835	0.541	0.000	4
<i>Environmental capacity</i>					
Creating clean and healthy environment	5.00	58.565	0.543	0.000	1
Implementing sustainable farming and food production	4.98	58.834	0.522	0.000	2
Role in creating friendly housing environment	4.96	58.535	0.562	0.000	3
Role in waste management and recycle	4.95	58.836	0.562	0.000	4
Role in maintaining public infrastructures	4.95	58.633	0.572	0.000	5

Table 7.8 presents men beneficiaries' response regarding types of gender capacities in the reconstruction. Firstly, in contrast with women, men answer that active role in supporting agricultural markets, improving micro, small, and medium scale enterprises, enlarging men entrepreneurship, enlarging partnership with investors and promoting handicraft export are their capacity to promote economic sustainability following reconstruction. Secondly, similar to women, men also answer that building and strengthening community social capital, creating safety and secure community, improving access to public services, and improving village to public services as gender capacity to achieve social sustainability. Thirdly, men answer that creating clean and healthy environment, implementing sustainable farming and food production, role in creating friendly housing environment, waste management and maintaining public infrastructures are among the most important women capacity reveals during reconstruction process. It shows that the results of one sample *t-test* are statistically significant at 1%.

Table 7.8 Types of gender capacities within post-earthquake reconstruction based on men beneficiaries' responses at Bantul district

	mean	t	SD	p-value	rank
<i>Economic capacity</i>					
Active role in supporting agricultural markets	5.00	58.561	0.540	0.000	1
Active role in improving micro, small and medium scale enterprises	4.99	58.432	0.538	0.000	2
Enlarging men entrepreneurship	4.96	58.422	0.541	0.000	3
Enlarging partnership with investors	4.93	58.652	0.539	0.000	4
Promoting handicraft export	4.90	58.422	0.540	0.000	5
<i>Social capacity</i>					
Building and strengthening community social capital	5.00	58.511	0.550	0.000	1
Creating safe and secure community	4.99	58.621	0.551	0.000	2
Improving access to public services	4.92	58.333	0.562	0.000	3
Improving village decision making	4.90	58.421	0.512	0.000	4
<i>Environmental capacity</i>					
Creating clean and healthy environment	5.00	58.555	0.551	0.000	1
Implementing sustainable farming and food production	4.99	58.651	0.550	0.000	2
Role in creating friendly housing environment	4.92	58.321	0.562	0.000	3
Role in waste management and recycle	4.90	58.881	0.554	0.000	4
Role in maintaining public infrastructures	4.82	58.411	0.561	0.000	5

After describing the respondents' response of gender capacity, the next section describes benefits of gender mainstreaming into sustainability of post-earthquake reconstruction at Bantul.

7.4.2 Benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district

Table 7.9 describes women beneficiaries' answer regarding their perception of the benefits of mainstreaming gender on three aspects of sustainable reconstruction. The results show that most respondents have strongly agreed that integrating gender mainstreaming improves three pillars of sustainability of reconstruction. Firstly, the beneficiaries perceives that integrating gender mainstreaming gives at least five benefits for their economic sustainability: reducing women's poverty, growing in micro, small and medium enterprise, increasing job opportunities, improving children and family welfare and increasing women entrepreneurship.

Secondly, the beneficiaries perceives that integrating gender mainstreaming improves social sustainability through five methods: increasing educational access for children particularly girls,

increasing health access for children, increasing village health post (*Posyandu*) groups, increasing security and safety in reconstruction areas, and strengthening trust, networks and social collaboration within community. Thirdly, there are five benefits that beneficiaries perceive regarding environment sustainability. These benefits include creating increasing areas with earthquake warning system, friendly housing environment that adopt women and man needs, improving clean water and sanitation infrastructures, increasing organic farming, and improving waste management and clean environment. Further, the results of the *t*-test in Table 7.5 strengthens the findings by indicating that all variables are statistically significant ($p < 0.01$).

Table 7.9 Women beneficiaries' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district

	Mean	<i>t</i>	SD	<i>p</i> -value	rank
<i>Economic sustainability</i>					
Reducing women poverty	5.00	58.562	0.553	0.000	1
Growing in micro, small and medium enterprises owned by women	4.99	58.833	0.552	0.000	2
Increasing job opportunities for women	4.97	58.436	0.571	0.000	3
Improving children and family welfare	4.96	58.833	0.552	0.000	4
Increasing women entrepreneurship	4.92	58.415	0.571	0.000	5
<i>Social sustainability</i>					
Increasing education access for children particularly girls	4.98	58.661	0.553	0.000	1
Increasing health access for children particularly for women	4.95	58.811	0.552	0.000	2
Increasing <i>Posyandu</i> groups	4.94	58.412	0.561	0.000	3
Increasing security and safety in reconstruction areas	4.91	58.821	0.551	0.000	4
Strengthening trust, networks and social collaboration within communities	4.89	58.125	0.531	0.000	5
<i>Environmental sustainability</i>					
Increasing areas with earthquake warning system	5.00	58.435	0.571	0.000	1
Friendly housing environment that adopt women and man needs	4.99	58.562	0.552	0.000	2
Increasing safe and clean water and sanitation infrastructures	4.96	58.734	0.542	0.000	3
Increasing organic farming	4.94	58.432	0.511	0.000	4
Waste management and clean environment	4.93	58.831	0.512	0.000	5

Table 7.10 presents result of men beneficiaries' perception of the benefits of gender mainstreaming for sustainability of reconstruction. Firstly, they perceive that integrating gender mainstreaming

contributes to economic sustainability in several ways such as improving family welfare, increasing entrepreneurship particularly for girls, reducing women poverty, improving family income and growing in micro, small and medium enterprises owned by women.

Table 7.10 Men beneficiaries' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district

	Mean	<i>t</i>	SD	<i>p-value</i>	rank
<i>Economic sustainability</i>					
Improving children and family welfare	5.00	58.562	0.551	0.000	1
Reducing women poverty	4.95	58.834	0.553	0.000	2
Increasing job opportunities for women	4.94	58.435	0.562	0.000	3
Improving family income	4.91	58.834	0.522	0.000	4
Growing in micro, small and medium enterprises owned by women	4.89	58.435	0.561	0.000	5
<i>Social sustainability</i>					
Strengthening trust, networks and social collaboration within communities	5.00	58.562	0.551	0.000	1
Increasing security and safety within community	4.99	58.834	0.550	0.000	2
Increasing social participation	4.94	58.435	0.581	0.000	3
Increasing education access services particularly for girls	4.91	58.834	0.551	0.000	4
Increasing health access, particularly for women	4.89	58.435	0.572	0.000	5
<i>Environmental sustainability</i>					
Increasing areas with earthquake warning system	5.00	58.435	0.553	0.000	5
Friendly housing environment that adopt women and man needs	4.98	58.562	0.551	0.000	1
Increasing clean water and sanitation infrastructures	4.95	58.834	0.554	0.000	2
Increasing organic farming	4.94	58.435	0.551	0.000	3
Waste management and clean environment	4.90	58.834	0.553	0.000	4

Secondly, they perceive gender mainstreaming bringing benefits for improving social sustainability and strengthening trust, networks, and social collaborations within the community, increasing security and safety within the community, increasing social participation, increasing access to educational services particularly for women, and increasing health services particularly for women. Thirdly, similar with women beneficiaries' response, men also perceive gender mainstreaming in reconstruction gives benefits for environmental sustainability into five ways: increasing areas with earthquake warning system, creating friendly housing environment that adopts women and men needs; increasing clean water and sanitation infrastructures, growing organic farming, and

improving waste management and clean environment. The results of the *t*-test in Table 7.10 strengthens the findings by indicating that all variables are statistically significant ($p < 0.01$).

Next, in order to identify the policy makers/implementers' perceptions of the benefits of gender mainstreaming, the questionnaires is distributed to them. Table 7.11 presents women policy makers/implementers' perception of the benefits of integrating gender mainstreaming for sustainable reconstruction. Firstly, they perceive that gender mainstreaming gives benefits for improving economic sustainability through reducing poverty particularly women's poverty, improving the district government economy, increasing job opportunities particularly for women, improving children and family welfare and increasing entrepreneurship particularly for women. Secondly, they perceive gender mainstreaming improves social sustainability through increasing community participation, strengthening trust, networks and social collaboration, increasing community solidarity, increasing security and safety in reconstruction areas and awareness of women needs and concerns within the reconstruction phase.

Table 7.11 Women policy makers' and implementers' perception of the benefits mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district

	mean	<i>t</i>	SD	<i>p</i> -value	rank
<i>Economic sustainability</i>					
Reducing poverty particularly women	5.00	58.562	0.559	0.000	1
Improving district government economy	4.99	58.721	0.553	0.000	2
Increasing job opportunities particularly for women	4.98	58.723	0.572	0.000	3
Improving children and family welfare	4.97	58.634	0.561	0.000	4
Increasing entrepreneurship particularly for women	4.95	58.535	0.572	0.000	5
<i>Social sustainability</i>					
Strengthening trust, networks and social collaboration within communities	5.00	58.662	0.572	0.000	1
Increase community participation	4.99	58.834	0.512	0.000	2
Increasing community solidarity	4.98	58.755	0.576	0.000	3
Increasing security and safety in reconstruction areas	4.96	58.634	0.558	0.000	4
Awareness of women and men needs in reconstruction	4.92	58.845	0.572	0.000	5
<i>Environmental sustainability</i>					
Increasing awareness of policy makers on the importance of disaster risk reduction	5.00	58.862	0.551	0.000	1

Increasing awareness of community on the importance of disaster risk reduction	4.99	58.834	0.550	0.000	2
Friendly housing environment that meet women and men needs	4.96	58.735	0.577	0.000	3
Waste management and clean environment	4.93	58.836	0.561	0.000	4
Awareness of maintaining public infrastructures	4.90	58.635	0.570	0.000	5

Thirdly, the policy makers/implementers perceive five benefits of gender mainstreaming for improving environmental sustainability. These benefits include increasing awareness of policy makers on the importance of disaster risk reduction, increasing awareness of community on the importance of disaster risk reduction, friendly housing environment that adopts women and men needs, improving waste management and clean environment and awareness of maintaining public infrastructures. Furthermore, the results of the *t-test* in Table 7.11 strengthen the findings by indicating that all variables are statistically significant ($p < 0.01$).

Table 7.12 Men policy makers and implementers' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district

	mean	<i>t</i>	SD	<i>p-value</i>	rank
<i>Economic sustainability</i>					
Improve district government economy	5.00	58.561	0.554	0.000	1
Reducing poverty particularly women	4.98	58.910	0.562	0.000	2
Increasing job opportunities particularly for women	4.96	58.435	0.521	0.000	3
Improving children and family welfare	4.95	58.834	0.512	0.000	4
Increasing entrepreneurship particularly for women	4.92	58.432	0.521	0.000	5
<i>Social sustainability</i>					
Strengthening trust, networks and social collaboration within communities	5.00	58.562	0.513	0.000	1
Increase community participation	4.99	58.831	0.512	0.000	2
Increasing community solidarity	4.98	58.432	0.561	0.000	3
Increasing security and safety in reconstruction areas	4.96	58.631	0.555	0.000	4
Awareness of women and men needs in reconstruction	4.92	58.635	0.572	0.000	5
<i>Environmental sustainability</i>					
Increasing awareness of policy makers on the importance of disaster risk reduction	5.00	58.563	0.544	0.000	1
Increasing awareness of community on the importance of disaster risk reduction	4.99	58.832	0.554	0.000	2

Friendly housing environment that adopts women and men needs	4.97	58.635	0.572	0.000	3
Waste management and clean environment	4.93	58.834	0.553	0.000	4
Awareness of maintaining public infrastructures	4.91	58.435	0.560	0.000	5

Table 7.12 presents men policy makers/implementers' perception of the benefits of mainstreaming gender for sustainable reconstruction at Bantul. Firstly, similar to women policy makers/implementers' perception, they believe that reducing poverty [in particular, poverty amongst women], improving district government economy, increasing job opportunities [particularly for women], improving children and family welfare and increasing entrepreneurship [particularly for women] are among the most important benefits of implementing gender mainstreaming within reconstruction. Secondly, they perceive that gender mainstreaming improves social sustainability through increasing community participation, strengthening trust, networks and social collaboration, increasing community solidarity, increasing security and safety in reconstruction areas and awareness of women needs and concerns within reconstruction. Thirdly, they perceive five benefits of gender mainstreaming for improving environmental sustainability, such as increasing awareness of policy makers on the importance of disaster risk reduction, increasing awareness of community on the importance of disaster risk reduction, friendly housing environment that adopt women and man needs, improving waste management and clean environment and awareness of maintaining public infrastructures. The results of the *t-test* in Table 7.12 strengthens the findings by indicating that all variables are statistically significant ($p < 0.01$).

After describing beneficiaries and policy makers/implementers' response of benefits of integrating gender mainstreaming into sustainable post-earthquake reconstruction, the next section describes quantitative results of constraining and enabling factors of integrating gender mainstreaming into sustainable post-disaster reconstruction at Bantul.

7.4.3 Constraining and enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction at Bantul district

This section describes constraining and enabling factors of mainstreaming gender within reconstruction in Bantul. Policy makers/implementers were asked their perception of the

constraining and enabling factors of integrating gender mainstreaming for improving sustainability of reconstruction in Bantul.

7.4.3.1 Constraining factors

Table 7.13 describes women policy makers and implementers' perception of constraining factors of mainstreaming gender into sustainability of reconstruction in Bantul. There are five most important constraining factors according to them. These factors include patriarchal culture, resistance from some religious leaders and senior bureaucrats.

Table 7.13 Constraining factors of mainstreaming gender into sustainability of reconstruction as perceived by women policy makers and implementers at Bantul district

	Mean	<i>t</i>	SD	<i>p-value</i>	Rank
Patriarchal culture	4.99	58.932	0.561	0.000	1
Resistant from some religious leaders	4.98	58.562	0.553	0.000	2
Resistant from senior bureaucrats	4.87	58.834	0.552	0.000	3
Lack capacity of bureaucrats	4.80	58.435	0.571	0.000	4
Less number of women in decision making	4.75	56.632	0.543	0.000	5
Coordination issues among district government, NGOs and International donors	4.73	56.631	0.541	0.000	6
Lack of detailed gender disaggregated data	4.72	56.673	0.551	0.000	7
Less incentive for supporting gender mainstreaming	4.70	57.672	0.562	0.000	8
Low educated women and men	4.69	57.321	0.582	0.000	9
Less financial and technical support from national government	4.69	56.530	0.541	0.000	10
Geographical challenges	4.68	56.531	0.541	0.000	11

Table 7.14 describes men policy makers and implementers' perception of constraining factors of mainstreaming gender into sustainability of reconstruction in Bantul. Overall, they have similar answers than women. One sample *t-test* results show all variables are statistically significant at 1%.

Table 7.14 Constraining factors of mainstreaming gender into sustainability of reconstruction as perceived by men policymakers and implementers at Bantul district

	Mean	<i>t</i>	SD	<i>p-value</i>	Rank
Patriarchal culture	4.96	58.912	0.541	0.000	1
Resistance from some religious leaders	4.95	58.512	0.533	0.000	2
Resistant from senior bureaucrats	4.93	58.814	0.532	0.000	3
Lack capacity of bureaucrats	4.92	58.425	0.521	0.000	4

Less number of women in decision making	4.85	58.632	0.573	0.000	5
International donors and NGOs with a strong top down project	4.84	57.621	0.511	0.000	6
Coordination among district government, NGOs and International donors	4.73	56.623	0.571	0.000	7
Lack detailed of gender disaggregated data	4.72	57.622	0.512	0.000	8
Less incentive for supporting gender mainstreaming	4.71	56.341	0.512	0.000	9
Low educated women and men	4.69	56.552	0.523	0.000	10
Geographical challenges	4.69	56.551	0.523	0.000	11

7.4.3.2 Enabling factors

Table 7.15 shows enabling factors of gender mainstreaming from women policy makers/implementers' perception. It shows that strong women leadership, strong support from NGOs, high women group's participation, adequate financial resources and political will of district government are the highest ranks according to them. Meanwhile, number of women grassroots organization, good communication and coordination among local institution, support from community leaders, availability of disaggregates data and incentive for supporting gender mainstreaming is in the lowest rank. It shows that the results of one sample *t-test* are statistically significant at 1% indicating the significant level of each types of enabling factors.

Table 7.15 Enabling factors of mainstreaming gender into sustainability of reconstruction as perceived by women policy makers/implementers at Bantul district

	mean	<i>t</i>	SD	<i>p-value</i>	rank
Strong women leadership	4.82	58.932	0.561	0.000	1
Adequate financial and technical assistance support from NGOs	4.80	58.562	0.553	0.000	2
High participation from women's groups	4.79	58.834	0.552	0.000	3
Adequate financial resources supporting gender mainstreaming programs	4.78	58.435	0.571	0.000	4
Political will of government	4.75	56.632	0.543	0.000	5
Policy and programs design linked disaster risk reduction and resilience	4.73	56.631	0.541	0.000	6
Appropriate tools for gender mainstreaming	4.72	56.673	0.551	0.000	7
Capacity of local gender institution	4.70	57.672	0.562	0.000	8
Gender sensitive budgeting	4.69	57.321	0.582	0.000	9
Availability of gender vulnerability assessment	4.69	56.532	0.542	0.000	10
Availability of gender capacity assessment	4.69	53.762	0.601	0.000	11

Availability of gender training	4.64	55.432	0.554	0.000	12
Availability of gender sensitive monitoring and evaluation mechanisms	4.63	46.363	0.525	0.000	13
Adequate gender expertise	4.61	47.762	0.578	0.000	14
Clear gender target	4.59	53.622	0.501	0.000	15
Number of women grassroots organization	3.54	46.342	0.567	0.000	16
Good communication and coordination	3.52	38.762	0.762	0.000	17
Support from community leaders	3.50	38.672	0.652	0.000	18
Availability of disaggregate data	3.49	38.621	0.878	0.000	19
Incentive for supporting gender mainstreaming	3.48	37.321	0.765	0.000	20

Table 7.16 presents the results from men policy makers/implementers. Similar with the answers from women policy makers, men stakeholders also perceive that strong women leadership, support from NGOs, women groups participation, adequate financial resources, and political will of government are the most important factors for integrating gender mainstreaming within reconstruction in Bantul. However, men have slightly different answers for the lowest rank. They put the adequate gender expertise, good communication and coordination, support from community leaders, availability of disaggregate data and number of women grassroots organization in the lowest ranks. It shows the results of one sample *t*-test are statistically significant at 1%.

Table 7.16 Enabling factors of mainstreaming gender into sustainability of reconstruction as perceived by men policy makers/implementers at Bantul district

	mean	<i>t</i>	SD	<i>p</i> -value	rank
Strong women leadership	4.98	58.998	0.563	0.000	1
Strong support from NGOs for promoting gendered risk reduction	4.87	58.567	0.552	0.000	2
High participation from women's groups	4.82	58.855	0.551	0.000	3
Adequate financial resources supporting gender mainstreaming programs	4.81	58.655	0.570	0.000	4
Political will of government	4.81	57.634	0.541	0.000	5
Policy and programs design linked disaster risk reduction and resilience	4.79	57.634	0.588	0.000	6
Appropriate tools for gender mainstreaming	4.76	57.672	0.550	0.000	7
Support from provincial government	4.75	57.671	0.511	0.000	8
Gender sensitive budgeting	4.72	57.323	0.500	0.000	9
Availability of gender vulnerability assessment	4.69	56.532	0.511	0.000	10
Availability of gender capacity assessment	4.67	56.772	0.600	0.000	11
Availability of gender training	4.66	55.631	0.511	0.000	12
Availability of gender sensitive monitoring and evaluation mechanism	4.66	56.362	0.520	0.000	13

Capacity of local gender institution	4.61	47.763	0.571	0.000	14
Clear gender target	4.59	53.622	0.511	0.000	15
Adequate gender expertise	3.54	46.342	0.560	0.000	16
Good communication and coordination	3.53	47.762	0.711	0.000	17
Support from community leaders	3.51	40.662	0.650	0.000	18
Availability of disaggregate data	3.41	40.652	0.651	0.000	19
Number of women grassroots organization	3.40	39.620	0.651	0.000	20

7.5. Summary of the chapter and links

This chapter presented the qualitative and quantitative data analysis that was collected from two villages at Bantul district and policy makers and implementers of Bantul's reconstruction. The data was based on women and men beneficiaries and policy makers/implementers' questionnaires. This chapter begins with a description about various types of gender vulnerability and gender capacity that affects sustainability of Bantul's reconstruction. Secondly, it identifies the benefits of integrating gender mainstreaming for the purpose of creating sustainable reconstruction at Bantul. Thirdly, it presents constraining/enabling factors for mainstreaming gender into sustainable reconstruction in Bantul. The next section presents results from case study 2 describing gender mainstreaming and sustainable post-disaster reconstruction at the Sleman district of Yogyakarta.

Chapter 8:

Case study 2: Gender mainstreaming and sustainable post-earthquake reconstruction at Sleman district

8.1. Introduction

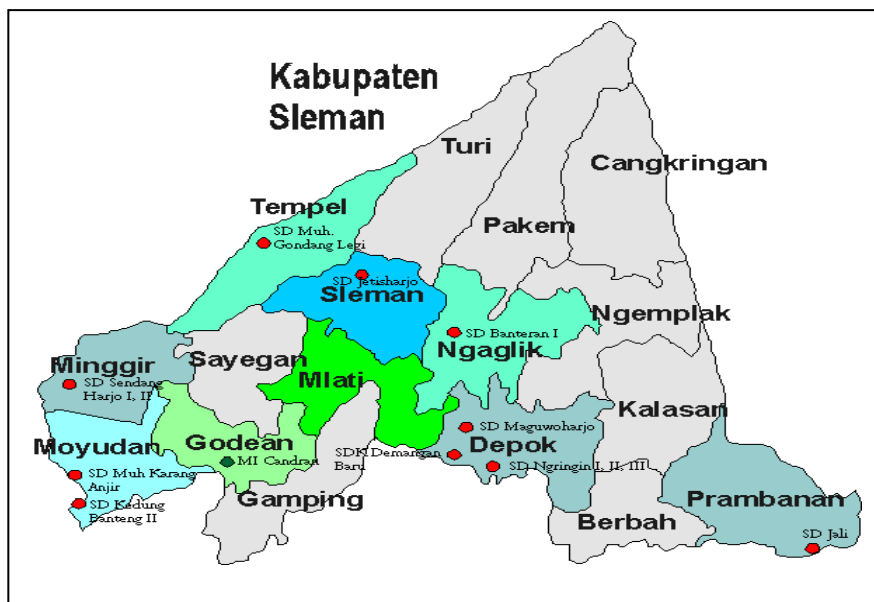
This section presents data analysis of case study 2: gender mainstreaming and sustainable reconstruction at Sleman district. It begins by describing the socioeconomic contexts of the district. Then, it describes the situation of Sleman district after the earthquake. Next, the post-earthquake reconstruction at Sleman is presented. The last two sessions consist of the qualitative and quantitative data analysis. Qualitative data analysis is based on the interview with informants (i.e. policy makers, implementers, donors, and beneficiaries) while quantitative data analysis based on survey data of beneficiaries as well as policy makers/implementers.

The data analysis is purposed to identify gender vulnerability, and gender capacity existed during Sleman post-earthquake reconstruction. Secondly, it is purposed to elaborate various gender mainstreaming strategies to address gender vulnerability and to strengthen gender capacity has been introduced by Sleman government. Thirdly, this analysis is purposed to identify the benefits of mainstreaming gender for improving the sustainability of post-disaster reconstruction in the district. Lastly, it is purposed to identify enabling/constraining factors of mainstreaming gender into sustainable reconstruction in Sleman district. The next section begins with the description of the socio-economic background of Sleman district.

8.2. Socio economic background of Sleman district

Sleman is located in the northern part of Yogyakarta province. The district covers an area of 574.82 km². Geographically, Sleman is located on 7°34'5" – 7°47'03" of south latitude and 107°15'03" - 100°29'30" of east longitude. The topography of Sleman district varies from flat, hilly to mountainous altitudes ranging from 100m – 2500m above the sea level. Sleman regency is

governmentally divided into 17 sub-districts (*kecamatan*), 86 villages and 112 sub-villages (*dusun*) (Figure 8.1).



Source: Sleman Bureau of Statistics, 2007

Figure 8.1 Map of Sleman district

The population in the Sleman district is the largest among districts at Yogyakarta province with 944,521 people in 2004 and the density of population at around 1,644 persons per km² in the same year (Statistics Centre Bureau, 2008). With this population density, this district constitutes to be the highest density in Yogyakarta provinces.

The majority of Sleman people work as entrepreneurs and farmers. In Sleman, 75% of the population work in industry, trade and services. However, the agriculture sector also has the main role especially in the Northern part of Sleman where vegetables and rice are produced. Table 8.1 shows domestic earning of Sleman district in 2005 and 2006. It shows that services, trade, and farming dominate to the district earning in both years.

Table 8.1 Sleman domestic earnings 2005 and 2006

Year	2005		2006	
	Rupiah (million)	%	Rupiah (million)	%
Farming	791,592	24.48	714,742	26.57
Mining	32,784	1.01	24,000	0.89
Processing industry	644,544	19.93	468,064	17.40
Electricity and clean water	29,001	0.90	27,127	1.01
Building	276,078	8.54	311,915	11.60
Trade, hotel, restaurant	612,904	18.95	424,196	15.77
Transport/communication	222,430	6.88	219,535	8.16
Bank/monetary institution/housing	205,177	6.34	163,399	6.08
Service	419,656	12.98	336,668	12.52
Total	3,234,172		2,689,646	

Source: Sleman Bureau of Statistics, 2007

Sleman has a large number of schools and colleges. There are 29 universities established in this district (Statistics Centre Bureau, 2008). Therefore, this district is well-known as centre of higher education in Indonesia. The rates of school enrolment for primary school in this district were higher than the national average (the primary school enrolment rate in Sleman in 2008 is 98% while the national enrolment rate is 96%). In term of health sector, the number of public health centres in the Sleman regency was 32; there were 91 public health sub-centres, one state general hospital, ten private general hospitals, 25 child birth clinics and 47 family planning clinics/polyclinics; there were 102 doctors and 51 dentists (Sleman Bureau of Statistics, 2007).

8.2.1. Sleman after the earthquake 2006

Sleman is among the most heavily affected areas of the Yogyakarta earthquake 2006. The Southern and Northern part of Sleman areas is the most heavily affected by the quake. More than 1.1 million people in Sleman were affected by this earthquake. The damage and loss assessment statistics report 3,203 confirmed deaths and 37,927 survivors with severe injuries. Housing and productive sectors cost the largest destroyed which was estimated at USD 1.2 billion. It was reported that the quake cost 9,052 of private assets from the housing, business, and other productive sectors in the district. The most severely destroyed was located at Pakem and Prambanan sub-district. The

government and donors thus allocate their relief and assistance in both sub-districts. The following interview transcripts illustrate the situation during the quake.

The quake not only caused damage to economic condition in the districts but also substantially decreases social and environmental condition in Sleman, particularly in the most affected sub-districts such as Prambanan and Pakem sub district. Figure 8.2 presents coding of main development issues resulted from interviews with earthquake victims, policy makers, and implementers during post-earthquake reconstruction, which identify issues related to environment, social, and economic conditions faced by Sleman's district.

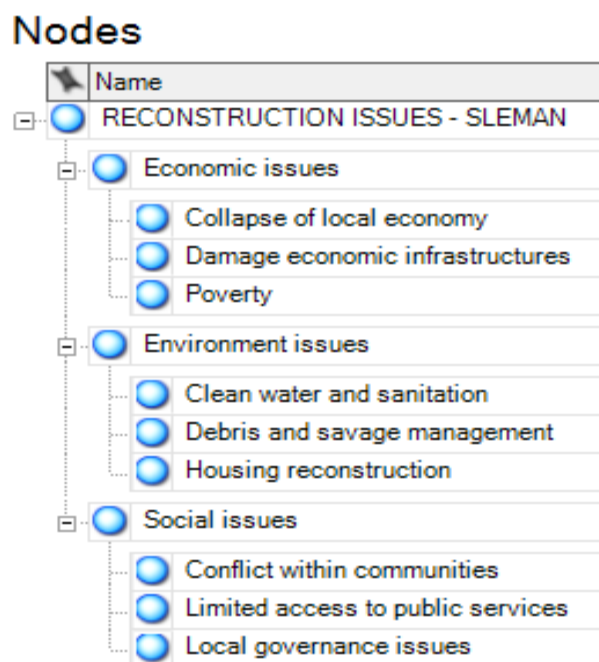


Figure 8.2 Post-earthquake reconstruction issues at Sleman district

The economic losses in Sleman were unlikely to suffer a significant impact on overall district economic activity. Before the earthquake, the Sleman GDP growth was 7%, but then this number decreases substantially to be at 1.2% following the quake (Badan Pusat Statistik, 2009). The district government estimated that the economic loss in Sleman was about 46 billion rupiah. Furthermore, several sectors affected by the earthquake suffered a significant decline like manufacturing decline

by 20%, energy decline by 5% as well as water and sanitation service that decline by two percent. Other sectors were better with decline less than one percent after two years of the quake (Badan Pusat Statistik, 2009).

All these economic losses caused the loss of many jobs, in particular at *Kalasan* and *Prambanan* areas. In these sub-districts most of the citizen work in small business and farming, it was expected about 20-30% of workers lost their job following the earthquake. These higher unemployment and economic infrastructure damage cause increase of poverty in Sleman. The government of Sleman reported that the number of poverty was raised substantially from 16% to 45% following the earthquake. The earthquake also causes environmental damage in Sleman. The most suffered were housing sector with severe damage and loss than other sectors in this district. In total 29,000 houses completely damaged and about 12,900 partly destroyed. Most houses with completely damaged were between 10 and 20 years old with most of them use traditional design which less resistant to earthquake. The major damage to clean water and sanitation infrastructures occurred in two districts, Pakem and Prambanan, where earthquake strikes severely (JRF, 2011). Most of clean water and sanitation networks in both districts were damaged and caused lost at about 1.34 billion rupiahs. Another major environment issues during the earthquake is that debris and salvage which reached around 1.45 million m³.



Houses damages from Sleman earthquake



Mosque damages from Sleman earthquake

Figure 8.3 Damage of housing and public infrastructures resulted from Sleman earthquake
(Source: JRF, 2011)

The earthquake also causes some social problems at Sleman. The damage to public infrastructures causes lack of public services in some sub-districts. Safe and clean water was run out in Pakem and Prambanan sub district for several days before the supply coming from other districts. Most of health centre in both sub districts also unable to deliver their services because most of public facilities were damaged. This causes most of the quake victims unable to get medical treatment very quickly.

Social conflicts within communities also reveal following the earthquake. Conflict among community members occurs due to some villages feel that they receive an unequal portion of aids from the government. Social protests also occur from some communities to district government because they feel the government is late responses to help them. Limited capability of district government appears due to lack of experience dealing such calamity. Nevertheless, in the case of post-disaster reconstruction, not only the government who have limited skills and expertise but also its communities faced the similar issue. They are also not well prepared with better earthquake risk reduction management. All of these issues have strongly concerned by the government, the donors as well as the communities during reconstruction. Accordingly, the next section presents reconstruction at Sleman district following the quake.

8.2.2 Sleman post-earthquake reconstruction 2006

The earthquake creates damages in several districts at Sleman regency. Thousands of people have lost their house, and therefore shelters need to be built. On the first phase, the priority of Sleman government and International donors are the supplying of emergency and temporary shelter (tarpaulins, tents, mattresses, blankets, as well as non-food supplies). The government and donors distributed more than 73,000 tents/tarpaulins across earthquake areas in Sleman. Moreover, the government also distributed food such as rice, vegetables, mineral water, and biscuits as well as non-food items such masks, blankets and disinfectants as for emergency needs (JRF, 2011). Table 8.2 shows the relief food and non-food items distributed by Sleman government and International donors during the earthquake.

To support health and medical needs, the government and International donors allocate health workers as well as medical needs in across sub-districts. It is up to sixty thousand people who suffer

from the earthquake effect have received variety supports from preventive, curative as well as referral health service within the first three months following the disaster. The district government and International donors were also established/operated emergency health units as well as mobile health clinics to serve essential life-saving health services for survivors of shelters, camps and in remote areas. It helps to support to deliver health services which not being provided by government health offices by providing first aid and ambulance service for emergency needs.

Table 8.2 Relief food and non-food distributed at Sleman district during earthquake

Relief items	Prambanan sub-districts	Pakem sub-districts	Turi sub-districts
Shovels	4,089	3,021	2,011
Hoes	4,089	3,021	2,011
Masks	700	321	231
Water containers (350 litre)	556	213	212
School kits	700	214	134
Food parcels	130	78	67
Biscuits	315	132	121
Mineral water	14,801	12,812	11,121
Blankets	25	20	25
Disinfectant	20	21	20

Source: Sleman Bureau of Statistics, 2007

The government and International donors had also established transitional shelter since the emergency shelter was only for a temporary solution before housing reconstruction began. These transitional shelters in Sleman play a major role during the post-disaster reconstruction process. They are proven useful in the process of recovery and further preparation for reconstruction of permanent housing. Substantially, the shelters also gave opportunities for beneficiaries to monitor and even involved in the reconstruction process of their future house close to the site.

The design of transitional shelters was built with available local materials such as bamboo and woods (see figure 8.4 as the example of transitional shelter built in Sleman districts). Some of bamboo and woods were collected from debris, and the others were provided by communities from neighbouring districts that were very keen to help the victims. These abundant supports from neighbouring districts assist the Sleman government and the donors to build transition shelter

quickly. After three months from the quake, the government along with the International donors did initial reconstruction have had effectively built around 1,600 temporary shelters across three sub districts in Sleman (JRF, 2011).



Figure 8.4 Transitional shelters at Sleman district (Source: JRF, 2011)

The next phase conducted by Sleman district government to response the earthquake is that established planning for permanent housing reconstruction, which one of them is planning on constructing the “*Dome House*” which is the focus of this qualitative study. The “*Dome Houses*” reconstruction project is interesting since the government and the NGO tried to introduce a new type of houses that differs with the existing housing culture within Sleman community. This reconstruction project was introduced in *Ngelepen* village, Prambanan sub-district located not far from the very popular tourist destination, Hindu Prambanan Temple in the eastern of Yogyakarta province.

Three primary stakeholders were involved during the dome housing planning process. They are Sleman government, Gadjah Mada University, and the Dome for the World organization. Between June-October 2006, these three stakeholders worked together discussing and formulating planning of dome housing reconstruction. According to the key informants, in this stage, Gadjah Mada University has an important role in proposing funding to the Domes for the World. However, they have a big concern whether the design of *Dome House* matches with Javanese culture of housing. As the main of a center of community support, the working with the Sleman district government for

planning the specific needs of *Dome House* implementation such land sharing, target groups, and several technical issues. Key informants also explain that in this phase, the involvement of communities was limited particularly in determining the design of the house. However, the process of reconstruction actively involved women and men in discussing suitable site, distribution of the house, land sharing, and maintenance.

A Dome House project story:

The Dome Houses were built in 10 October 2006 just five months after the earthquake. At that time, WANGO (World Association of Non-Governmental Organization) and DFTW (Domes for the World Foundation) offers us to build the houses. They said that all houses will be funded by Mr. Muhammad Ali Alabar, the owner of Emaar Property Dubai. However, to get the houses all people in the village should accept the design of Dome Houses. However, if the villagers do accept the Dome House, the funding will chose other places which accept the requirements of the offers. So, basically we did not have any choices about how to design of the house since if we refuse the offer mean we do not have home (Interview with policy implementer 16).

Gadjah Mada University has an important role during reconstruction planning. They were actively involved communication with the donor. There were so much debates during the time because the Dome House design was not match with Javanese culture and we discussed how to deal with it...how we can adapt the new housing design in the affected communities (Interview with policy maker 9).

The *Dome Houses* projects were constructed by a non-profit organization from United State called WANGO (World Association of Non-Governmental Organization) and DFTW (Domes for the World Foundation). The *Dome Houses* were solely funded by Mr. Muhammad Ali Alabar, the owner of Emaar Property Dubai. According to the informants from DFTW, the monolithic dome design consists of a solid structure of concrete cast which has a strength, energy efficient, cost effective, attractive design and most importantly disaster resistance.

The *Dome House* project was started on 10 October 2006 or five months after the earthquake strike these areas. The *Dome House* project was implemented in *Ngelepen*, one of villages in Prambanan sub-district. The donors build 72 units of *Dome Houses* in this village in areas about 3.5 hectares land. The donors also established public facilities including health care centre, nursery and primary school, clean water and sanitation facilities, mosques and community meeting building. The

evacuation road was also build based on the dome for the world construction standards. Figure 8.5 shows the construction of the *Dome Houses* built in Sleman district.



Dome House construction



Mosque with dome design construction



Dome from satellite photos



Inside *Dome House* condition

Figure 8.5 The *Dome Houses* after the reconstruction was finished in April 2007 (Source: JRF, 2011)

The donor manage the housing reconstruction from planning to implementation with support from Sleman government and communities. Meanwhile, experts groups from University of Gadjah Mada working to encourage affected community to involve in the project. The dome housing areas consist

of six clusters with cover 72 homes for affected families and public facilities such as a mosque, kindergarten, and health clinic.

A Dome House project story:

The involvement of community was limited particularly in the designing of the Dome House. However, the process of reconstruction were participative particularly in determining site or location of the Dome House, the distribution of Dome House, land sharing and maintenance activities. The governments and the funder discussed with all community member in the planning of dome housing reconstruction in their villages. The villagers were also involved as workers...about 370 local people were involved during the dome construction (Interview with policy maker 10).

Yes, the villagers have a little choice at that time since the funder only give an option accept the Dome House design or they will go to another villages. So, there is no way for the villagers not to accept the offers (Interview with policy maker 9).

We can say that the dome housing construction adopt centralised system as all steps of Dome House design were come from the donor. However, the donors involved the villager to learn the design and how to build the Dome House. Therefore, most of workers were coming from local people (Interview with policy maker 11).

By involving us in the process of Dome House construction, we have knowledge how to design and how to build the house. This is important for us so that we can repair or even build the house in the future (Interview with beneficiary 16).

The donors provide all design and standard, while the government and local people provide materials and workers. Hence, the government and communities did not have many choices to change the design of the houses according their needs. The interview with key informants explain that in since the beginning the donor offers that if community and government want the houses, so they have to take for granted the *Dome House* design.



EcoShells that include laundry, toilet and shower facilities, were constructed. Each was placed between two neighboring clusters of dome-homes.



Potable water for drinking is stored and available to the villagers.



Evacuation road in *Ngelepen Dome House*



More than 150 trees have been planted and the villagers plan to do more

Figure 8.6 Public facilities at *Ngelepen Dome House* reconstruction (Source: JRF, 2011)

The *Dome House* reconstruction project also built public facilities in the village to support access of citizen to public services. These facilities include creation of an elementary school, creation of a new mosque for religious worship, creation of a medical clinic, construction of a children’s playground, significant upgrades to the site drainage plan, basic landscaping, upgrades to all roads from concrete paving blocks, to traditional asphalt, finished second floors in all housing units, tile on floors of all

Homes and MCK's, interior paint, village Entry Archway, and sculptures and other architectural feature.

The Dome Housing project was finished quickly with taking only six months from planning, preparation, and construction. The high commitment of the donors in supporting funding and technical assistance, as well as the high participation of women and men in the village in providing materials and workers, made the process of reconstruction quickly and smoothly. By April 2007, all victims in *Ngelepen* village can move from transitional shelter to their new permanent houses. All public facilities including sanitation and clean water, portable water for drinking, evacuation road, as well laundry, toilet and shower facilities were built during six months.

The villagers were surprised with their new house since it differs with the design of Javanese house. Some of them were happy with the new house design. However, the others were also complaints. For example, most of them feel that the temperature inside the *Dome House* was quite hot since the roof was covered by concrete materials. Moreover, since most of the villagers are farmers, they complain that the house was not enough space for keeping paddy rice or vegetables. They who have cows or goats also said that there is no space outside their house for their cows or goats. Further, some women were also complaints that laundry and shower facilities were outside their house, and therefore they feel uncomfortable using the bathrooms.



Original Javanese house with most of parts constructed by woods/bamboos with high roof and many windows to adapt with high temperature

Figure 8.7 Original Javanese house (Source: The researcher field research documentation)

The interviews with key informants explain that four months after living in the domes, the villagers recognised the limitations of *Dome House* design which made their lives uncomfortable. For example, they did not have enough places for storing paddy rice, no garages and bathrooms as well as washrooms. Therefore, they built additional rooms which were used storage areas, garages, bathrooms, washrooms, and clothes drying rooms. We also found that many houses added and enlarged kitchen since they are too small. The following interview transcript shows how the villagers adapt with their new house.

A Dome House project story:

We are happy having a new house but this house is too small for us. The concrete wall causes hot temperature during dry season, while the space in the back yard cannot be used for putting paddy rice or cattle (Interview with beneficiary 23).

We feel that the kitchen is too small with only 1.5 metres x 2 metres long. With this size we can put our cooking tools or other tools in our kitchen. Therefore, we ask our husband to extent our kitchen (Interview with beneficiary 23).

Yes it is. After two years, the Dome Houses were improved and upgraded. Most families build additional rooms changing the original construction. They used the rooms for storage areas, garages, bathrooms, washrooms, and clothes drying rooms. Most of them also extend their kitchen since the kitchen was too small for them (Interview with policy implementer 16).

However, the unique design of *Dome House* also brings advantage for the *Ngelepen* villagers. The unique design attracted many people from other districts to come to the village to see the *Dome House* or to stay at the *Dome House* for a while. This potential has seen by Sleman government by developing this village as one of village tourism centre or “*desa wisata*” in Sleman district. Through “*desa wisata*” program, the government and donors introduce various livelihoods programs, which include developing finance access, replacing resources, property, and assets, giving technical help on improving business skills to up to 30 small enterprises in New *Ngelepen* Village. The Sleman government and donors also committed to implementing recovery of livelihood program in this village. Through this program, the *Ngelepen* villagers learn and adapt to deal with the new housing culture.

The lesson learned from the Dome housing reconstruction is that the concern of roles of humanitarian aid. While their roles in post-earthquake reconstruction were necessary and unavoidable, it raises concern that they may be also unaware of the local housing culture of affected communities. Therefore, it is a critical issue that such humanitarian aid or International agencies should work closely with affected communities since the beginning of reconstruction and should show their respect to the existing local culture.

The next section presents qualitative findings which identify various gender vulnerability and capacity within the *Ngelepen* village reconstruction. It elaborates various gender mainstreaming strategies to address gender vulnerability and to strengthen gender capacity have been introduced by Sleman government to increase the sustainability of reconstruction.

8.3. Qualitative data analysis

This section presents data analysis from interviews with ten key informants (i.e. policy makers, implementers, donors, and beneficiaries). It begins by analysing the gender vulnerability and capacity of post-earthquake reconstruction at Sleman. Then, it presents various gender-mainstreaming strategies have been implemented at Sleman government to address gender vulnerability and to strengthen gender capacity. After that, it gives an explanation about institutional framework for mainstreaming gender at Sleman and the benefits of gender mainstreaming strategies into three dimensions of sustainability of reconstruction. Finally, it explains enabling/constraining factors for integrating gender mainstreaming within post-disaster reconstruction in Sleman district.

8.3.1. Gender vulnerabilities and capacities within post-earthquake reconstruction at Sleman district

This section identifies various gender vulnerabilities and capacities issues within post-earthquake reconstruction in *Ngelepen Dome House* reconstruction at Sleman district.

8.3.1.1 Gender vulnerabilities

The interview with women and men beneficiaries as well as women and men policy makers/implementers identify several types of gender vulnerability appears within post-disaster

reconstruction in the *Dome House* reconstruction. Figure 8.8 presents coding structure of gender vulnerability revealed within post-earthquake reconstruction in the *Dome House* reconstruction.

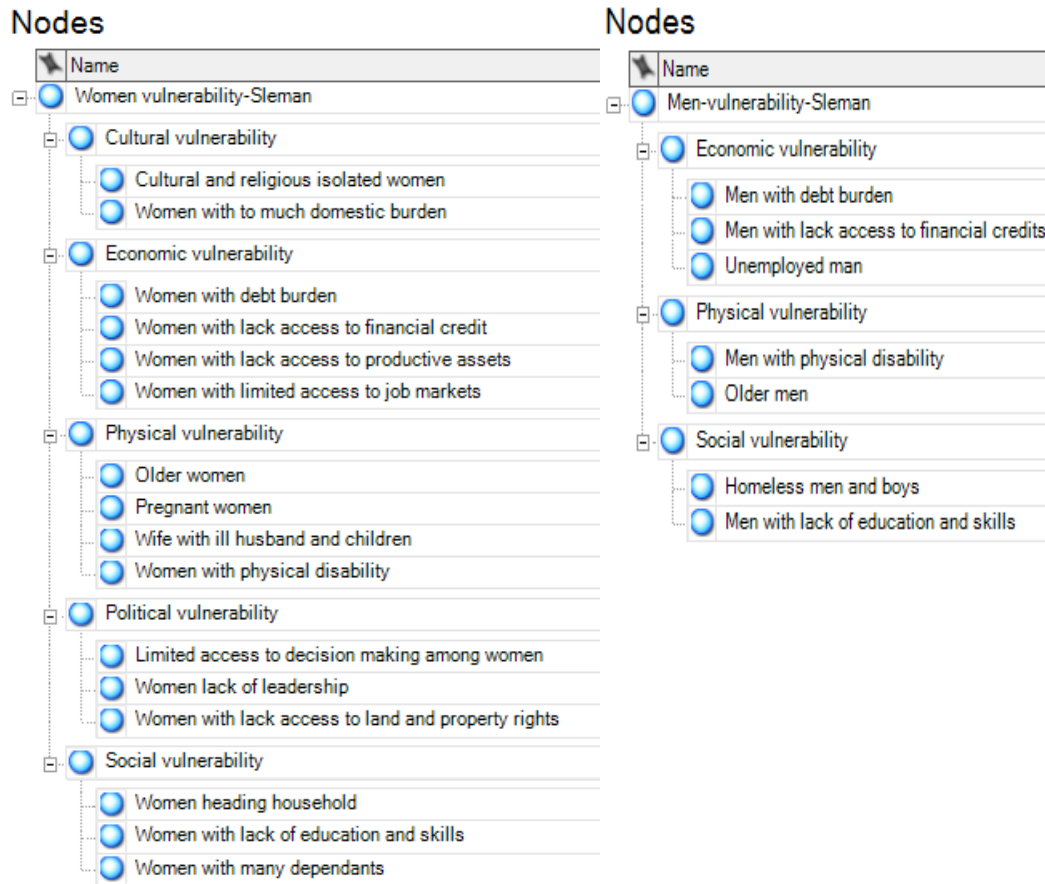


Figure 8.8 Gender vulnerabilities within post-earthquake reconstruction in *Ngelepen Dome House*, Sleman district

Like in Bantul, women are the most vulnerable group who affected by the 2006 earthquake. It can be found that among all the victims, 58 percent (1,876 individuals) are women, from the total victims of 3,203 killed. Economic vulnerability and physical vulnerability are at the most and cultural element of gender vulnerability is at the least. Concerning men vulnerability, it shows that economic vulnerability is at the most, while physical vulnerability is at the least. The following interview transcripts present explanation of gender vulnerabilities from on informants.

Gender vulnerability in Sleman:

In Javanese culture, women are put behind. Women main jobs are cooking, washing and cleaning the house. These in some extent make women more vulnerable than men during reconstruction since most women in this village have too much domestic burden (Interview with beneficiary 15).

The earthquake destroyed everything we have, to begin our business we need a fund but we don't have it. We can't borrow to the bank because we have to provide assurance. Moreover, some of us have already had a big debt from our neighbors and from private lending agency (Interview with beneficiary 17).

Substantial loss of productive asset is one of main factors of women and man poverty in this village. We also face difficulties to get jobs since many industries were closed due to the quake (Interview with beneficiary 19).

Older women, pregnant women, women with physical disability, and poor women with ill husband and children are among the most vulnerable groups during reconstruction. Therefore, there are among target groups to receive funding and other support during reconstruction (Interview with policy maker 9).

In general, in the decision making process, women have lower access on becoming leader compare to men in the reconstruction process. Actually, the government give equal opportunity for us but women domestic role sometimes challenges women to actively involved in the program and becoming leader (Interview with policy implementer 11).

With regard to social vulnerability, we found that among those who are vulnerable are women heading household, women with lack of skills, and women with many children (Interview with policy implementer 12).

Older man and man with physical disability were in very poor condition and there are among groups that the government and community should help first in the reconstruction (Interview with policy implementer 13).

With regard to economic vulnerability, we found man with debt burden, man with lack access to financial credits, and unemployed man are among the most vulnerable groups in Ngelepen (Interview with policy implementer 12).

The earthquake also resulted in homeless man and boys in the village. Without home they have to sleep at the Mosque and this is not good for their health particularly if they have young kids. Moreover, we found many of unemployed man are they who have lack of skills and have low education. With lack of skill and low education, most of them are very difficult to get jobs (Interview with policy implementer 12).

Type of women economic vulnerability appears include women with debt responsibility, women with little access to productive assets, women with lack access to financial credit, and women with limited access to job markets. The quake left most women with debt burden because most of them lost their job and unemployed during three to six months. To start their business some of them have to borrow some money to loan shark since the government loan funding has been not introduced. Some women also report that they face difficulties to find jobs as many industries collapsed due to the quake. Some women at *Ngelepen* were also vulnerable due to their weak physical ability. These women include senior women, pregnant women, wife with ill husband and children, and women with physical disability. The conditions of these vulnerable women are getting worst because the quake destroyed health facilities in the village.

On the other hand, economic and social vulnerability faced by most men in *Ngelepen*. Type of men vulnerability appears to include men with debt burden, men with lack access to financial credits and unemployed men. The quake increases unemployment rate in *Ngelepen* as more than a half of head of household lost their jobs and business. To provide families' needs, some of them have to borrow some money to a loan shark with high interest. Lack of financial credit is also another issue for men to start their business.

Like in Bantul, reconstruction of *Dome House* at *Ngelepen* Sleman has left most women and children in weak physical condition following the disaster. Children, elderly, disabled individuals, pregnant women suffer due to very limited access to health care. Disrupted caregiving system in Sleman district is also the main concern for women within post-disaster reconstruction. Interview with some victims also shows that during reconstruction some women in this village have responsibility for looking after small children as well as elderly relatives. All of this burden make women have become more vulnerable than men during reconstruction at *Ngelepen Dome Houses*.

After presenting results of gender vulnerability in the *Ngelepen Dome House* reconstruction, the next section discusses various gender capacities reveals during reconstruction in the village. This study shows that the quake not only causes much vulnerability but also bring women and men capacity to cope with the calamity.

8.3.1.2 Gender capacities

The interview with informants also reveals various gender capacities during reconstruction at *Ngelepen Dome House Sleman*. Figure 8.9 presents coding structure of various gender capacities appears within reconstruction resulted from interview with women and men beneficiaries as well as women and men policy makers and implementers.

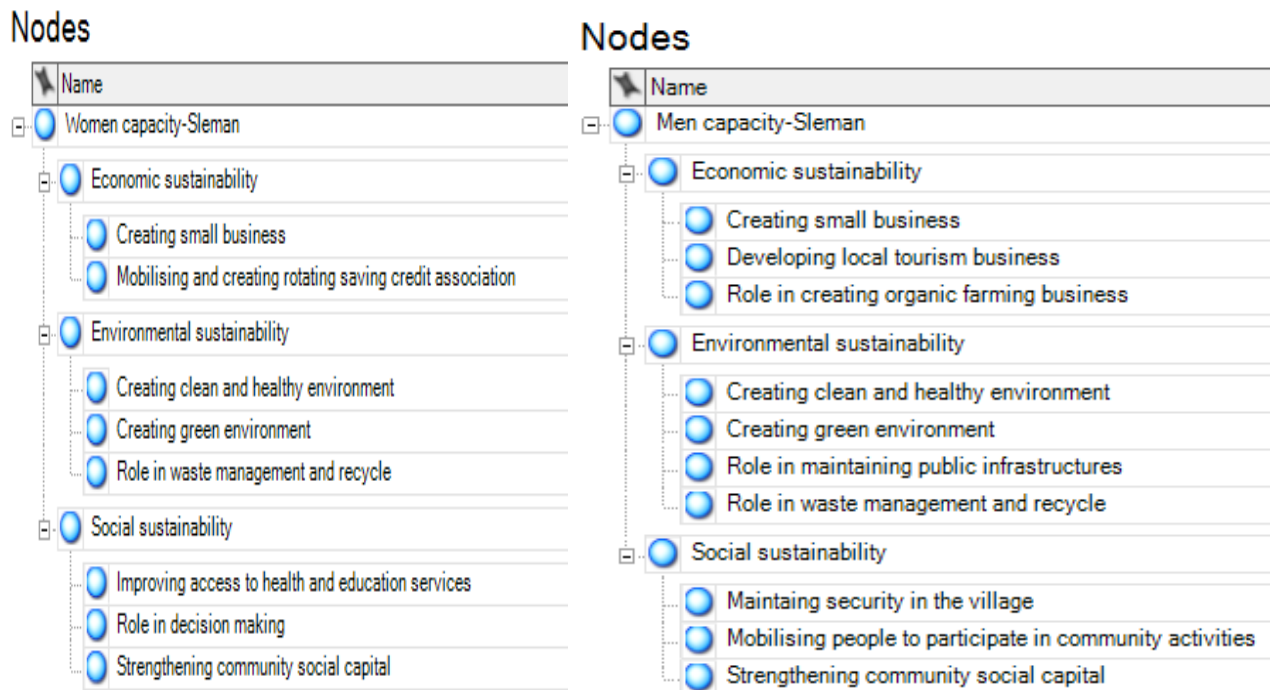


Figure 8.9 Gender capacities within post-earthquake reconstruction at Sleman district

Women capacities for supporting economic sustainability at *Ngelepen Dome House* reconstruction can be seen from their participation in creating small business and mobilizing arisen (rotating saving and credit association) within the village. The increasing number of people comes to *Ngelepen Dome House* encouraged women for creating a small business such as traditional handicraft and souvenir with *batik* (a unique traditional *Javanese* wax). Some of them use their house as a shop for these handicraft and souvenir. Meanwhile, men have also involved in creating a small business at *Ngelepen Dome House*. However, they have different types of small business. Some men have small pottery industries which produce many kinds of cooking tools and souvenir. Moreover, men in this

village were organised themselves to create routine traditional ceremonies and parties events such as traditional music and dances to attract people come to the village. Some men in the village who work as a farmer has also started to grow organic vegetables and others. Some of them sell this product in the Sunday tourist market in the village. All these economic activities give many economic benefits for people in this village. This following interview transcript explains such capacities.

Gender capacities in Sleman:

Most women here make handicraft and souvenir from Batik. Right now, they sell these handicraft and souvenir to tourists who come to see Dome House. Some of them make a little shop in their house or sell it when many tourists come (Interview with beneficiary 20).

Women organised themselves to build arisan or rotating saving credit association. Arisan help them to access a small financial fund among the members. For example, the arisan member can get the money first if they are needed for emergency, such as no money for paying healthcare or paying school fee for their children (Interview with beneficiary 21).

Some men at this village have skills to make handicraft and souvenir from pottery. Some of them not only sell their product in this village but also they sell to cities. To attract more people coming to the Teletubbies house, some men in this village were organised themselves to create a regular events to promote local culture cultures. For example, at least once a month, they have cultural events such as traditional Javanese music, dance or food in the village (Interview with beneficiary 24).

During the last five year organic food products demand were increase and therefore some men who work as a farmer have started to plant organic vegetables and fruits. Some of them sell their product at Sunday tourist markets. They have a good money for their product since organic food usually more expensive (Interview with policy implementer 11).

Women in our village have main role in creating clean and health environment, creating green environment, and role in waste management and recycle (Interview with beneficiary 22).

Most women always swipe areas around their house every morning. Cleaning and washing are our jobs every day. We have an obligation to create clean and healthy environment particularly areas around our house (Interview with beneficiary 15).

Gender capacities in Sleman:

We are planting green vegetables and fruits around our house; this gives us many benefits for example we now have fresh air as well as we can use our vegetables for healthy food (Interview with beneficiary 15).

Every Sunday we have kerjabakti or voluntary labor to clean irrigation, road and public facilities in the villages. We called this activity “kerjabakti” or village labor which is a part of our community culture. Through this routine “kerjabakti” which lead by the village head we maintain clean and healthy environment in the village (Interview with policy implementer 16).

Women in our village also have main role in introducing and implementing organic rice and vegetables. These organic agriculture products are not only have higher price but also better for our land in the future. With such advantages, farmers in our village now begin to change their agriculture plantation from non-organic to organic products (Interview with policy implementer 16).

Man also have capacity in creating clean and healthy environment, creating green environment, role in maintaining public infrastructures, and role in waste management and recycle. However, their capacity mainly is focused on activities that use physical ability. For example, man in the village should responsible to repair public infrastructures such as village water irrigation and village evacuation roads with their own hand. The have to bring stone, bricks, and cements to do this job. In these particular activities, women have main tasks to cook food and drink for man who work (Interview with policy implementer 16).

Results of interviews show that both women and men have quite similar capacity. However, men have more dominant capacity in some areas such as role in maintaining public infrastructures and mobilizing people to participate in community activities. Some informants explain that the main reason man has dominants role in those areas due to reconstruction activities need more physical strengths. For example, men in the village should be responsible for repairing public infrastructures such as village water irrigation and village evacuation roads with their hand. The have to bring stone, bricks, and cement to do this job. In these particular activities, women have main tasks to cook food and drink for the man who works.

Gender capacities in Sleman:

Women in village organised themselves in Posyandu (village health centre) to do many activities such as providing child immunisation, providing additional nutrition and food for children, checking their pregnancy, and many others activities (Interview with policy implementer 15).

We found some kids were not going to school because their family are poor. We try to help them by reporting to school head and village head so that the children can get scholarship from government (Interview with policy implementer 15).

Women and men in this village have a pivotal role in strengthening community social capital. They mobilise and organised people in the village to join in kerjabakti or village labor as well as gotong royong or self-help which provide a media to build trust in community during and after reconstruction (Interview with policy implementer 13).

Men have an important role to maintaining security inside the village. For example, they have responsible to monitor village security in the night-time. Men in this village are also responsible to mobilise people to involve in kerjabakti or village labor (Interview with beneficiary 25).

The roles of women in creating social sustainability in *Ngelepen* Sleman are seen through their activities in improving access to health and education services, strengthening community social capital, and role in decision making within communities. Meanwhile, men has an important role in maintaining security in the village, mobilizing people to participate in community activities, and strengthening community social capital.

The Javanese cultural tradition of *gotong royong* has also been practiced in *Ngelepen* Sleman. In this village, all members were co-operated and help each other during reconstruction. The villagers work together with neighboring villages in many public activities such as maintaining clean and creating a green environment. The spirit of *gotong royong* is very useful to in strengthening community cohesion as well as creating secure and safety community.

The next section discusses the institutional framework and strategies of mainstreaming gender at Sleman reconstruction. Firstly, it discusses findings regarding institutional frameworks for mainstreaming gender in the Sleman district. Then, it various strategies of gender mainstreaming conducted by district government following reconstruction.

8.3.2 Institutional framework and strategies of gender mainstreaming at Sleman district

This section presents findings of the relation between gender mainstreaming and sustainable post-disaster reconstruction in Sleman, particularly at *Dome House Ngelepen*. This section begins with description on institutional frameworks for mainstreaming gender in the Sleman district. Then, it explains strategies of gender mainstreaming have been introduced by Sleman government to address gender vulnerability and to strengthen gender capacity during reconstruction.

8.3.2.1. Institutional framework for mainstreaming gender

The implementation of gender mainstreaming strategies in *Ngelepen Dome House* was under coordination of Sleman government through the district women-empowerment and children protection agency. Figure 8.10 describes organization structure of this agency.

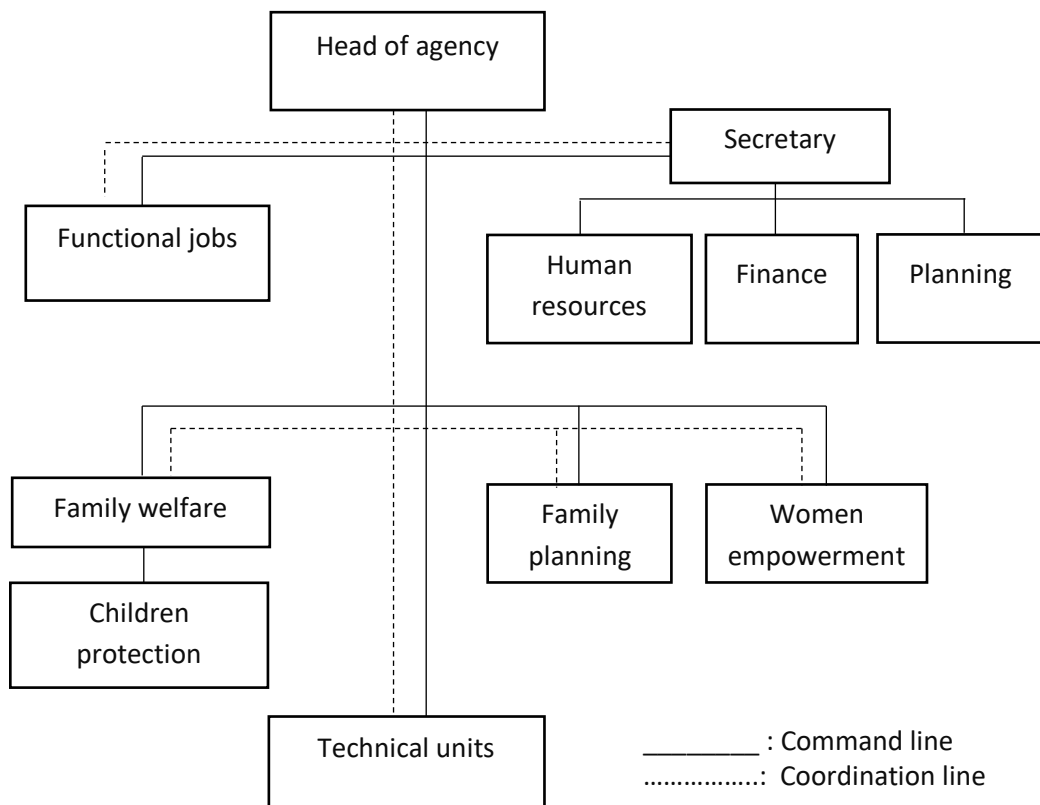


Figure 8.10 Structure of organization in Sleman women empowerment and children protection agency (Source: The Sleman Women Empowerment and Children Protection Agency, 2012)

The Sleman women empowerment and children protection agency is led by a 46 years old women career bureaucrat. As a supporting district development agency, this agency has directly responsible to district head. According to the Sleman district development planning document, this agency has four functions: (1) formulating technical policy of family planning and family welfare, women empowerment and children protection; (2) implementing program related to the policy of family planning, family welfare programs, women empowerment and children protection; (3) providing services related to family planning, family welfare, and women empowerment and children protection; and (4) developing coordinating for implementing program related to the policy of family planning and family welfare, women empowerment and children protection.

To do their responsibility, the Sleman women empowerment and children protection agency was supported by three units: family welfare, family planning, and women empowerment. This agency also had several technical units which directly responsible for the implementation of various programs and projects under responsibility of the agency. To do their responsibility, the Sleman women empowerment and children protection agency was supported by three units: family welfare, family planning, and women empowerment. This agency also had several technical units which directly responsible for the implementation of various programs and projects under responsibility of the agency. To do their responsibility, the Sleman women empowerment and children protection agency was supported by three units: family welfare, family planning, and women empowerment. This agency also had several technical units which directly responsible for the implementation of various programs and projects under responsibility of the agency. To do their responsibility, the Sleman women empowerment and children protection agency was supported by three units: family welfare, family planning and women empowerment. This agency was also have several technical units which directly responsible in the implementation of various programs and projects under responsibility of the agency.

The women empowerment and children protection agency were actively involved during reconstruction at *Ngelepen Dome House*. According to interview with key informants, two units (women empowerment unit and family welfare unit) were directly participated during the reconstruction process at *Ngelepen*. Women empowerment unit has main responsibility for supporting various programs to improve women livelihood in the village. This program includes developing small cooperatives and providing technical assistance for small and medium scale

enterprises. Meanwhile, family welfare unit has main responsibility to support in implementing programs such as family planning, children health, free food for children, and village health centre (*Posyandu*).

In doing so, both units work together with the donors and academicians from University of Gadjah Mada as well as local non-governmental organization during the implementation of the programs. For example, the Gadjah Mada and local non-governmental organization provides technical support by sending graduates' students or member of non-governmental organization to be facilitators within livelihood program implementation. Figure 8.11 describes the institutional framework of gender mainstreaming during *Ngelepen Dome House* reconstruction.

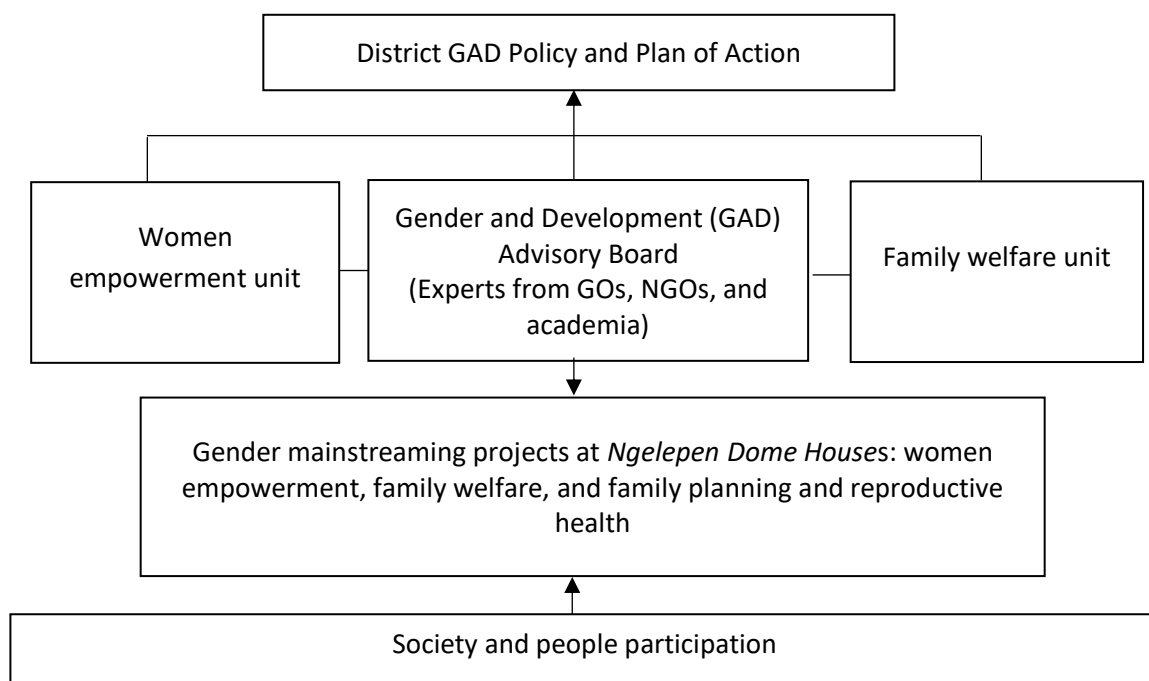


Figure 8.11 Institutional frameworks for mainstreaming gender at Sleman district (Source: The Sleman Women Empowerment and Women Protection Agency, 2012)

The process of decision making and implementing of all programs within the village always involving all women and men particularly during livelihood programs as the program provides freedom and authority for district government to design and to implement the program. For example, to ensure

that every policy and decision making takes into account women and men needs, women and men have been allowed to have greater involvement in identifying and prioritizing gender mainstreaming programs within planning process that affect the whole community. Hence, all programs implementing in the village have given more satisfaction to the beneficiary and community in ownership of the planning process and new assets.

8.3.2.2. Gender mainstreaming strategies into sustainable post-earthquake reconstruction

Based on interviews with policy makers and implementers, it is identified various strategies implemented by Sleman district government to reduce gender vulnerability and to strengthen gender capacity during reconstruction. Figure 8.12 presents coding structure of various Sleman district government strategies to reduce gender vulnerability and to strengthen gender capacity, particularly the strategies that have been implemented at *Ngelepen Dome House* village.

Nodes

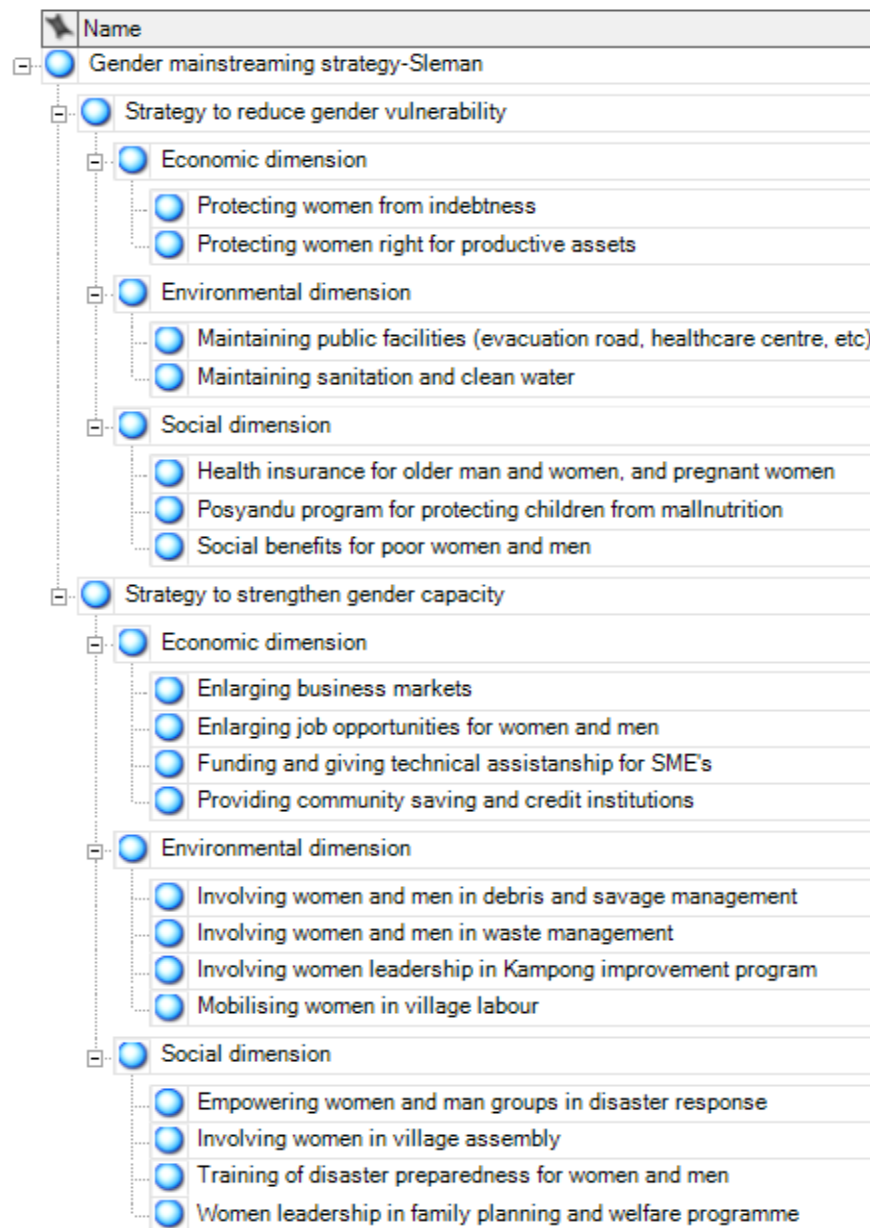


Figure 8.12 Gender mainstreaming strategies within post-earthquake reconstruction at Sleman district

8.3.2.2.1. Strategies to reduce gender vulnerabilities

Sleman government has been introduced various strategies to reduce gender vulnerability which are also implemented at *Ngelepen Dome House*. These strategies can divided into three main areas of sustainable development. Firstly, economic dimension which include strategies for protecting women from indebtedness, protecting women right in productive assets, and social safety nets for vulnerable women and men.

Strategies to reduce gender economic vulnerabilities:

We have several strategies to reduce gender economic vulnerability which are divided into two programs. Firstly, program to protect women from indebtedness by providing small and cheap loan for poor women so they do not need to borrow to loan sharks. Secondly, program to protect women in productive assets through strengthening legal right for women to have land or home ownership certificate. Thirdly, social safety nets for vulnerable women and men by providing them healthy and free food (Interview with policy maker 12).

The earthquake destroyed economic sector in Ngelepen severely. To protect women and people the government has introduced social safety nets program. This program aims to fulfil basic needs of the poor particularly poor women and men in this village. With this program we hope can help their life burdens following the earthquake (Interview with policy maker 13).

We are Javanese and in traditional Javanese culture, women have little right to productive assets. During the reconstruction, this traditional culture in many cases has negative consequences for women. In many cases, divorced wife have little right to have productive assets at home. Moreover, the role of husband families is also dominant in productive assets rights. For instance, during the earthquake many men died and his assets should be shared between his wife and her husband families. In many cases this traditional culture create burden for wife of many children. In order to protect women, the government has introduced polity to give legal right for women to have land or home ownership certificate (Interview with policy maker 14).

To reduce women vulnerability in housing ownership, we implement equal policy in permanent housing ownership by put the name of wives and husbands equally to the house certificate (Interview with policy maker 14).

Women indebtedness in Sleman increase following the earthquake. At *Ngelepen* the case of women borrowing also increases as reported by informants. To solve that issue, the government provide small and cheap loans so that indebtedness women release from loan sharks. Other strategies that

are purposed to reduce gender economic vulnerability is protecting women right in productive assets. In traditional Javanese culture, women have little right to productive assets of households because all assets owned by men. This traditional culture in many cases has negative consequences for women. For example, divorced wife have little right to have productive assets at home. The role of husband families is also dominant in productive assets rights. For instance, during the earthquake, many men died, and his assets should be shared between his wife and her husband families. In many cases, this traditional culture creates burden for a wife of many children. To solve this problem, the government has introduced strategies to protect women right for productive assets. Another strategy to reduce gender economic vulnerability is providing social safety nets by giving free rice and free clothes for poor women and men.



Older women take free rice from village head office in *Ngelepen Dome House*



Financial benefits of Rp 300.000,- for poor men and women in *Ngelepen Dome House*

Figure 8.13 Social safety net program during post-disaster reconstruction at Sleman district
(Source: JRF, 2011)

Two strategies have been implemented to protect gendered environmental vulnerability in *Ngelepen Sleman*: (1) program to maintain public infrastructures and (2) program to maintain safe and clean water and sanitation. The damage to public infrastructures such as roads, irrigation, schools and health centres increases women and men vulnerability during reconstruction. The

Dome House projects built all these public facilities, and therefore the citizen and the government should maintain all these facilities so that citizen can get benefits them for a longer time. For example, the Sleman government provide a free fund for repairing and maintaining all public facilities at *Dome House*.

Strategies to reduce gender environmental vulnerabilities:

We have two strategies in mainstreaming gender into sustainable environment during reconstruction. The first strategy is that providing and improving clean water and sanitation, which is implemented through block grant for each community (Interview with policy maker 13).

In order to maintain clean water and sanitation at Ngelepen Dome House, Sleman district government has allocated maintenance fund for the village. The allocated fund about 100 Million rupiah every year for maintain water and sanitation facilities in Ngelepen. However, this policy is not only implemented in Ngelepen but also in other villages. The goals are to ensure all women and men in Sleman to get access of clean water and healthy sanitation. In total, the government spend a budget of 2 billion rupiah over the five years period (Interview with policy maker 10).

In order to maintain all public facilities particularly evacuation road and irrigation, we provide maintenance budget about 200 million a year. This is to support Ngelepen as tourism village centre which also directly affect in improving vulnerable women and men to road and irrigation access (particularly for poor farmers) in the village (Interview with policy implementer 15).

With regard strategy to reduce gender social vulnerability, Sleman government has introduced various programs. Firstly, health insurance is providing for older man and women and pregnant women. Secondly, *Posyandu* or village health centre services build for protecting children from malnutrition. Thirdly, social benefits give to help poor men and women.

Sleman government has introduced health insurance program or called "*Jaminan Kesehatan Masyarakat*". This program gives to poor and elderly people who unable to access health care. The budget for this health insurance is from national district government and district government. According to policy makers, the health insurance program in Sleman covers about 6,750 poor and elderly women in 2006. At *Ngelepen Dome House*, about 15 families received this insurance.

Strategies to reduce gender social vulnerabilities:

The Sleman government has introduced four strategies to reduce gendered social vulnerability. Firstly, health insurance is providing for older man and women and pregnant women. Secondly, Posyandu or village health centre services build for protecting children from mal-nutrition. Thirdly, social benefits give to help poor men and women (Interview with policy maker 12).

Yes, we received free healthcare from the district government. With this insurance, we can get free healthcare from district health centre or hospital. This insurance is really helpful for us because healthcare costs are very expensive (Interview with beneficiary 17)

During reconstruction, village health centre or Posyandu provides healthcare services particularly for children and pregnant women. The centre for example regularly provide free food for babies and kids as well as pregnant women. Through Paysandu, they can get free vitamin A (Interview with policy implementer 12).

Social benefits have been given to poor women and men, the government give them cash transfer about IDR 100-200 thousands for the poor each month during one year (Interview with policy maker 9).

The government used village health centre or *Posyandu* for providing health care services especially for children and pregnant women. Various healthcare services have been given such as healthy food for pregnant women as well as children under five years old, supplemental feedings, vitamin, and mineral supplementation, and nutrition education, immunization, and of course diarrhoea disease control. *Ngelepen* has one *Posyandu* which serves about 45 children five years of age and about 50 pregnant women. In this *Posyandu*, children and pregnant women can get free food and vitamin. The *Posyandu* programme is carried out every two weeks in *Ngelepen*. The operational activities of *Posyandu* are supported by doctor or midwife from sub district health center and cadre or village health volunteers. Figure 8.14 below shows the activities of *Posyandu* at *Ngelepen Dome House Sleman* after seven years the earthquake. Such activities have been continued and regularly conducted two times every month.



Posyandu provides mother and child health in Ngelepen during reconstruction



Free food for children and pregnant women are provided by district government



Free food for children and pregnant women are provided by district government



Free food for children and pregnant women are provided by district government

Figure 8.14 *Posyandu* activities in Sleman district during post-earthquake reconstruction (Source: Bappeda and BPBD Sleman documents)

Furthermore, to help poor and senior women and men, the Sleman district government has introduced social benefit program. This program has been introduced following the earthquake which main purposed to help senior women and men survive during reconstruction. However, the Sleman government viewed that such social benefit program helps the most needed from shock and therefore, the government decided to continue the program. Today, the beneficiaries of the

program have reached about 1,250 people at Sleman. In *Ngelepen Dome House*, key informant explains about 15 families received the social benefits program.

After discussing gender mainstreaming strategies have been introduced by Sleman government to address gender vulnerability, the next section turn to discuss strategies that have been conducted by Sleman government to strengthen gender capacity.

8.3.2.2.2. Strategies to strengthen gender capacities

This section presents results of interview with policy makers regarding strategy introduced by Sleman government to strengthen gender capacities. Various strategies have been introduced to strengthen gender capacities in economic, environmental and social dimension of sustainable reconstruction. The following interview transcripts show such strategies.

Strategies to strengthen gender economy capacities

The Sleman government have several strategies to strengthen gender economic capacity: enlarging business market, enlarging job opportunities for women and men, funding and giving technical assistantship for SME's and providing community saving and credit institution. Through these strategies we hope we can strengthen women and men capacity in affected earthquake areas (Interview with policy maker 13).

We regularly organise exhibition in the Dome House and other places to invite people especially investors to see various products made by micro, small and medium scale enterprise at Sleman. In order to enlarge the promotion of local products, we has also designed website which consists information about Sleman and its potency (Interview with policy maker 13).

We also give small scale industries in the village technical assistantship. Today, about 2,534 micro and small enterprises had involved in various technical assistantship program, such as improving technical skills of creating handicraft, unique bags, batik dress, keychains, fridge magnets, and post card (Interview with policy maker 13).

This year about 25 micro and small enterprises in this village participate in technical assistantship program from the government. Nearly half of the beneficiaries of the technical assistance activities are women. We saw they now have improved their business skills to produce various products which they can sell not only in the village but also to other places (Interview with policy implementer 13).

The Sleman government has invested 100 million rupiah for each community saving and credit institutions in each village in the Sleman (Interview with policy implementer 13).

Informants explain various strategies have been introduced by the Sleman district government to strengthen gender economic capacity. The first strategy is that enlarging job opportunities for women and men. The Sleman government has introduced labor intensive approach or "*padat karya*" to work on building and repairing public facilities in the *Ngelepen Dome House*. Through this approach, the government prioritise men or women from the village to work. Moreover, the development of *Ngelepen Dome Village* as centre of tourism village opens many job opportunities for the villagers such handicrafts and souvenir shops.

In order to improve various small scale industries in the village, the government provides technical assistantship for them. Within Sleman district government, key informants from policy makers explain that about 3,546 micro and small enterprises had involved in various technical assistantship program, such as improving technical skills of creating handicrafts, unique bags, *batik* dress, keychains, fridge magnets, and post card. According to interview with informants at *Ngelepen Dome House*, about 25 micro and small enterprises in this village have participated in technical assistantship program (BPS, 2011). Through these assistantships, these micro and small enterprises have improved their business skills to produce various products which they can sell not only in the village but also to other places. Most importantly, for the technical assistance activities, nearly half of the beneficiaries are women.

The Sleman government also introduces program for enlarging business markets so that various home made products of *Ngelepen Dome House* can be sold not only in the village but also in other places. Hence, the Sleman government regularly organise various exhibition in the village which invites many people and investors from other places. Moreover, to enlarge the promotion of local products, the Sleman government has also designed website which consists information about Sleman and its potency.

Lastly, the Sleman government has established community saving and credit institutions in every village at Sleman district. In the first instance, the government has invested 100 million rupiah for each community saving and credit institutions in each village. In *Ngelepen Dome House*, such community saving and credit institution provide benefits for poor women and men who unable to access formal credit institution like bank since they do not have enough insurance. Such community saving and credit institution help the villagers because the credit administration process as relatively

easier than conventional bank and it also very close to the villagers since the location often placed in the village head office.



Sleman Local products exhibitions



Handicraft products which majority runs by women



Handicraft and souvenir markets exhibition at Ngelepen Dome House



Women are very active in community saving and credit association at Ngelepen Dome House

Figure 8.15. Various activities to improve economic sustainability at Sleman district (Source: The researcher field research document)

In term of strategy to strengthen gender capacity in environmental dimension, policy makers explain they implement four strategies: (1) Involving women and men in debris and savage management;

(2) Involving women and men in waste management; (3) involving women leadership in *Kampung* improvement program; and (4) Mobilizing women in village labor.



Women involved in village labors in Sleman



Men involved in village labors in Sleman



Gotong royong in *Ngelepen Dome House* Sleman

Figure 8.16 Women and men participation in reconstruction in *Ngelepen Dome House* at Sleman district (Source: Head village, Bappeda, and the researcher field research document)

To strengthen women and men capacity in managing debris and salvage, the Sleman government has mobilised women and men in affected areas in collecting and selecting waste that could be reused directly in reconstruction. At *Ngelepen Dome House*, informants explain that women and men worked together to clean all debris and salvage in the village before reconstruction begin. They selected some materials such as woods and bamboo that can be used during reconstruction. The government and the donor provided trucks and tractors to bring unneeded debris and salvage to landfill place in remote areas. Moreover, women in the *Ngelepen Dome House* village were also actively involved in waste management during reconstruction. They are responsible for separating different types of waste materials for recycling, something which is easy to do and already done by many of them as part of their local recycling service before the earthquake.

The Sleman government has also introduced *Kampung* improvement program or *Program Perbaikan Kampung*. Informants from policy makers explain this program is a part of national urban poverty alleviation strategies which are managed through community based development approach. Therefore, the implementation of the program should involve community participation. In *Ngelepen Dome House*, the *Kampung* improvement program has introduced following reconstruction. Women and men in this village have organised themselves to conduct *gotong royong* and *kerjabakti* (village labor) every Sunday morning which are purposed not only to clean all areas within the *Dome House* Village, but also repair all public facilities such as road, bridges and footpaths, public taps, drainage canals, and waste disposal facilities. Hence, the Sleman government provides support by providing basic fund about 100 million rupiah a year for repairing public facilities. However, such amount of the government basic fund for maintenance often not enough. Therefore, the villagers have mobilised fund by themselves. As reported by beneficiaries, the villagers have agreed to keep 1,000 rupiah every day to support maintenance cost of public facilities in the *Dome House* areas. With such efforts, most of public facilities at the *Dome House* are still in good condition after about eight year reconstruction. For example, it can be seen that pavement, public lighting, school and facilities of health service, living environment or space, and housing density reduction are still in good condition. Likewise, public toilets and bathrooms are also in clean and good condition.

Strategies to strengthen gender environmental capacities:

The Sleman government also introduces several strategies to encourage women and men to sustain environment: involving women and men in debris and salvage management, involving women and men in waste management, involving women leadership in Kampong improvement program, mobilizing women in village labor (Interview with policy maker 10).

We have mobilised women and men in Sleman especially in earthquake affected areas in collecting and selecting debris that could be reused directly in reconstruction labor...The government and the donor provided trucks and tractors to bring unneeded debris and salvage to landfill place in remote areas (Interview with policy maker 11).

Women and men worked together to clean all debris and salvage in the village before reconstruction begin. We selected some materials such as woods and bamboo that can be used during reconstruction. Women were responsible to separate different types of waste materials for recycling, something which is easy to do and already done by many of them as part of their local recycling service before the earthquake (Interview with policy maker 11).

We have also introduced Kampong improvement program or Program Perbaikan Kampung. This program is a part of national urban poverty alleviation strategies which are managed through community based development approach Interview with policy maker 14).

Women and men in this village have organised themselves to conduct gotong royong and kerjabakti (village labor) every Sunday morning which are purposed not only to clean all areas within the Dome House Village, but also repair all public facilities such as road, bridges and footpaths, public taps, drainage canals, and waste disposal facilities (Interview with policy implementer 16).

Interview with several policy makers at the Sleman government office found several strategies that the Sleman government has introduced to strengthen gender social capacity. These strategies include (1) empowering women and men groups in disaster response; (2) women in village assembly; (3) providing disaster preparedness training for women and men, and (4) women leadership in family planning welfare programs.

Strategies to strengthen gender social capacities:

We several strategies to strengthen gender social capacity: empowering women and men groups in disaster response, involving women in village assembly, training of disaster preparedness for women and men, women leadership in family planning and welfare programme (Interview with policy maker 14).

We have introduced various programs that purposed to improve women skills and knowledge in responding disaster. We regularly introduces training and simulation of how to prepare domestic disaster response, how to prepare disaster mitigation plan and to develop community-based early warning systems (Interview with policy maker 14).

We also encourage women groups to become member of village assembly or Badan Perwakilan Desa so that they have a legitimate power to articulate women needs and concerns within the district government development planning (Interview with policy maker 10).

We have PKK program or Family Planning Welfare Programme which most of women involves in this program. There are many activities in this program which is purposed to encourage women leadership in every village. This program is implemented together with Posyandu or village health centre program (Interview with policy maker 9).

In Ngelepen Dome House village, women have actively involved in Family Planning Programmes or PKK. There are mobilised themselves to create green environment around the village. There was no tree around the village after reconstruction. Women have initiated to plan vegetables, fruits and trees around their house. Now, we can see green environment around the village, we have mangoes, bananas, guava, and many others here (Interview with beneficiary 18).

The Yogyakarta and Central Java earthquake give lessons to the Sleman government that preparing community disaster risk reduction is vital for the future. Hence, empowering women and men in the community in activities related to disaster mitigation, disaster response and disaster risk reduction are vital in community that always aware and ready to any disaster and calamity in the future. In *Ngelepen Dome House*, the earthquake has proved that women with adequate knowledge to response disaster, they can save and survive their family. Recognizing the potential of women group within the village, the government has introduced various programs that purposed to improve women skills and knowledge in responding disaster. For example, the government regularly

introduces training and simulation of how to prepare domestic disaster response, how to prepare disaster mitigation plan and to develop community-based early warning systems.



Women and children involved in earthquake response simulation in Sleman



Staff of local disaster management agency train women and men in earthquake response simulation



Earthquake response simulation has been introduced at schools in *Ngelepen Dome House* Sleman



Figure 8.17 Women and men participation in earthquake response simulation in Sleman district (Source: BPBD Sleman documents)

The Sleman district government has also encouraged the role of women leadership in reconstruction by involving more women to become member of village assembly or *Badan Perwakilan Desa*. In this assembly, women can articulate their voices within village development planning process. In *Ngelepen Dome House* for example increasing women participation in the village assembly substantially improve the way how the villagers aware on the importance of creating green environment around the village. Moreover, women leadership in *Ngelepen Dome House* is also shown in family planning welfare programs or they called *Perkumpulan Kesejahteraan Keluarga* (PKK) which is implemented together with village health centre or *Posyandu* program. The genuine participation and leadership of women in those activities and institutions alongside men are proactively sought to improve sustainability of the *Ngelepen Dome House* reconstruction.

After discussing gender mainstreaming strategies have been introduced by Sleman government, the next section explains various benefits of such strategies for increasing sustainability of reconstruction at Sleman district.

8.3.3. The benefits of mainstreaming gender into sustainable post-earthquake reconstruction in Sleman district

Sleman's earthquake reconstruction can be categorised into two main areas: (1) rebuilding of housing and public infrastructures for community and (2) recovery of livelihoods. Rebuilding housing includes building emergency shelters, transitional shelters, and permanent houses. In the case of *Dome House*, emergency shelters and transitional shelters were built and funded by district government and International donors. Around USD2 million were allocated by district governments and International donor to build emergency and transitional shelter. Meanwhile, the donor spends around USD25 million for building *Dome House* and public facilities *Ngelepen* village.

Recovery of livelihoods programs were implemented by district government and donors. The livelihood programs include increasing access to finance service, tracing, recovering, and replacing assets, giving technical help and developing business skills for about 30 SMEs across *Ngelepen* Village. However, the Sleman district government and donors also committed to implement recovery of livelihood program in all affected areas in Sleman. A total USD10.1 million committed to the recovery of livelihoods in Sleman (JRF, 2011). Like in Bantul, the projects support women small business through improving their business skills and providing financial assistance.

Figure 8.18 shows the progress toward sustainable development in New *Ngelepen* Sleman. It shows that the signals of sustainability of *Dome House* reconstruction appear after seven years reconstruction. The role of women and men is vital to create sustainability of the *Dome House* reconstruction.

Nodes

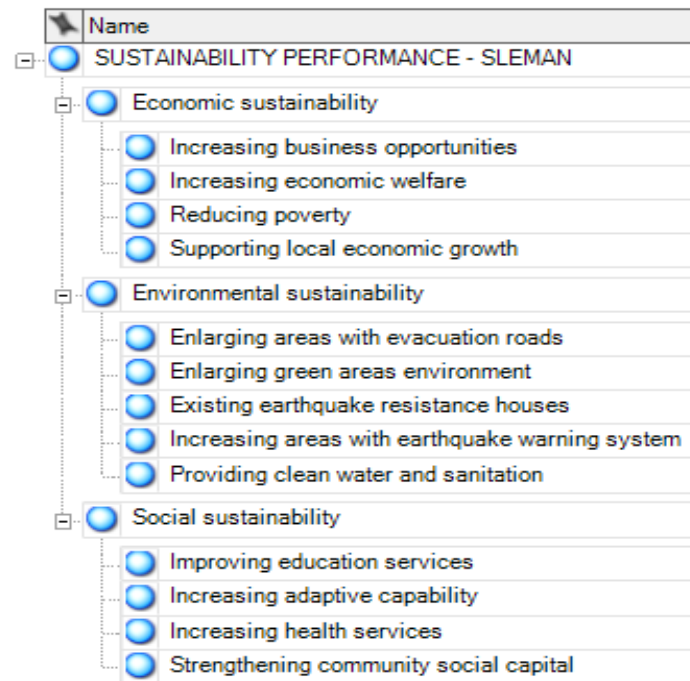


Figure 8.18 sustainability performance at *Ngelepen Dome House* Sleman district

Tabel 8.3 below shows some indicators which indicate improvement of economic, social and environmental sustainability in *Ngelepen* village before earthquake, one year after the earthquake and seventh years after the earthquake. It shows substantial improvement in all dimension of sustainable post-disaster reconstruction.

Table 8.3 *Ngelepen* village Sleman district before and after earthquake

	Before earthquake	After earthquake	
	2005 (one year before earthquake)	2007 (one year after earthquake)	2013 (7 years after earthquake)
<i>Social</i>			
Percentage citizen with access to primary and secondary school	55%	60%	85%
Percentage citizen with access to high school	43%	54%	74%
Percentage citizen with access to college and university	8%	10%	15%
Percentage citizen with access to public health centre	64%	75%	80%
Percentage village with access to hospital	56%	74%	80%
Number of <i>kerjabakti</i> voluntary labors	5 groups	6 groups	10 groups
Number of <i>kampung</i> improvement groups	2 groups	3 groups	6 groups
Number of <i>Posyandu</i> groups	2 groups	4 groups	6 groups
Number of community policing groups	5 groups	8 groups	10 groups
Percentage of citizen social participation in community groups	80%	98%	98%
Number of social conflicts	0 cases	0 cases	0 cases
Number of crime	7 cases	4 cases	1 cases
<i>Economy</i>			
Number of active village cooperatives	2 groups	5 groups	6 groups
Number of active small and medium scale enterprises	34 enterprises	35 enterprises	40 enterprises
Number of ROSCA's group within villages	2 groups	5 groups	8 groups
Percentage of unemployment	9%	9%	4%
Percentage of poor household	14.37%	14.00%	5.01%
<i>Environment</i>			
Number of community waste recycling group	0	5	10
Percentage of household who access clean water and sanitation	65%	75%	99%
Availability of disaster early warning system and evacuation system	No	Yes	Yes
Availability of safety and security system	No	Yes	Yes

Source: Indonesia Village Potential Census 2005-2013, Sleman Central Bureau of Statistics 2005-2013

8.3.3.1 Economic sustainability

Signals of economic sustainability also appear in *Ngelepen*. New *Ngelepen* dome housing reconstruction has increased business opportunities, economic welfare, reducing poverty and supporting local economic growth. A unique design of *Dome Houses* in New *Ngelepen* was attractive and has attracted many tourists to come in this place to see *rumah teletabis* or the *teletubbies* house. The Sleman government then developed this village as a *desa wisata* or tourism village centre. With the increasing of tourists coming to the dome village, the local economic activities are growing. Some villagers have established souvenir shop, food and drinks, and handicraft shop. Hence, these growing local economic activities open for job opportunities and improve economic welfare as well as reduce poverty. The dome village is also becoming an attractive tourist's icon in Sleman districts which support for local tourist development in this district. Signal of economic sustainability following earthquake reconstruction in *Ngelepen* are described by women and men key informants in the following interview transcript.

Economic sustainability indicators:

"The unique design of Dome House which is similar with house in Teletubbies movies attract many people particularly children. Soon after we finished building the Dome House, many people from other villages, even from other districts come to see the Dome House. This increasing number of tourists encourage many business opportunities for villagers at Ngelepen. For example, some people open handicraft shop and the other open fast food for the tourists" (Interview with beneficiary 18).

In 2008 we declared the Ngelepen village as tourist village centre. With the status the Sleman district government have committed to develop this village as one of favourite place for tourism in the district. To invite more tourists coming to Ngelepen we help the village to create many traditional ceremonies events in this village which attract people to come. Many economic opportunities were created through this program. For example, more job opportunities especially for young man and women in this village" (Interview with policy maker 9).

We saw many good changes in Ngelepen before and after the earthquake. Before the earthquake the majority of people works as a farmer, now most of people at Ngelepen work at services and small scale business as the village becoming one of tourist centre at Sleman district (Interview with policy maker 9).

We see that most people here improve in terms of their economic status. Now, most people here have a good job with relatively high income they received from their business. With improving economic status condition, they now can do much for their family welfare...(Interview with beneficiary 15).



Figure 8.19 Economic activities at *Ngelepen Dome House Sleman* after the earthquake (Source: The researcher field research document)

The growing of economic activities in *Ngelepen* further contributes to district local economy. As explained by key informants from policy makers, they found that unemployment rate in the village decreases sharply during the last seven years. Percentage of poor people also decreases sharply in this village from 32% in 2007 to just 12% in 2013. Village own resources revenue has grown up almost tripled from only 50 million rupiah to 175 million rupiah (BPS Sleman, 2015).

8.3.3.2 Environmental sustainability

The progress of achieving environmental sustainability in *Ngelepen* after reconstruction can be seen from women and men key informants experience as described in the following interview transcript.

Environmental sustainability indicators:

The earthquake destroyed all trees in this area. Then, following the reconstruction we begin to plant some trees along our Dome Houses. Here, we plan mangos trees, rambutan's trees, and durian's trees. We also plant many vegetables here. As a result, within no more than two years after the reconstruction, the Dome House areas look green everywhere" (Interview with beneficiary 17).

We also grow organic vegetables here. We can row many kinds of vegetables here such as spinach, broccoli, carrots, potatoes, chillies, corn, and more. We are not only use all these vegetables for our food but also we sell to markets (Interview with beneficiary 17).

If we look the condition of New Ngelepen today and compare before the earthquake, we can say that Ngelepen today are greener. We can found many trees and vegetables around the areas. Not only that, we also see that Ngelepen today have better public infrastructures. We see sanitation and clean water facilities were better managed. The irrigation was also build across in the village so that no more flooding in rain season (Interview with policy implementer 16).

Environmental sustainability was an early concern for *Ngelepen's* reconstruction and remained an essential focus throughout reconstruction process. Guidelines were developed and monitored to minimise the negative effect on the environment because of the reconstruction activities. Issues considered include sanitation, waste management, the use of reconstruction materials like timber, also the communities and government role in environmental management. When large-scale reconstruction is required, locally sourced building materials such as wood must be carefully managed to assure minimal environmental damage.

The donor has a high concern to create not only a safe house but also safety community. Therefore, they were not only built *Dome House* but also build safety warning system in the village. For example, they built evacuation road which directly connected to the wide areas and big road so that people were easy to be evacuated. Moreover, the design of *Dome House* always places front door directly connected to the main road so that people are easy to run. All houses also have a back door which connected to wide back yard areas. All of these are essential to creating better disaster risk reduction.



The *Ngelepen Dome House* in 2008



The *Ngelepen Dome House* in 2009 – Getting green



Organic vegetables in the *Ngelepen Dome House* in 2008



Organic vegetables in the *Ngelepen Dome House* in 2008

Figure 8.20 Green areas and organic farming in *Ngelepen* after reconstruction (Source: JRF, 2011)

The signal of improving environmental sustainability in *Ngelepen* Sleman is seen from various indicators. For example, the wider green areas in this village. The number of community waste recycling groups across villages increase the subsequent reconstruction. Percentage of household who able to access clean water and sanitation also increases sharply, and most importantly they now have safety warning system in the village. The role of both men and women in creating a green environment and organic farming is vital in this village.

8.3.3.3. Social sustainability

Results from interview with key informants show that an improvement of social sustainability in *Ngelepen* village. Informants report that the reconstruction not only improves citizen access of health and education services, but also strengthen community social capital and increase adaptive capability. The role of women and men in achieving social sustainability is vital in this village.

Progress of social sustainability indicators:

The new school and health centre at our village provide us easier access for our child and villagers to access education and healthcare. Before earthquake we have to go other village with take about one hour to arrive at school and health centre. Hence, these new school and health centre are extremely helpful for us (Interview with beneficiary 15).

From the earthquake and the Dome House reconstruction, we learned about the important of networks and trust within and between communities. I believe all villagers now feel that they have stronger relationship and stronger trust than before. We are happy to help each other and to engage for making our village better and better (Interview with beneficiary 18).

One important thing that we also learn from the process of Dome House in our village is that we learn how to adapt with something new. Dome House was something new for villagers with totally differs with our housing culture. However, after we feel the benefits of the house design and then we tried to solve something that not suitable with our needs (Interview with beneficiary 19).

We learned something invaluable from the process of Dome House reconstruction that our society have indeed improve their capacity to adapt with new thing that it is actually opposite with their culture. The capacity to adapt is one of main factors why the Dome House reconstruction still exist (Interview with policy maker 14).

Seven years after the earthquake, substantial improvement has been achieved in term of social sustainability of reconstruction in New *Ngelepen* village. In term of education and health services access citizen have better access to all education level and health services. Number of community organization such as village voluntary labors (*kerjabakti*) and community health services (*Posyandu*) groups where most women actively participate in community development increase substantially in 2013.



Figure 8.21 Education and health services at Sleman district after earthquake reconstruction
(Source: The Head of village and the researcher field research document)

This study also shows that number of village *kampong* improvement groups in which women and men actively involved also increases following reconstruction process in the village. Such groups have important roles to improve the living environment through activities such as maintaining basic physical and social infrastructures in the village such as repairing roads, footpaths to public taps, drainage canals, and solid and human waste disposal facilities. A better and wider acces to the distribution of clean water along with the reconstruction of private toilets with proper septic tanks can be found in New *Ngelepen*. The number of community policing groups or *siskamling* (*sistem keamanan lingkungan*) was men have main roles also increases after the reconstruction in this village.

After discussing the benefits of mainstreaming gender into sustainability of reconstruction, the next section elaborates constraining/enabling factors of mainstreaming gender within post-disaster reconstruction at Sleman.

8.3.4 Constraining/enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction in Sleman district

This section describes some constraining and enabling factors integration of gender mainstreaming within post-disaster reconstruction in Sleman district government. Figure 8.22 presents coding structure of enabling constraining and enabling factors of integrating gender mainstreaming within post-disaster reconstruction in Sleman district.

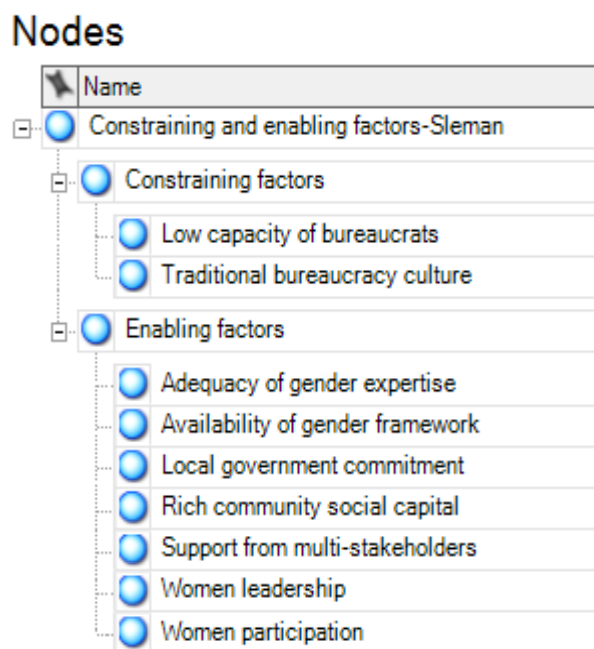


Figure 8.22 Constraining and enabling factors of mainstreaming gender within post-earthquake reconstruction in Sleman district

Based on interviews with informants, it is found that low capacity of bureaucracy and traditional culture of bureaucracy are the main challenges of integrating gender mainstreaming within post-disaster reconstruction in Sleman. Moreover, the interviews also reveal some enabling factors from government, community, and donors that support integrating gender mainstreaming within post-

disaster reconstruction. The enabling factors from government include high commitment of district government leaders and availability of gender policy framework. Meanwhile, enabling factors from community include women participation, women leadership, and rich community social capital. Likewise, support from many stakeholders donor is one of main factors of integrating gender mainstreaming within post-disaster reconstruction in Sleman.

8.3.4.1 Constraining factors

8.3.4.1.1 Low capacity of bureaucrats

Although most bureaucrats at Sleman district government understand the participation importance of both women and men within the local development, particularly within post-disaster reconstruction they have lack of skills and knowledge how to translate it into process of district government development policy and program. Some senior leaders even misinterpret that gender mainstreaming always relate to women and all about women that want to occupy the roles of men in society and government. Therefore, in many cases political resistance is found from these senior leaders in the implementation of gender mainstreaming within post-disaster reconstruction at this district.

Low capacity of bureaucrats

In general most bureaucrats at Sleman government understand of the importance of women and men participation in district government development. However, most of us still have lack of skill and knowledge how to translate the idea of gender mainstreaming into practices. Another challenge is that sometimes we face political resistance from some senior bureaucrats who don't understand what is gender mainstreaming and the main purpose of gender mainstreaming. For them, gender mainstreaming is about women that want to occupy the roles of men in society and government (Interview with policy maker 15).

We realise that we have lack of skills and knowledge of how translate the gender mainstreaming concepts into local policy and program, especially in the case of how to mainstream gender mainstreaming within post-disaster reconstruction process. We have no experience before (Interview with policy maker 9).

During the Ngelepen Dome House reconstruction, the Gadjah Mada University and the donors have actively involved in preparing reconstruction planning, engagement with community, reconstruction of the Dome House, and providing technical assistantship to develop the Ngelepen Dome House become a village tourist centre (Interview with policy implementer 14).

We provide workshop and training to improve district government bureaucrats' knowledge the importance of integrating gender mainstreaming into post-disaster reconstruction (Interview with policy maker 10).

The technical capacity issues become for most of Sleman bureaucrats. As informants report that most bureaucrats do not have any prior knowledge about gender mainstreaming and how integrating gender mainstreaming into policy and program. The role of gender experts from universities and donors help is important in providing technical assistance through workshop and training before, during and after reconstruction. In the case of *Ngelepen Dome House*, gender experts from Gadjah Mada University and donor were actively involved in providing technical assistance from reconstruction planning to post reconstruction including how to empower women and capacity in developing *Ngelepen Dome House* as a new centre of tourism village at Sleman district government.

8.3.4.1.2 Traditional bureaucracy culture

Interview with informants also found that patriarchal bureaucracy culture challenges the implementation of gender mainstreaming within earthquake reconstruction in Sleman. The following transcripts from informants explain such traditional culture.

Traditional bureaucracy culture

We know that most of Javanese belief that men possess higher position than women, also men has dominant roles within families and society. If we look the Javanese Kingdom, we can see that women in the Kingdom always subordinated by men (Interview with policy maker 10).

One of our belief that have strong influence in the relation of women and men in society is that the idea of “konco wingking”. This term means that women main jobs is on the back of her husband or family, her main jobs to look after her husband and family by doing cooking and washing (Interview with policy maker 11).

We know that such traditional culture was believed by some senior bureaucrats and these in many cases bring negative impact on public organization. For example, we found that some of them did not happy when various strategic positions in reconstruction program lead by women bureaucrats (Interview with policy maker 11).

For young bureaucrats “Konco wingking” is not relevant anymore. Most young women particularly those who are educated from university have more awareness and understand that they have equal right with men in public spaces. For most of them, konco wingking to some extent only bring negative impact especially for them (Interview with policy maker 12).

Such traditional bureaucracy culture exists particularly within some senior member of bureaucrats at the district which have strongly maintain the traditional *Javanese* belief that put men has a special position within family and society. In this belief, women are always subordinated by men and therefore in the public function the position women must not higher than men. The traditional Javanese culture called this as *konco wingking* means that women main jobs is on the back of her husband or family, her main jobs to look after her husband and family by doing cooking and washing. Therefore, they believe it is prohibited for women to work outside their homes.

However, informants explain that this culture is mostly believed by senior bureaucrats. For young bureaucrats who are more educated and have knowledge about gender and the issues of gender mainstreaming within development, this culture is not relevant anymore. For them women and men have to get equal chances to fill their roles in public function. Therefore, as long as women have better skills and knowledge, the government should give them chance to become a leader.

8.3.4.2 Enabling factors

This section elaborates some enabling conditions of integrating gender mainstreaming within earthquake reconstruction in Sleman. According to key informants' interview, it is identified various enabling factors: Firstly, enabling factors from community include women participation, women leadership, and rich community social capital. Secondly, enabling factors from government includes the commitment of district government leaders and availability of gender policy framework). Thirdly, donors support in the reconstruction program.

8.3.4.2.1 Women participation

Women participation in *Ngelepen Dome House* is high. There are involved in many activities during reconstruction. There are mobilised and organised themselves through various groups such as rotating saving and credit association or *arisan*, village health centre or *Posyandu*, family welfare program or *Program Kesejahteraan Keluarga*, village labor or *kerjabakti*, and many types of small and medium scale enterprise or *usaha kecil menengah*.

The Sleman district government have encouraged women in various aspects of reconstruction. For example, women were encouraged into *kerjabakti* or village labor to plant many types of vegetables,

fruits and vegetables around their house and village. Through these activities the *Ngelepen Dome House* has changed from hot and dry areas to green areas during seven years reconstruction. *Posyandu* and *Program Kesejahteraan Keluarga* are place in which women roles are important to improve healthcare and health among the villagers. Meanwhile, women role in *usaha kecil menengah* improve the village economy productivity as the *Ngelepen Dome House* become one of the village tourism centre at Sleman.

Women participation in Sleman:

I can say that women participation at this village is very high. They are mobilised and organised themselves through various groups such as rotating saving and credit association or arisan, village health centre or Posyandu , family welfare program or Program Kesejahteraan Keluarga, village labor or kerjabakti, and many types of small and medium scale enterprise or usaha kecil menengah (Interview with policy implementer 16).

The government have encouraged women in various aspects of reconstruction. Women were encouraged into kerjabakti or village labor to plant many types of vegetables, fruits and vegetables around their house and village. Through these activities the Ngelepen Dome House has changed from hot and dry areas to green areas during seven years reconstruction (Interview with beneficiary 8).

Posyandu and Program Kesejahteraan Keluarga are place in which women roles are important to improve healthcare and health among the villagers. Meanwhile, women role in usaha kecil menengah improve the village economy productivity as the Ngelepen Dome House become one of the village tourism centre at Sleman (Interview with policy implementer 16).

We were mobilised or organised ourselves to work together with village head and all villagers in the village in order to make the village better for our life. For example, women work together without paid to clean up areas around the village to make it clean and healthy. We also work together to plan areas around the house and around main road in the village with many tress, fruit and vegetables so that now the Dome House areas look green everywhere. During reconstruction we also participated in many community meetings particularly in deciding the location of various public facilities such as public bathrooms and toilet location that most women needed. As a result the doors were agree to build in the suitable location in which most women can reach it easily and comfortable to use it (Interview with beneficiary 15).

I can say that women participation in the Ngelepen Dome House is high. They are actively participated in various community works during reconstruction and after reconstruction. I think this is the factor which generates the Ngelepen Dome House reconstruction sustainable (Interview with policy implementer 16).

The government and donors has also used women facilitator in order to include gender sensitive consideration in the reconstruction process. Based on interview with facilitators and beneficiaries, women facilitators were welcome by female beneficiaries since women facilitators have better understanding about their needs and concerns. For example, during the village meeting women facilitators were more concern on the public bathrooms and toilet location that most women needed. Therefore, such facilities were built in the suitable location in which most women can reach it easily and comfortable to use it.

8.3.4.2.2 Women leadership

Women leadership is high in the *Ngelepen Dome House* village. Women mobilised themselves to look for their daily need for their family during the reconstruction. They were not depending on men and have initiative to looking for food and fruits to survive their children and families during the reconstruction. Some of them found safety location to evacuate before transitional shelters were built. The roles of women leadership were also vital during the *Dome House* reconstruction particularly in the process of determining site location of public facilities such as public bathroom, toilet and health centres.

Women leadership in Sleman:

Perhaps because the Ngelepen village is led by women the process of reconstruction of the Dome House has high concern with women issues. The village head, Mrs Ibu Puji Astuti encourages women groups to engage in Posyandu, Program Kesejahteraan Keluarga and kerjabakti. She has tried to attend and involve in those meetings to support and to know directly various women issues in the village during and after reconstruction (Interview with policy implementer 12).

As I said to you before, women in this village mobilised themselves to look for their daily need for their family during the reconstruction. We tried to not depending on men and to do many activities such as providing and looking for food and fruits to survive our children and families during the quake. I remembered that some of us have to look for safety location around the village before transitional shelters were built (Interview with beneficiary 22).

Our active roles in the village assembly improve our voice in decision making within the village. We realise that our needs and concerns accepted into village policy. For example, women groups in saving and credit association now have rights to get more funding from government to enlarge this saving and credit association (Interview with beneficiary 22).

The role of women leadership in the *Ngelepen Dome House* village was also vital in maintaining facilities and creating green environment at the villages. As explained by informants, all women in the village under supervision of the wife of village head organised themselves into village labor or *kerjabakti* every Sunday morning for cleaning the *Dome House* areas. Further, women leadership into this volunteer activity are vital for changing environment in the village from dry and hot into green and warm today. The role of women leadership in village assembly or *Badan Perwakilan Desa* in the village also improves women voice in decision making within the village. Through their active participation in this assembly, women needs and concerns now can be translated into village policy. For example, women groups in saving and credit association now have rights to get more funding from government to enlarge this saving and credit association.

8.3.4.2.3 Support from multi-stakeholders

Support from multi-stakeholders is also important to realise gender mainstreaming during reconstruction process. According to interview with informants of district government policy makers and beneficiaries, the roles of NGOs, International donors and universities have vital roles in mainstreaming gender during the reconstruction process in the village. For example, the donors provide financial support for the reconstruction activities. Now, women and men in the *Ngelepen Dome Village* have public meeting building in which they can do many activities in that building. In this place, many women and activities were conducted such as *arisan* or rotating saving and credit association as well as various handicraft and traditional art exhibitions.

NGOs both local and International have actively involved during implementation process. They helped the government to ensure that gender components were included in the damage assessment and the economic cost of planning and financing during the reconstruction period. The informants also explain that they work together with local NGOs to promote various products of micro, small and medium enterprises at *Ngelepen*. The local NGOs also give technical assistantship to women and men groups. For example, one of local NGOs which working on developing organic farming give training to farmer in the village of how to plant organic food, making organic fertiliser, and how to sell their products to supermarket. Another local NGOs which working on handicrafts also support SME's at *Ngelepen* by providing various trainings and workshops.

Support from donors in Sleman

Many national and International donors were come help us. Therefore, we do not have any issues of funding during reconstruction of the Ngelepen Dome House (Interview with policy maker 17).

We worked together with government and community to ensure that reconstruction process at the Dome House aware of gender issues. For example, we work together with community to ensure that women need and concern particularly older women and widow must be prioritised to receive the funding. During transitional shelter, we also ensure that these groups live in secure place. During planning stage, we worked together with women in this village particularly in deciding public facilities. Moreover, we also involved within recovery likelihood program by providing funding and technical assistantship to many women and men SMEs in this village (Interview with policy implementer 17).

The support from local NGO was helpful to develop the village to become the village tourism centre. For example, they create program to promote this village regularly (Interview with beneficiary 2).

The donors provide financial support for the reconstruction activities. Now, women and men in the Ngelepen Dome Village have public meeting building in which we can do many activities in that building. In this place, many women and activities have been conducted such as arisan or rotating saving and credit association as well as various handicraft and traditional art exhibitions (Interview with beneficiary 16).

University Gadjah Mada has actively involved from the planning process, reconstruction to evaluation of the Dome House reconstruction. They also give various technical supports to the government and the villagers how to develop the Ngelepen Dome House village into the tourism centre village. For example, the University of Gadjah Mada send their students to give technical support to women SME, women saving and credit association, and women groups within Posyandu and Program Kesejahteraan Keluarga (Interview with policy implementer 15).

Moreover the role of university in supporting government and villagers were also important during reconstruction at the *Ngelepen Dome House* village. As explained by informants, University Gadjah Mada has actively involved from the planning process, reconstruction to evaluation of the *Dome House* reconstruction. They also give various technical supports to the government and the villagers how to develop the *Ngelepen Dome House* village into the tourism centre village. For example, the University of Gadjah Mada send their students to give technical support to women SME, women

saving and credit association, and women groups within *Posyandu* dan *Program Kesejahteraan Keluarga*.

8.3.4.2.4 Rich social capital

The spirit of *gotong royong* or cooperation within and between social networks is high at the *Ngelepen Dome House* community. As described in the following transcript, this spirit of community network has strongly encouraged the community both women and men to become actively involved in reconstruction program.

Rich community social capital in Sleman

We are Javanese that have spirit of gotong royong means that we have to work together to build our community. This provides fertile ground for mainstreaming gender in this village during reconstruction. I can say that with this spirit people both women and men are ready to help other member of community with the cooperation spirit (Interview with beneficiary 21).

All people women and men work together, both young and old. People from nearby villages and groups and communities also come to give support and help of many things following the quake. The gotong royong spirit is well fitted to reconstruct our village and it helps us work and collect pieces together (Interview with beneficiary 22).

Yes it is. Like other villages at Bantul, solidarity among women and men is very important in mainstreaming gender issues and concerns during the planning stage. Strong solidarity influence community members in their decision to prioritise vulnerable women that should be received the program first. Without such strong solidarity, we never can make such a good decision (Interview with policy implementer 14).

Rich community social capital in the village is very important factor to integrate gender issues within reconstruction process at the Ngelepen Dome House. For instance, in the planning stage the solidarity among village members influence in the decision to prioritise vulnerable women that should be received the house first. Such community social capital also appears during livelihood recovery program in Ngelepen Dome House village (Interview with policy maker 9).



Gotong royong among women in cleaning village areas



Gotong royong in repairing village road



Women groups in ROSCAs



Women groups in ROSCAs

Figure 8.23 *Gotong royong* involving women and men in many activities at Sleman district (Source: The researcher field research document)

Rich community social capital in the village is very important factor to integrate gender issues within reconstruction process at the *Ngelepen Dome House*. For instance, in the planning stage the solidarity among village members influence in the decision to prioritise vulnerable women that should be received the house first. Such community social capital also appears during livelihood recovery program in *Ngelepen Dome House* village. Women solidarity is an important factor for an effective implementation of *Posyandu* (village health centres), *Program Kesejahteraan Keluarga* (Family Welfare Program), *Usaha Kecil Menengah* (Small and Medium Scale Enterprise) and *Kerjabakti* (Village Labor) in the village. Strong trust among women within *Usaha Kecil Menengah*

(Small and Medium Scale Enterprise) is vital for sustainability of donor fund. Strong solidarity among women is important for effective implementation of *Posyandu* program to protect elderly people and children from malnutrition in the *Ngelepen Dome House* village. For instance, women mobilise themselves to collect foods, milks and vegetables and then distribute to elderly people and children across the village during reconstruction.

8.3.4.2.5 Head of district government commitment

The political commitment of head of district government in mainstreaming the role of women and men during the process of reconstruction at the *Ngelepen Dome House* is high. As explained by informants both from policy makers and beneficiaries, they said that the district head has strong vision and mission as well as have committed to encourage all women and men to participate in reconstruction and local development process. This commitment is realised by increasing district government spending for supporting program for mainstreaming gender in the district. For example, the district government development spending for district women empowerment and child protection increases substantially during the last five years from 2.31 billion to 4.20 billion rupiah.

High commitment of the head of district government in Sleman

Perhaps because the Ngelepen village is led by women village head the process of reconstruction of the Dome House has high concern with women issues. The village head, Mr Ibu Puji Astuti encourages women groups to engage in Posyandu. Program Kesejahteraan Keluarga and kerjabakti. She has tried to attend and involve in those meetings to support and to know directly various women issues in the village during and after reconstruction (Interview with policy implementer 12).

I believe that one of the most important factors why gender mainstreaming in this village is effectively implemented during earthquake reconstruction is the high commitment of the village head. She worked tirelessly in supporting community from the beginning to the end of the Dome House reconstruction. (Interview with policy implementer 11).

Sleman bupati has a strong commitment to put gender issues during reconstruction. This commitment can be seen from her policies and programmes that concern on mainstreaming gender such as promoting income generating activities for women, increasing women participation in decision making and politics, eliminating violence against women, improving maternal and child health, promoting gender based budgeting in district budget planning. (Interview with policy implementer 11).

Moreover, the political commitment of the head of Sleman government is also shown from his commitment to integrate the district gender mainstreaming strategies into all district agencies. Today, all district agencies in the Sleman district government have adopted gender mainstreaming framework. To support the inclusion of gender mainstreaming within disaster reconstruction, the head of district government have worked together with the district women empowerment agency and district management agency in formulating and implementing local policies for addressing gender issues during reconstruction. The Sleman's advisory board formulated priority to gender mainstreaming programs and policy, elimination of violence against women, productive activities for women to generate more family income, women involvement in decision making and broader politic activities, reduction of maternal mortality, family planning programs, and reproductive health as well as make gender profile annually through budget planning.

In the *Ngelepen Dome House* village, the commitment of village head in supporting women and men participation within reconstruction also appears. She mobilised women and men within the village to involve in many reconstruction activities. Mrs. Puji Astuti as a village head encourages women groups to engage in *Posyandu*, *Program Kesejahteraan Keluarga* and *kerjabakti*. She has tried to attend and involve in those meetings to support and to know directly various women issues in the village during and after reconstruction.

8.3.4.2.6 Availability of gender policy framework

Sleman district government is among district government in Indonesia which have already developed a gender policy framework. This gender policy framework gives a guide for agencies as well as policy makers in Sleman district governments on how to mainstreaming gender in their own programs. Reconstruction in Sleman involved many of those agencies and hence the gender policy framework provides them a guide to include gender mainstreaming dimensions in the reconstruction process. Like in Bantul district government, the informants explain that this policy framework provides guidelines for the district government stakeholders in conducting their important roles related to gender mainstreaming. The policy framework grounds itself in the national constitution, legislation and various international and regional instruments which Indonesia is a signatory.

Availability of gender mainstreaming policy framework in Sleman

Sleman district government has also formulated a gender mainstreaming policy framework. This framework is based on national constitution, legislation and various international and regional instruments which Indonesia. All agencies in Sleman should follow this framework in implementing their program (Interview with policy maker 13).

This framework helps us as guidance of how to integrate gender issues during reconstruction. It helps us to integrate gender issues during planning, implementing, monitoring and evaluating the reconstruction program (Interview with policy maker 13).

We have several priority areas in our gender mainstreaming framework: (1) improving basic service delivery particularly health and education; (2) improving local economic building ; (3) strengthening district government financial management and viability; (4) transformation of district government and organizational improvement; and (5) achieving good local governance and strengthening public participation. To ensure that gender mainstreaming is integrated in all these priorities, this framework advocates the gender focal points in all public institutions in Sleman district governments (Interview with policy maker 12).

In accordance to the National gender policy, the Sleman gender mainstreaming policy framework provides the five key priority areas that written in the five-year strategic agenda of local development. The priority areas are: (1) improving basic service delivery particularly health and education; (2) improving local economic development; (3) strengthening municipal financial viability and management; (4) district government transformation and organizational development; and (5) achieving good local governance and strengthening public participation. To ensure that gender mainstreaming is integrated in all these priorities, this framework advocates the gender focal points in all public institutions in Sleman district governments.

8.3.4.2.7 Adequacy of gender expertise

Results of interview with key informants show that adequacy of gender expertise within Sleman reconstruction is vital in introducing gender mainstreaming strategies within reconstruction processes. Sleman district government is located at Yogyakarta province in which many universities exist in Indonesia. Yogyakarta province is recognised as one of centre of education provinces in Indonesia. Following earthquake reconstruction, various experts from universities involved in many reconstruction activities including providing technical assistance for Sleman government in implementing gender mainstreaming within reconstruction processes.

Adequacy of gender expertise in Sleman

The gender experts support Sleman government since the beginning. They worked together with the donors and district women empowerment agency in the planning process. They give technical assistance in identifying women and men victims so that the government can give them help first. They also trained facilitator on how to conduct participatory mapping within planning processes as well as to find various effective ways to engage women participation during reconstruction. All of these are important steps to make sure that women's concerns and needs were taken into account of the reconstruction (Interview with policy maker 11).

Gender experts from Centre of Women Studies University Gadjah Mada have been involved since the beginning of the Dome House reconstruction. They were worked together with the donors, government and villagers in implementing participatory mapping of the houses and public facilities within the village. They also help women and men to adapt with their new house (Interview with policy maker 10).

The experts work together with the head of district government, district district government planning agencies, and district women empowerment agency to ensure reconstruction address various gender vulnerability and gender capacity in Sleman. They also help the facilitators to ensure the process of reconstruction aware of gender issues such as how to find effective ways to engage women participation during reconstruction. Moreover, the role of gender expert is substantially important in helping women and men in the village to adapt with the new housing culture. For example, the experts deliver training for women and men of how to adjust hot temperature inside the Dome House (Interview with policy implementer 14).

The gender experts support Sleman government since the beginning. They worked together with the donors and district women empowerment agency in the planning process. For example, they give technical assistance in identifying women and men victims who are the most needed. They also trained facilitators on how to conduct participatory mapping within planning processes as well as to find various effective ways to engage women participation during reconstruction. All of these are important steps to make sure that women concerns and needs were taken into account of the reconstruction.

The role of gender expertise was also seen during the *Dome House* reconstruction at *Ngelepen*. As explained by informants, gender experts from Centre of Women Studies University Gadjah Mada have been involved since the beginning of the *Dome House* reconstruction. They were worked together with the donors, government and villagers in implementing participatory mapping of the houses and public facilities within the village. They also help women and men to adapt with their

new house. For example, the experts deliver training for women and men of how to adjust hot temperature inside the *Dome House*. After presenting qualitative data analysis, the next section presents results from quantitative survey based on questionnaires gathered from the *Ngelepen Dome House* reconstruction.

8.4. Quantitative data analysis of case study 2: Gender mainstreaming and sustainable post-earthquake reconstruction at Sleman district

This section presents results of quantitative data gathered from survey at the *Ngelepen* village. The survey questionnaires have three purposes: firstly, to investigate various types of gender vulnerability and gender capacity that affects sustainability of post-disaster reconstruction in Sleman. Secondly, to identify various benefits of integrating gender mainstreaming for creating sustainable post-disaster reconstruction at Sleman. Thirdly, it is purposed to identify constraining/enabling factors for mainstreaming gender into sustainable post-disaster reconstruction in Sleman district government.

8.4.1 Gender vulnerabilities and capacities within post-earthquake reconstruction at Sleman district

This section presents finding of types of gender vulnerability and capacity found within post-earthquake reconstruction in the *Dome House* reconstruction. Firstly, it begins by presenting types of gender vulnerability according women and men beneficiaries and then by presenting types of gender capacity revealed in the *Dome House* reconstruction at Sleman.

8.4.1.1 Gender vulnerabilities

Table 8.4 presents the results from descriptive and *t-test* which identify the most prominent type of gender vulnerabilities within post-disaster reconstruction according to women beneficiaries. One sample *t-test* result indicates all variables have significance level at 1% that means each type of gender vulnerabilities is significant. Four types of physical dimension (i.e. older women, pregnant women, wife with ill husband and children, and women with physical disability). Women who burdened with a lot of debt and women deal with lack of access to credit are the most important gender economy and social vulnerability revealed in the *Dome House* reconstruction. Meanwhile,

types of political gender vulnerability include women with lack access to land and property rights, lack access to decision making process, and also lack of leadership.

Table 8.4 Types of gender vulnerabilities within post-earthquake reconstruction based on women beneficiaries' responses at Sleman district

	mean	<i>t</i>	SD	<i>p-value</i>	rank
<i>Social vulnerability</i>					
Women heading household	4.65	48.522	0.532	0.000	1
Lack of skills among women	3.65	47.824	0.552	0.000	2
Widow with many dependants	3.62	48.235	0.532	0.000	3
Women living alone	3.60	46.632	0.544	0.000	4
<i>Economic vulnerability</i>					
Women with debt burden	4.41	43.762	0.431	0.000	1
Lack of productive assets among women	3.54	46.363	0.325	0.000	2
Lack of access to credit among women	3.42	46.672	0.492	0.000	3
<i>Physical vulnerability</i>					
Women with disabilities	4.76	47.620	0.371	0.000	1
Pregnant women	3.88	46.342	0.367	0.000	2
Old women	3.83	48.762	0.522	0.000	3
Wife with ill husband and children	3.75	38.762	0.540	0.000	4
<i>Cultural vulnerability</i>					
Domestic overburdening of women	4.54	43.752	0.501	0.000	1
Lack of social ties among women	3.34	45.430	0.560	0.000	2
<i>Political vulnerability</i>					
Lack of women access to land and property right	3.44	45.431	0.550	0.000	1
Lack of access to decision-making among women	3.32	46.364	0.522	0.000	2
Lack of women's leadership	3.10	46.570	0.502	0.000	3

Table 8.5 presents the descriptive and *t-test* result which show the prominent types of gender vulnerabilities within post-earthquake reconstruction according to men beneficiaries. Results demonstrate all variables are significant at 1% that indicating the significance level of each type of gender vulnerabilities. The results are quite similar. For example, with regard physical vulnerability, men beneficiaries perceive that older women and men, pregnant women, wife with ill husband and children, and women with physical disability are among the most vulnerable. In terms of economic vulnerability, they perceive that women and men who have debt burden and have less productive assets are among the most vulnerable group. Meanwhile, types of political gender vulnerability include women with lack access to land and property rights, lack access to decision making, and lack of leadership of women. In term of social vulnerability, they answer that woman heading household is among the most vulnerable during reconstruction.

Table 8.5 Types of gender vulnerabilities within post-earthquake reconstruction based on men beneficiaries' responses at Sleman district

	mean	t	SD	p-value	rank
<i>Social vulnerability</i>					
Women heading household	3.99	46.500	0.512	0.000	1
Lack of skills among women	3.96	43.822	0.522	0.000	2
Widow with many dependants	3.90	43.230	0.533	0.000	3
Women living alone	3.82	46.430	0.541	0.000	4
<i>Economic vulnerability</i>					
Women and men with debt burden	3.99	43.460	0.431	0.000	1
Lack of productive assets among women	3.76	46.433	0.425	0.000	2
Lack of access to jobs and markets among women	3.62	46.522	0.492	0.000	3
<i>Physical vulnerability</i>					
Women with disabilities	3.96	47.611	0.330	0.000	1
Pregnant women	3.92	46.340	0.367	0.000	2
Old women and men	3.85	48.563	0.310	0.000	3
Wife with ill husband and children	3.79	38.760	0.340	0.000	4
<i>Cultural vulnerability</i>					
Domestic overburdening of women	4.54	43.760	0.401	0.000	1
Lack of social ties among women	3.74	44.435	0.461	0.000	2
<i>Political vulnerability</i>					
Lack of women access to land and property right	3.12	45.430	0.520	0.000	1
Lack of access to decision-making among women	3.01	44.360	0.322	0.000	2
Lack of women's leadership	3.00	46.571	0.402	0.000	3

After describing type of gender vulnerability based on women and men beneficiaries' response, the next section presents their response on gender capacity revealed during reconstruction in the *Dome House* reconstruction.

8.4.1.2 Gender capacities

Table 8.6 presents women beneficiaries' response regarding types of gender capacities in the reconstruction. Firstly, they identify five capacities that revealed during reconstruction. These capacities include: mobilizing and creating ROSCA's, active role in improving micro, small and medium scale enterprises, enlarging women entrepreneurship and enlarging partnership with investors. Secondly, the found building and strengthening community social capital, creating safety and secure community, improving access to public services, and improving village decision making are women capacity reveal in the social dimension. Thirdly, they perceive that creating clean and healthy environment, implementing sustainable agriculture farming and food manufactures, role in creating friendly housing environment, waste management and maintaining public infrastructures are among the most important women capacity reveals during reconstruction. One sample *t*-test result indicates all variables have significance level at 1% that means each type of gender capacities is significant.

Table 8.6 Types of gender capacities within post-earthquake reconstruction based on women beneficiaries' responses at Sleman district

	mean	<i>t</i>	SD	<i>p</i> -value	rank
<i>Economic capacity</i>					
Mobilizing and creating rotating saving credit association	5.00	58.555	0.551	0.000	1
Active role in improving micro, small and medium scale enterprises	4.99	58.632	0.553	0.000	2
Active role in supporting agricultural markets	4.98	58.345	0.574	0.000	3
Enlarging women entrepreneurship	4.96	58.632	0.551	0.000	4
Enlarging partnership with investors	4.90	58.341	0.581	0.000	5
<i>Social capacity</i>					
Building and strengthening community social capital	5.00	58.462	0.552	0.000	1
Creating safe and secure community	4.98	58.632	0.541	0.000	2
Improving access to public services	4.97	58.433	0.570	0.000	3
Improving village decision making	4.96	58.633	0.550	0.000	4
<i>Environmental capacity</i>					
Creating a clean and healthy environment	5.00	58.660	0.541	0.000	1

Role in creating friendly housing environment	4.96	58.531	0.561	0.000	3
Role in waste management and recycling	4.95	58.435	0.511	0.000	4
Role in maintaining public infrastructures	4.93	58.533	0.511	0.000	5
Implementing sustainable farming and food production	4.91	58.433	0.512	0.000	5

Table 8.7 presents men beneficiaries' response with regard types of gender capacities in the reconstruction. Firstly, in contrast with women beneficiaries, men beneficiaries answer that active role in supporting agricultural markets, improving SME's, enlarging men entrepreneurship, and enlarging partnership with investors and promoting handicraft export are their capacity to promote economic sustainability following reconstruction. Secondly, similar to women' beneficiaries, they answer that building and strengthening community social capital, creating safety and secure community, improving access to public services, and improving village to public services as gender capacity to achieve social sustainability. Thirdly, they answer that creating clean and healthy environment, implementing sustainable farming and food production, role in creating friendly housing environment, waste management and maintaining public infrastructures are among the most important women capacity reveals during reconstruction. The one sample *t-test* results show all variables are significant at 1%.

Table 8.7 Types of gender capacities within post-earthquake reconstruction based on men beneficiaries' responses at Sleman district

	mean	t	SD	p-value	rank
<i>Economic capacity</i>					
Active role in supporting agricultural markets	5.00	58.562	0.550	0.000	1
Active role in improving micro, small and medium scale enterprises	4.99	58.834	0.542	0.000	2
Enlarging men entrepreneurship	4.90	58.435	0.570	0.000	3
Enlarging partnership with investors	4.92	58.834	0.511	0.000	4
Promoting handicraft export	4.90	58.435	0.512	0.000	5
<i>Social capacity</i>					
Building and strengthening community social capital	5.00	58.562	0.550	0.000	1
Creating safe and secure community	4.99	58.834	0.522	0.000	2
Improving access to public services	4.97	58.435	0.508	0.000	3
Improving village decision making	4.96	58.834	0.512	0.000	4
<i>Environmental capacity</i>					
Creating a clean and healthy environment	5.00	58.562	0.511	0.000	1
Implementing sustainable farming and food production	4.93	58.834	0.556	0.000	2

Role in creating friendly housing environment	4.91	58.435	0.570	0.000	3
Role in waste management and recycle	4.90	58.834	0.523	0.000	4
Role in maintaining public infrastructures	4.89	58.435	0.560	0.000	5

After describing the women and men vulnerabilities and capacities, the next section describes benefits of gender mainstreaming into sustainable post-earthquake reconstruction in Sleman district.

8.4.2. Benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district

The survey's respondents are divided into categories: firstly, beneficiaries of reconstruction programs and second, policy makers/implementers. The survey distributes questionnaires randomly for 30 women and 20 men at the *Ngelepen Dome House* village who are the targets groups of earthquake reconstruction. Meanwhile, 25 respondents of policy makers/implementers (12 women and 13 men) are asked their perception of the benefit of integrating gender mainstreaming for improving sustainability of reconstruction.

Table 8.8 above describes women's beneficiaries regarding benefits of gender mainstreaming on three dimension of sustainable reconstruction. Firstly, their perceive that gender mainstreaming benefits for improving economic sustainability at the *Dome House* village through reducing women poverty, increasing SME's owned by women, increasing job opportunities for women, improving children and family welfare, and increasing women entrepreneurship.

Table 8.8 Women beneficiaries' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district

	mean	<i>t</i>	SD	<i>p-value</i>	rank
<i>Economic sustainability</i>					
Reducing women poverty	5.00	58.572	0.512	0.000	1
Growing in micro, small and medium enterprises owned by women	4.99	58.561	0.514	0.000	2
Increasing job opportunities for women	4.98	58.431	0.532	0.000	3
Improving children and family welfare	4.97	58.551	0.552	0.000	4
Increasing women entrepreneurship	4.96	58.444	0.570	0.000	5
<i>Social sustainability</i>					
Increasing adaptive capability	5.00	58.555	0.550	0.000	1

Increasing health access for children particularly girls	4.98	58.532	0.576	0.000	2
Increasing education access for children particularly girls	4.97	58.415	0.571	0.000	3
Increasing security and safety within communities	4.96	58.734	0.566	0.000	4
Strengthening trust, networks and social collaboration within communities	4.95	58.433	0.542	0.000	5
<i>Environmental sustainability</i>					
Increasing areas with earthquake warning system	5.00	58.661	0.550	0.000	1
Friendly housing environment that adopt women and men needs	4.98	58.831	0.533	0.000	2
Increasing clean water and sanitation facilities	4.96	58.135	0.566	0.000	3
Waste management and clean environment	4.95	58.651	0.512	0.000	4
Increasing organic farming	4.90	58.432	0.570	0.000	5

Secondly, the respondents perceive gender mainstreaming brings benefits for social sustainability through increasing adaptive capability, increasing health and education access, increasing security and safety in the village and strengthening trust, networks and social collaboration within communities. Thirdly, women beneficiaries also report that mainstreaming gender benefits for environmental sustainability of reconstruction through increasing areas with earthquake warning system, green housing environment, improving clean water and sanitation, waste management and clean environment, and organic farming. The results show all variables are statistically significant ($p < 0.01$).

Likewise, men beneficiaries perceive benefits of gender mainstreaming on sustainable reconstruction (Table 8.9). Men beneficiaries have little difference answers compared to women beneficiaries, particularly with regard economic and social sustainability. For example, men perceive that mainstreaming gender brings benefits for economic sustainability of reconstruction through improving family income, reducing poverty, increasing job opportunities for women, growing SME's, and enlarging business opportunities. With regard social sustainability, men perceive that gender mainstreaming benefits through increasing security and safety of community, increasing social participation, strengthening trust, networks and social collaboration within communities, and increasing access to education and health services particularly for women.

Table 8.9 Men beneficiaries' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district

	mean	t	SD	p-value	rank
<i>Economic sustainability</i>					
Improving family income	5.00	58.560	0.552	0.000	1
Reducing women poverty	4.98	58.814	0.551	0.000	2
Increasing job opportunities for women	4.97	58.425	0.570	0.000	3
Growing SME's	4.95	58.834	0.531	0.000	4
Enlarging business opportunities	4.92	58.134	0.521	0.000	5
<i>Social sustainability</i>					
Increase adaptive capability	5.00	58.561	0.533	0.000	1
Increasing social participation	4.98	58.832	0.551	0.000	2
Strengthening trust, networks and social collaboration within communities	4.97	58.430	0.570	0.000	3
Increasing access to education services particularly for girls	4.94	58.831	0.560	0.000	4
Increasing health service access particularly for women	4.90	58.431	0.521	0.000	5
<i>Environmental sustainability</i>					
Increasing areas with earthquake warning system	4.98	58.560	0.551	0.000	1
Friendly housing environment that adopt women and men needs	4.99	58.831	0.544	0.000	2
Increasing clean water and sanitation facilities	4.97	58.422	0.570	0.000	3
Waste management and clean environment	4.91	58.831	0.551	0.000	4
Increasing organic farming	4.90	58.430	0.542	0.000	5

In terms of environment sustainability, men beneficiaries perceive that mainstreaming gender improve environment sustainability in the village through increasing areas with earthquake warning system, friendly housing environment that adopt both men and women needs, improving clean water and sanitation, waste management and clean environment, and organic farming. The results of the *t*-test strengthen the findings by indicating that the variables have very high value ($p < 0.01$) that means are statistically significant.

Table 8.10 presents results from women policy makers/implementers' respondents. Firstly, they perceive that mainstreaming gender benefits for economic sustainability of reconstruction through reducing poverty particularly women, increasing job opportunities particularly for women, increasing job opportunities particularly for women, increasing children and family welfare, and enhance local economy.

Table 8.10 Women policy makers and implementers' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district

	Mean	<i>t</i>	SD	<i>p-value</i>	rank
<i>Economic sustainability</i>					
Reducing poverty particularly women	5.00	58.360	0.521	0.000	1
Increasing job opportunities particularly for women	4.98	58.234	0.524	0.000	2
Increasing entrepreneurship particularly for women	4.97	58.530	0.511	0.000	3
Improving children and family welfare	4.95	58.234	0.543	0.000	4
Improving district government economy	4.91	58.634	0.511	0.000	5
<i>Social sustainability</i>					
Awareness of women and men needs in reconstruction	5.00	58.562	0.513	0.000	1
Strengthening trust, networks and social collaboration within communities	4.98	58.131	0.542	0.000	2
Increasing access to social services	4.97	58.333	0.572	0.000	3
Increasing security and safety in communities	4.96	58.734	0.522	0.000	4
Increase community participation	4.92	58.233	0.571	0.000	5
<i>Environmental sustainability</i>					
Increasing awareness of policy makers on the importance of disaster risk reduction	5.00	58.622	0.553	0.000	1
Increasing safe and clean water and sanitation	4.99	58.534	0.552	0.000	2
Friendly housing environment that adopt women and men deeds	4.96	58.435	0.572	0.000	3
Waste management and clean environment	4.95	58.634	0.552	0.000	4
Awareness of maintaining public infrastructures	4.92	58.435	0.560	0.000	5

Secondly, they perceive that gender mainstreaming benefits for social sustainability of reconstruction through increasing awareness of women and men needs in reconstruction, strengthening trust, networks and social collaboration within communities, increasing access to social services, increasing security and safety and community participation. Thirdly, women policy makers/implementers perceive that gender mainstreaming improve sustainability of village environment through increasing awareness of policy makers on the importance of disaster risk reduction, increasing clean water and sanitation, green housing environment, waste management and clean environment, and awareness of maintaining public infrastructures. Further, the results of the *t-test* strengthen the findings by indicating that all variables are with value is very high ($p < 0.01$).

Table 8.11 Men policy makers and implementers' perception of the benefits of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district

	Mean	<i>t</i>	SD	<i>p-value</i>	rank
<i>Economic sustainability</i>					
Improving district government economy	5.00	58.562	0.553	0.000	1
Reducing poverty particularly women	4.95	58.834	0.552	0.000	2
Increasing job opportunities particularly for men	4.94	58.435	0.571	0.000	3
Improving children and family welfare	4.91	58.834	0.552	0.000	4
Increasing entrepreneurship particularly for women	4.89	58.435	0.571	0.000	5
<i>Social sustainability</i>					
Increase community participation	5.00	58.562	0.553	0.000	1
Strengthening trust, networks and social collaboration within communities	4.95	58.834	0.552	0.000	2
Awareness of women and men needs in reconstruction	4.94	58.435	0.571	0.000	3
Increasing security and safety in reconstruction areas	4.91	58.834	0.552	0.000	4
Increasing community solidarity	4.89	58.435	0.571	0.000	5
<i>Environmental sustainability</i>					
Increasing awareness of policy makers on the importance of disaster risk reduction	4.96	58.562	0.553	0.000	1
Increasing awareness of community on the importance of disaster risk reduction	4.95	58.834	0.552	0.000	2
Friendly housing environments that meet women and men needs	4.94	58.435	0.571	0.000	3
Waste management and clean environment	4.91	58.834	0.552	0.000	4
Awareness of maintaining public infrastructures	4.89	58.435	0.571	0.000	5

Table 8.11 presents men policy makers/implementers' perception of the benefits of mainstreaming gender into sustainable reconstruction in Sleman district. Men policy makers/implementers have little difference response compare to women policy makers/implementers. For example, men perceive that improve local economy is the biggest benefits of mainstreaming gender, while women perceive this indicator in the lowest rank. Likewise, women perceive that awareness of women and men needs in reconstruction is the biggest benefits of mainstreaming gender for improving social sustainability, while men perceive it is in the third rank. With regard to environmental sustainability, men have similar answer with women policy makers/implementers. The results of the *t-test* strengthen the findings by indicating that all variables are significant with very high value ($p < 0.01$).

After discussing survey results of the benefits of gender mainstreaming into three pillars of sustainable reconstruction, the next section present survey results with regard constraining and enabling factors of mainstreaming gender into post-earthquake reconstruction at the *Dome House* reconstruction.

8.4.3 Constraining and enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction at Sleman district

This section describes constraining and enabling factors of integrating gender mainstreaming within reconstruction in Sleman. Data come from policy makers and implementers questionnaires. 25 respondents of policy makers and implementers (12 women and 13 men) are asked their perception of the constraining and enabling factors of integrating gender mainstreaming for improving sustainability of reconstruction in the district.

8.4.3.1. Constraining factors

Table 8.12 describes women policy makers/implementer's' perception of some constraining factors of mainstreaming gender into sustainability of reconstruction in Sleman. There are five most importance constraining factors according to women policy makers/implementers: patriarchal culture, resistance from some religious leaders and bureaucrats, low educated women and men, and less number of women in decision making. Results of a one sample *t-test* show all variables are significant at 1% indicate the significance level of each types of constraining factors.

Table 8.12 Constraining factors of mainstreaming gender into sustainability of reconstruction as perceived by women policy makers/implementers at Sleman district

	mean	<i>t</i>	SD	<i>p-value</i>	rank
Patriarchal culture	4.79	58.650	0.530	0.000	1
Resistant from some religious leaders	4.73	58.500	0.522	0.000	2
Resistant from senior bureucrats	4.72	58.430	0.520	0.000	3
Lack capacity of bureucrats	4.80	58.420	0.510	0.000	4
Less number of women in decision making	4.71	56.210	0.540	0.000	5
Coordination issues among district government, NGOs and International donors	4.71	56.210	0.540	0.000	6
Lack details of gender disaggregated data	4.70	56.200	0.532	0.000	7
Less incentive for supporting gender mainstreaming	4.69	56.602	0.510	0.000	8
Low educated women and men	4.68	57.600	0.530	0.000	9

Less financial and technical support from national government	4.67	57.420	0.561	0.000	10
Geographical challenges	4.66	56.530	0.540	0.000	11

Table 8.13 describes men policy makers/implementers' perception. In general, they have similar answers with women policy makers/implementers. They also believe that patriarchal culture, resistance from some religious leaders and bureaucrats, low educated women and men, and less number of women in decision making are the most important constraining factors of mainstreaming gender into sustainable reconstruction. Results of a one sample *t*-test show all variables are significant at 1% indicate the significance level of each types of constraining factors.

Table 8.13 Constraining factors of mainstreaming gender into sustainability of reconstruction as perceived by different men policy makers/implementers at Sleman district

	mean	<i>t</i>	SD	<i>p</i> -value	rank
Patriarchal culture	4.94	56.830	0.560	0.000	1
Resistance from some religious leaders	4.92	56.560	0.540	0.000	2
Resistant from senior bureucrats	4.91	56.835	0.523	0.000	3
Lack capacity of bureucrats	4.80	56.430	0.520	0.000	4
Less number of women in decision making	4.87	56.630	0.540	0.000	5
Coordination among district government, NGOs and International donors	4.86	56.69	0.536	0.000	6
International donors and NGOs with a strong top down project	4.85	56.635	0.530	0.000	7
Lack detailed of gender disaggregated data	4.83	56.670	0.520	0.000	8
Less incentive for supporting gender mainstreaming	4.82	55.670	0.511	0.000	9
Low educated women and men	4.8	55.420	0.509	0.000	10
Geographical challenges	4.69	56.529	0.501	0.000	11

After describing response of policy makers/implementers regarding constraining factors of gender mainstreaming within Sleman reconstruction, the next section describes quantitative results of enabling factors of integrating gender mainstreaming into sustainable reconstruction at the district.

8.4.3.2. Enabling factors

Table 8.14 shows enabling factors of gender mainstreaming from women policy makers/implementers. It shows that strong women leadership, strong support from NGOs, high

women group's participation are the highest ranks according to women policy makers' respondents, while incentive, availability of disaggregate data, good communication and coordination among local institutions are in the lowest rank. One sample *t-test* result indicates all variables have significance level at 1% that means each type of enabling factors is significant.

Table 8.14 Enabling factors of mainstreaming gender into sustainability of reconstruction as perceived by women policy makers/implementers at Sleman district

	mean	<i>t</i>	SD	<i>p-value</i>	rank
Strong women leadership	5.00	58.950	0.560	0.000	1
Adequate financial and technical assistance support from NGOs	4.99	58.620	0.554	0.000	2
High women groups' participation	4.89	58.840	0.542	0.000	3
Adequate financial resources supporting gender mainstreaming program	4.81	58.530	0.581	0.000	4
Political will of government	4.80	56.750	0.553	0.000	5
Policy and program design linked disaster risk reduction and resilience	4.77	56.700	0.561	0.000	6
Appropriate tools for gender mainstreaming	4.74	56.675	0.570	0.000	7
Capacity of local gender institution	4.73	54.670	0.562	0.000	8
Gender sensitive budgeting	4.69	55.550	0.580	0.000	9
Availability of gender vulnerability assessment	4.67	56.540	0.540	0.000	10
Availability of gender capacity assessment	4.65	53.762	0.602	0.000	11
Availability of gender training	4.64	54.402	0.554	0.000	12
Availability of gender sensitive monitoring and evaluation mechanism	4.63	56.363	0.520	0.000	13
Adequate gender expertise	4.62	47.760	0.578	0.000	14
Clear gender target	4.59	53.640	0.531	0.000	15
Support from community leaders	3.54	46.340	0.560	0.000	16
Good communication and coordination	3.53	48.760	0.760	0.000	17
Number of women grassroots organization	3.50	38.772	0.750	0.000	18
Availability of disaggregate data	3.49	38.620	0.871	0.000	19
Incentive for supporting gender mainstreaming	3.48	37.320	0.760	0.000	20

Table 8.15 presents the results from men policy makers/implementers. Similar with the answers from women policy makers/implementers, they perceive that strong women leadership, strong support from NGOs, high women group's participation are the highest ranks according to women policy makers' respondents. They also perceive that incentive, availability of disaggregate data, good communication and coordination among local institutions are among the least important of mainstreaming gender. One sample *t-test* result indicates all variables have significance level at 1% that means each type of enabling factors is significant.

Table 8.15 Enabling factors of mainstreaming gender into sustainability of reconstruction as perceived by different men policy makers/implementers at Sleman district

	mean	t	SD	p-value	rank
Strong women leadership	5.00	57.910	0.532	0.000	1
Strong support from NGOs for promoting gendered risk reduction	4.98	57.660	0.541	0.000	2
High women groups' participation	4.95	57.530	0.550	0.000	3
Adequate financial resources supporting gender mainstreaming program	4.88	57.430	0.534	0.000	4
Political will of government	4.85	56.630	0.540	0.000	5
Policy and program design linked disaster risk reduction and resilience	4.82	56.610	0.543	0.000	6
Appropriate tools for gender mainstreaming	4.81	57.610	0.561	0.000	7
Capacity of local gender institution	4.79	57.633	0.561	0.000	8
Gender sensitive budgeting	4.76	57.321	0.561	0.000	9
Availability of gender vulnerability assessment	4.75	58.530	0.545	0.000	10
Availability of gender capacity assessment	4.71	57.761	0.503	0.000	11
Availability of gender training	4.69	55.431	0.554	0.000	12
Availability of gender sensitive monitoring and evaluation mechanism	4.66	48.360	0.525	0.000	13
Adequate gender expertise	4.61	47.762	0.572	0.000	14
Clear gender target	4.61	43.622	0.503	0.000	15
Support from community leaders	3.56	36.340	0.560	0.000	16
Good communication and coordination	3.54	38.164	0.762	0.000	17
Number of women grassroots organization	3.51	38.472	0.755	0.000	18
Availability of disaggregate data	3.49	38.624	0.671	0.000	19
Incentive for supporting gender mainstreaming	3.49	36.324	0.760	0.000	20

8.5. Summary of the chapter and links

This chapter presented the quantitative data analysis that was collected from Sleman district. The data were based on women and men beneficiaries at the *Ngelepen Dome House* reconstruction and policy makers/implementers' who have involved within Sleman reconstruction particularly at the *Dome House* reconstruction. This chapter begins with description about various types of gender vulnerability and gender capacity that relates to sustainability of reconstruction. Secondly, it identifies the benefits of integrating gender mainstreaming for sustainable reconstruction at the district. Thirdly, it presents enabling/constraining factors for mainstreaming gender into sustainable reconstruction at the district. The next section presents cross case studies which present the similarities and differences on both cases.

Chapter 9:

Cross-case analysis and validation

9.1. Introduction

This section presents the cross-case analysis of the two case study areas as well as research validation. The cross-case analysis primarily highlights the similarities and differences of qualitative and quantitative findings from the district of Bantul and Sleman. This section also presents full dataset analysis which combined data collected from Bantul and Sleman district to establish the general state of gender mainstreaming and sustainability of reconstruction in the two districts combined. Meanwhile, the analysis of validation on the findings is carried out by means of interviews with eight experts. The purpose of this section is to triangulate the findings from the case studies.

9.2. Cross-case analysis

The cross-case analysis is intended to highlight the similarities and differences between qualitative and quantitative findings from Bantul and Sleman district in regard to four key themes: (1) gender vulnerability and capacity within post-earthquake reconstruction; (2) gender mainstreaming strategies within post-earthquake reconstruction; (3) benefits of mainstreaming gender into sustainable post-earthquake reconstruction; and (4) constraining/enabling factors for mainstreaming gender into sustainable post-earthquake reconstruction.

9.2.1. Gender vulnerabilities and capacities within post-earthquake reconstruction

9.2.1.1. Gender vulnerabilities

Table 9.1 compares types of women's vulnerabilities in the districts of Bantul and Sleman. Overall, the results show similarities in many of these types of vulnerability (i.e. cultural, economic, physical, political, and social). Certain types of women's vulnerability, however, are not evidenced in the second case study. For example, this study does not find evidence of economic vulnerability – in this case, lower wages among women – during the *Dome House* reconstruction in Sleman. In terms of physical vulnerability, there is no evidence of malnourishment among women and girls in Sleman.

With regard to political vulnerability, this study shows no evidence of women lacking access to land and property rights at the *Dome House* reconstruction. This study also shows that homelessness among women and girls, illiteracy among women, and violence against women are several types of women’s vulnerability exists in Bantul but not in Sleman.

Table 9.1 Types of women’s vulnerabilities at Bantul and Sleman district

Types of women’s vulnerability	Case study	
	1	2
<i>Cultural vulnerability</i>		
Domestic overburdening	Yes	Yes
Cultural and religious isolation	Yes	Yes
<i>Economic vulnerability</i>		
Limited access to jobs and markets	Yes	Yes
Lack of access to productive assets	Yes	Yes
Lack of access to financial credit	Yes	Yes
Debt burden	Yes	Yes
Low wages	Yes	Not found
<i>Physical vulnerability</i>		
Old women	Yes	Yes
Pregnant women	Yes	Yes
Wife with ill husband and children	Yes	Yes
Women with disability	Yes	Yes
Malnourishment among women and girls	Yes	Not found
<i>Political vulnerability</i>		
Limited access to decision-making	Yes	Yes
Lack of access to land and property rights	Yes	Yes
Lack of leadership	Yes	Yes
<i>Social vulnerability</i>		
Homeless women and girls	Yes	Not found
Women Illiteracy	Yes	Not found
Violence against women	Yes	Not found
Widows with many dependants	Yes	Yes
Women heading households	Yes	Yes
Women with lack of skills	Yes	Yes

Likewise, similarities in men’s vulnerabilities are found in the two districts examined in this study. As can be seen from Table 9.2, men’s vulnerabilities are only revealed in the economic, physical, and social dimensions. However, vulnerabilities in the cultural and political dimensions are not apparent. This evidence may indicate that in general there are no cultural or political barriers hindering men from participation in reconstruction in either district.

Table 9.2 Types of men’s vulnerabilities at Bantul and Sleman district

Types of men’s vulnerability	Case study	
	1	2
<i>Cultural vulnerability</i>		
<i>Economic vulnerability</i>		
Debt burden	Yes	Yes
Lack of access to financial credit	Yes	Yes
Unemployment	Yes	Yes
<i>Physical vulnerability</i>		
Physical disability	Yes	Yes
Old man	Yes	Yes
<i>Political vulnerability</i>		
<i>Social vulnerability</i>		
Homelessness among men and boys	Yes	Yes
Lack of education and skills	Yes	Yes

However, a comparison of quantitative findings shows some differences. Table 9.3 compares quantitative findings regarding gender vulnerabilities during reconstruction as perceived by women beneficiaries in both districts. Firstly, with regard to the social dimension, respondents in Bantul perceive that homelessness among women, women heading households, and widows with many dependents rank highest. In contrast, respondents in Sleman perceive women heading households and lack of skills among women as the most important types of gender vulnerability. Secondly, in terms of economic vulnerability, respondents from both districts perceive that debt burden among women, lack of access to productive assets among both gender, and lack of access to jobs and markets among women are the most important vulnerabilities. Thirdly, with regard to the physical dimension, respondents from both districts also perceive the most important types of vulnerability similarly. Namely, they find these to be disability among genders, pregnancy, and advanced age among women. Fourthly, in terms of cultural vulnerability, this study reveals that lack of social ties among women and cultural isolation among women are the most important vulnerabilities in Bantul. However, domestic overburdening of women, cultural isolation among women and lack of social ties among women are the most important vulnerabilities revealed in Sleman district. Fifthly, respondents from Bantul perceive that lack of female leadership, women’s lack of access to decision-making and limitation of women’s voices and participation rank highest among political vulnerabilities, while respondents in Sleman perceive that women’s lack of access to land and

property rights, women’s lack of access to decision-making and limitation of women’s voices and participation as ranking highest.

Table 9.3 Gender vulnerabilities based on women beneficiaries’ responses at Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Social vulnerability</i>		<i>Social vulnerability</i>	
Homelessness among women	1	Women heading household	1
Widows with many dependants	2	Lack of skills among women	2
Women heading household head	3	Widows with many dependants	3
<i>Economic vulnerability</i>		<i>Economic vulnerability</i>	
Debt burden among women	1	Debt burden among women	1
Lack of productive assets among women	2	Lack of productive assets among women	2
Lack of women’s access to jobs and markets	3	Lack of women’s access to jobs and markets	3
<i>Physical vulnerability</i>		<i>Physical vulnerability</i>	
Disability among women	1	Disability among women	1
Pregnant women	2	Pregnant women	2
Old women	3	Old women	3
<i>Cultural vulnerability</i>		<i>Cultural vulnerability</i>	
Lack of social ties among women	1	Domestic overburdening of women	1
Cultural isolation among women	2	Cultural isolation among women	2
Domestic overburdening of women	3	Lack of social ties among women	3
<i>Political vulnerability</i>		<i>Political vulnerability</i>	
Lack of women’s leadership	1	Women lack access to land and property rights	1
Lack of access to decision-making among women	2	Lack of access to decision-making among women	2
Limitation of women’s voices and participation	3	Lack of women’s leadership	3

The differences are also revealed in male beneficiaries’ perceptions regarding gender vulnerability in both districts. Table 9.4 compares quantitative findings regarding gender vulnerability during reconstruction as perceived by male beneficiaries in both districts. It shows differences with regard to the most important gender vulnerabilities. Firstly, with regard to social vulnerability, it shows that homelessness among women and men, widows with many dependents and women heading households rank highest in Bantul. However, in Sleman, male beneficiaries perceive that women heading households, lack of skills among women, and widows with many dependents rank highest. Secondly, in both districts it shows that debt burden among women, lack of access to productive

assets among both genders, and lack of access to jobs and markets among women rank highest among economic vulnerabilities during reconstruction.

Table 9.4 Gender vulnerabilities based on men beneficiaries' responses at Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Social vulnerability</i>		<i>Social vulnerability</i>	
Homelessness among women and men	1	Women heading households	1
Widows with many dependents	2	Lack of skills among women	2
Women heading households	3	Widows with many dependents	3
<i>Economic vulnerability</i>		<i>Economic vulnerability</i>	
Debt burden among women	1	Debt burden among women	1
Lack of productive assets among women	2	Lack of productive assets among women	2
Lack of access to jobs and markets among women	3	Lack of access to jobs and markets among women	3
<i>Physical vulnerability</i>		<i>Physical vulnerability</i>	
Disability among women and men	1	Disability among women and men	1
Pregnancy	2	Pregnancy	2
Old women and men	3	Old women and men	3
<i>Cultural vulnerability</i>		<i>Cultural vulnerability</i>	
Lack of social ties among women	1	Domestic overburdening of women	1
Cultural isolation among women	2	Lack of social ties among women	2
Domestic overburdening of women	3	Cultural isolation among women	3
<i>Political vulnerability</i>		<i>Political vulnerability</i>	
Lack of women's leadership	1	Lack of access to land and property rights among women	1
Lack of access to decision-making among women	2	Lack of access to decision-making among women	2
Limitation of women's voices and participation	3	Lack of women's leadership	3

Thirdly, with regard to physical vulnerability, men beneficiaries in both districts perceive that disabled men and women, pregnant women, and women and men of advanced age are the most vulnerable groups. Fourthly, in term of cultural vulnerability, male beneficiaries in Bantul perceive that sexually abused women, women lacking social ties, and culturally isolated women are the most vulnerable groups, while in Sleman men perceive women overburdened with domestic tasks, women lacking social ties, and culturally isolated women as the most vulnerable groups. Fifthly, male beneficiaries in Bantul perceive that women lacking leadership opportunities, women lacking access to decision-making and women whose voices and participation are limited are the most

vulnerable groups in terms of political vulnerability; in Sleman, however, male beneficiaries perceive that women lacking access to land and property rights, women lacking access to decision-making and women lacking leadership opportunities are the most vulnerable. Further, the combined data set shows the most important gender vulnerabilities as perceived in both districts. Table 9.5 shows the results of combining the data sets regarding gender vulnerabilities in Bantul and Sleman.

Table 9.5 Types of gender vulnerabilities in Bantul and Sleman based on women and men beneficiaries' responses

	Mean	<i>t</i>	SD	<i>p-value</i>	Rank
<i>Social vulnerability</i>					
Homeless women	4.41	58.562	0.553	0.000	1
Widows with many dependents	4.38	58.435	0.571	0.000	2
Women heading household	4.35	56.632	0.543	0.000	3
Women living alone	3.73	56.631	0.541	0.000	4
Lack of skills among women	3.62	56.673	0.551	0.000	5
Violence against women	3.61	56.673	0.551	0.000	5
Lack of access to education and training for women	3.60	57.672	0.562	0.000	6
Women illiteracy	3.43	57.321	0.582	0.000	7
<i>Economic vulnerability</i>					
Women with debt burden	4.49	53.762	0.601	0.000	1
Lack of productive assets among women	4.44	55.432	0.554	0.000	2
Lack of access to jobs and markets among women	3.62	46.672	0.598	0.000	3
Lack of access to credit among women	3.61	47.762	0.578	0.000	4
Low wages among women	3.59	53.622	0.501	0.000	5
<i>Physical vulnerability</i>					
Pregnant women	4.56	47.621	0.671	0.000	1
Old women	4.54	46.342	0.567	0.000	2
Women with disabilities	4.53	38.762	0.542	0.000	3
Malnourishment among women and girls	3.93	38.762	0.541	0.000	4
<i>Cultural vulnerability</i>					
Religious isolation among women	4.33	55.430	0.564	0.000	1
Cultural isolation among women	3.63	46.463	0.515	0.000	2
Domestic overburdening of women	3.62	46.421	0.511	0.000	3
Lack of social ties among women	3.62	46.671	0.591	0.000	4
<i>Political vulnerability</i>					
Lack of women's leadership	4.44	55.431	0.551	0.000	1
Lack of access to decision-making among women	3.61	46.364	0.523	0.000	2
Lack of women access to land and property right	3.61	46.573	0.561	0.000	3

It shows that homeless women and men are the most vulnerable group in term of social vulnerability. In terms of economic vulnerability, women in debt are the most vulnerable group. In terms of physical vulnerability, this study finds that pregnant women are the most vulnerable group. With regard to the cultural and political dimensions of vulnerability, women who have been sexually abused and women lacking leadership opportunities are the most vulnerable groups.

The next section, following these results of the cross-case analysis of gender vulnerability, offers a cross-case analysis of gender capacity in both districts. It begins by presenting the results of the qualitative analysis and then those of the quantitative analysis.

9.2.2.1 Gender capacities

Table 9.6 shows types of women’s capacities in both districts based on qualitative analysis. The beneficiaries, policy makers, and implementers report that creating SMEs and ROSCAs are among the women’s capacities relating to economic sustainability in both districts.

Table 9.6 Types of women capacities in the districts of Bantul and Sleman

Types of women’s capacities	Case Study	
	1	2
<i>Economic capacity</i>		
Active role in improving mico, small, and medium enterprises	Yes	Yes
Mobilizing and creating rotating savings and credit associations	Yes	Yes
Supporting agricultural markets	Yes	Not found
<i>Environmental capacity</i>		
Creating clean and healthy environment	Yes	Yes
Role in creating friendly housing environment	Yes	Yes
Role in enlarging sustainable farming and food production	Yes	Yes
Role in waste management and recycling	Yes	Yes
<i>Social capacity</i>		
Creating safe and secure communities	Yes	Not found
Improving access to health and education services	Yes	Yes
Improving village decision-making processes	Yes	Yes
Building and strengthening community social capital	Yes	Yes

They also report that women’s role in maintaining a clean and healthy environment, creating a friendly housing environment, enlarging sustainable farming and food production, and managing/recycling waste are among the women’s capacities revealed within reconstruction that are related to achieving environmental sustainability. With regard to social sustainability, the informants in both districts opine that improving access to healthcare and education services, improving decision-making processes, and strengthening community social capital are among the women’s capacities revealed during reconstruction. However, the analysis does not find a role for women in supporting agricultural markets and building safe and secure communities in the district of Sleman. In Sleman, these roles are considered the responsibility of men rather than of women.

Likewise, similar types of men’s capacities are revealed in Bantul and Sleman. Table 9.7 shows types of men’s capacities based on responses from beneficiaries, policy makers and implementers in both districts. Overall, the results of case studies one and two show similar findings, with the exception of men’s capacity to develop local tourism business. This is only found in Sleman as the *Dome House* village has been established by the government as the centre of village tourism in the district.

Table 9.7 Types of men’s capacities at Bantul and Sleman district

Types of men’s capacities	Case Study	
	1	2
<i>Economic capacity</i>		
Active role in improving, micro, small, medium scale enterprises	Yes	Yes
Role in developing organic agricultural business	Yes	Yes
Developing local tourism business	Not found	Yes
<i>Environmental capacity</i>		
Maintaining a clean and healthy environment	Yes	Yes
Role in enlarging sustainable farming and food production	Yes	Yes
Role in maintaining public infrastructure facilities	Yes	Yes
Role in waste management and recycling	Yes	Yes
<i>Social capacity</i>		
Creating safe and secure communities	Yes	Yes
Mobilizing people to participate in community activities	Yes	Yes
Strengthening community social capital	Yes	Yes

However, the quantitative comparison of types of gender capacities shows some differences. Table 9.8 compares types of gender capacity based on responses from women beneficiaries in both districts. With regard to economic sustainability, it shows that mobilizing and creating ROSCAs as

well as taking an active role in improving SMEs and agricultural markets are ranked as the highest gender capacities in both districts. In terms of social sustainability, building and strengthening social capital, creating safe and secure communities, and improving access to public services are ranked highest at both districts. With regard to environmental sustainability, it shows that maintaining a clean and healthy environment, implementing sustainable farming and food production, and creating a friendly housing environment are ranked highest in Bantul; however, in Sleman, female beneficiaries perceive that maintaining a clean and healthy environment, taking a role in creating a friendly housing environment, and waste management and recycling rank highest.

Table 9.8 Gender capacities according to women beneficiaries' responses at Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Economic capacity</i>		<i>Economic capacity</i>	
Mobilizing and creating rotating savings and credit associations	1	Mobilizing and creating rotating savings and credit associations	1
Active role in improving micro-, small- and medium-scale enterprises	2	Active role in improving micro-, small- and medium-scale enterprises	2
Active role in supporting agricultural markets	3	Active role in supporting agricultural markets	3
<i>Social capacity</i>		<i>Social capacity</i>	
Building and strengthening community social capital	1	Building and strengthening community social capital	1
Creating safe and secure communities	2	Creating safe and secure communities	2
Improving access to public services	3	Improving access to public services	3
<i>Environmental capacity</i>		<i>Environmental capacity</i>	
Maintaining a clean and healthy environment	1	Maintaining a clean and healthy environment	1
Implementing sustainable farming and food production	2	Role in creating a friendly housing environment	2
Role in creating a friendly housing environment	3	Role in waste management and recycling	3

Some differences are also revealed in men beneficiaries' answers. Table 9.9 compares types of gender capacities based on the responses of male beneficiaries in both districts. With regard to economic sustainability, it shows that taking an active role in supporting agricultural markets, improving SMEs and expanding men's entrepreneurship are ranked highest among gender capacities in both districts. In terms of social sustainability, building and strengthening community social capital, creating safe and secure communities, and improving access to public services are

ranked highest in both districts. With regard to environmental sustainability, it shows that maintaining a clean and healthy environment, implementing sustainable farming and food production, and taking a role in creating a friendly housing environment are ranked highest.

Table 9.9 Gender capacities according to men beneficiaries' responses at Bantul and Sleman district

Case study 1	Rank	Case study 2	Rank
<i>Economic capacity</i>		<i>Economic capacity</i>	
Active role in supporting agricultural markets	1	Active role in supporting agricultural markets	1
Active role in improving micro-, small- and medium-scale enterprises	2	Active role in improving micro-, small- and medium-scale enterprises	2
Expanding men's entrepreneurship	3	Expanding men's entrepreneurship	3
<i>Social capacity</i>		<i>Social capacity</i>	
Building and strengthening community social capital	1	Building and strengthening community social capital	1
Creating safe and secure communities	2	Creating safe and secure communities	2
Improving access to public services	3	Improving access to public services	3
<i>Environmental capacity</i>		<i>Environmental capacity</i>	
Maintaining a clean and healthy environment	1	Maintaining a clean and healthy environment	1
Implementing sustainable farming and food production	2	Implementing sustainable farming and food production	2
Role in creating a friendly housing environment	3	Role in creating a friendly housing environment	3

The results of the combined data set of both districts in Table 9.10 show that mobilizing and creating ROSCAs is ranked highest in terms of gender capacity for economic sustainability. With regard to social sustainability, building and strengthening community social capital is ranked highest. Meanwhile, maintaining a clean and healthy environment is ranked highest among gender capacities in terms of environmental sustainability.

Table 9.10 Types of gender capacities within post-earthquake reconstruction based on women's and men's beneficiaries' responses at Bantul and Sleman district

	Mean	<i>t</i>	SD	<i>p-value</i>	Rank
<i>Economic capacity</i>					
Mobilizing and creating rotating savings and credit associations	4.98	58.564	0.552	0.000	1
Active role in improving micro-, small- and medium-scale enterprises	4.97	58.631	0.551	0.000	2
Active role in supporting agricultural markets	4.96	58.531	0.561	0.000	3
Enlarging women's entrepreneurship	4.95	58.632	0.553	0.000	4
Enlarging partnerships with investors	4.94	58.632	0.570	0.000	5
<i>Social capacity</i>					
Building and strengthening community social capital	4.98	58.563	0.554	0.000	1
Creating safe and secure communities	4.95	58.532	0.552	0.000	2
Improving access to public services	4.94	58.535	0.572	0.000	3
Improving village decision-making	4.91	58.835	0.541	0.000	4
<i>Environmental capacity</i>					
Creating a clean and healthy environment	4.98	58.565	0.543	0.000	1
Implementing sustainable farming and food production	4.97	58.834	0.522	0.000	2
Role in creating a friendly housing environment	4.96	58.535	0.562	0.000	3
Role in waste management and recycling	4.95	58.836	0.562	0.000	4
Role in maintaining public infrastructures	4.91	58.633	0.572	0.000	5

Thus far, various types of gender vulnerability and capacity during reconstruction in both Bantul and Sleman have been presented; the next section of this research offers a cross-case analysis of gender mainstreaming strategies that have been introduced during reconstruction in the districts of Bantul and Sleman.

9.2.2 Gender mainstreaming strategies within post-earthquake reconstruction

In general, the results of the study show similarities in the gender mainstreaming strategies in the districts of Bantul and Sleman. The qualitative analysis presented in Table 9.11 shows that the two districts have introduced the same strategies for reducing gender vulnerability as both districts are experiencing quite similar issues of gender vulnerability during the process of reconstruction. For example, to address economic vulnerability, both districts have introduced strategies such as protecting women from indebtedness and protecting women right in productive assets. To reduce environmental vulnerability, both districts have introduced strategies such as improving the

availability of safe and clean water and sanitation, providing safe and secure housing reconstruction, and maintaining public facilities. Strategies to reduce social vulnerability include providing health insurance, maintaining the *Posyandu* program, protecting women from sexual violence and abuse, and providing social benefits for women and men who suffer from poverty.

Table 9.11 Gender mainstreaming strategies at Bantul and Sleman district

Gender mainstreaming strategies	Case Study	
	1	2
<i>Strategies to reduce gender vulnerability</i>		
<i>Economic vulnerability</i>		
Protecting unpaid women	Yes	Not found
Protecting women from indebtedness	Yes	Yes
Protecting women right for productive assets	Yes	Yes
Protecting women from trafficking and preventing child labor	Yes	Not found
<i>Environmental vulnerability</i>		
Improving availability of sanitation and clean water	Yes	Yes
Providing safe and secure housing reconstruction	Yes	Yes
Maintaining public facilities (evacuation roads, etc.)	Yes	Yes
<i>Social vulnerability</i>		
Health insurance for older women and men and pregnant women	Yes	Yes
<i>Posyandu</i> program for protecting children from malnutrition	Yes	Yes
Protecting women from sexual violence and abuse	Yes	Yes
Social benefits for women and men in poverty	Yes	Yes
<i>Strategies to strengthen gender capacity</i>		
<i>Economic vulnerability</i>		
Enlarging business markets	Yes	Yes
Expanding job opportunities for women and men	Yes	Yes
Funding and providing technical assistantships for SMEs	Yes	Yes
Supporting community savings and credit institutions	Yes	Yes
<i>Environmental vulnerability</i>		
Involving women and men in debris and salvage management	Yes	Yes
Involving women and men in waste management	Yes	Yes
Involving women's leadership in the <i>Kampung</i> improvement program	Yes	Yes
Mobilizing women in village labor	Yes	Yes
<i>Social vulnerability</i>		
Empowering women's and men's groups in disaster response	Yes	Yes
Involving women in participatory mapping	Yes	Not found
Involving women in village assemblies	Yes	Yes
Providing disaster preparedness training for women and men	Yes	Yes
Women's leadership in family planning and welfare program	Yes	Yes

In addition, the informants report similarities of gender mainstreaming strategies to promote women's and men's capacities during reconstruction in both districts. For example, in order to enhance the economic capacities of both genders, both Bantul and Sleman have implemented strategies such as enlarging business markets, expanding job opportunities for women and men, funding and providing technical assistantships for SMEs and supporting community savings and credit institutions. With regard to the promotion of gender capacity in ensuring the environmental sustainability of reconstruction, both districts have introduced strategies such as involving women and men in debris and salvage management, involving women and men in waste management, encouraging women's leadership in the *Kampong* improvement program and mobilizing women in village labor. In terms of promoting women's and men's capacities to promote social sustainability, both districts have implemented strategies such as empowering women's and men's groups in disaster response, involving women in village assemblies, and providing disaster preparedness training for women and men.

However, some differences are also shown. For example, women in Sleman were not involved in participatory mapping during the *Dome House* reconstruction as the villagers and government were obliged to accept the design of the *Dome House* provided by the funder. As reported by informants, the role of both women and men was limited to the designing of the *Dome House*. The next section discusses the benefits of mainstreaming gender for achieving sustainable post-earthquake reconstruction in both districts.

9.2.3. Benefits of mainstreaming gender into sustainable post-earthquake reconstruction

Table 9.12 shows the results of qualitative analysis based on information from beneficiaries, policy makers and implementers with regard to the benefits of mainstreaming gender in both districts. Overall, the informants in both districts perceive similar benefits of mainstreaming gender, particularly with regard to the benefits of increasing economic and environmental sustainability. However, this study does not find the benefits of mainstreaming gender to include increased adaptive capability in Bantul district as the approach to housing reconstruction there differs from that taken in Sleman.

Table 9.12 Benefits of gender mainstreaming strategies in Bantul and Sleman district

Sustainable performance	Case Study	
	1	2
<i>Economic sustainability</i>		
Growth of SMEs	Yes	Yes
Increasing job opportunities	Yes	Yes
Reducing poverty	Yes	Yes
Supporting local economic growth	Yes	Yes
<i>Environmental sustainability</i>		
Enlarging earthquake-resistant house	Yes	Yes
Friendly house environment	Yes	Yes
Increasing organic farming	Yes	Yes
Expanding areas with earthquake warning systems	Yes	Yes
Expanding areas with evacuation roads	Yes	Yes
Providing clean water and sanitation	Yes	Yes
<i>Social dimension</i>		
Improving education and health services	Yes	Yes
Expanding <i>Kampong</i> improvement program	Yes	Yes
Expanding <i>Posyandu</i> groups	Yes	Yes
Increasing security and safety in communities	Yes	Yes
Strengthening community social capital	Yes	Yes
Reducing community conflicts/crime	Yes	Yes
Increasing adaptive capability	Not found	Yes

Table 9.13 compares the quantitative results of women respondents' perceptions of the benefits of mainstreaming gender in Bantul and Sleman. Similar findings are revealed in terms of economic and environmental sustainability. However, differences can be seen with regard to the benefits of social sustainability. Female respondents in Bantul perceive that increasing children's access to education, particularly for girls, is the most important benefit, but in Sleman women respondents perceive that increasing the adaptive capabilities of villagers is the most important benefit of mainstreaming gender into social sustainability.

Table 9.13 Comparison of quantitative analysis of women beneficiaries' perception of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Economic sustainability</i>		<i>Economic sustainability</i>	
Reducing women's poverty	1	Reducing women's poverty	1
Growth of micro, small and medium enterprises owned by women	2	Growth of micro, small and medium enterprises owned by women	2
Increasing job opportunities for women	3	Increasing job opportunities for women	3
<i>Environmental sustainability</i>		<i>Environmental sustainability</i>	
Expanding areas with earthquake warning systems	1	Expanding areas with earthquake warning systems	1
Friendly housing environment	2	Green housing environment	2
Improving availability of clean water and sanitation	3	Improving availability of clean water and sanitation	3
<i>Social dimension</i>		<i>Social dimension</i>	
Increasing educational access for children, particularly girls	1	Increasing adaptive capability	1
Increasing health access for children, particularly girls	2	Increasing health access for children, particularly girls	2
Increasing <i>Posyandu</i> groups	3	Increasing educational access for children, particularly girls	3

Likewise, similarities exist among men beneficiaries' perceptions regarding the benefits of mainstreaming gender. Table 9.14 demonstrates this, particularly in terms of the benefits for economic and environmental sustainability. However, differences are apparent in terms of the benefits of social sustainability. Male respondents in Sleman perceive that increasing adaptive capability is the most important benefit of mainstreaming gender strategies in the district, while in Bantul the respondents believe that strengthening trust, networks and social collaboration is the most important benefit.

Table 9.14 Comparison of quantitative analysis of men' beneficiaries' perception of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Economic sustainability</i>		<i>Economic sustainability</i>	
Improving family income	1	Improving family income	1
Reducing poverty	2	Reducing poverty	2
Increasing job opportunities for girls and boys	3	Increasing job opportunities for girls and boys	3
<i>Environmental sustainability</i>		<i>Environmental sustainability</i>	
Expanding areas with earthquake warning systems	1	Expanding areas with earthquake warning systems	1
Friendly housing environment	2	Green housing environment	2
Increasing availability of clean water and sanitation	3	Increasing availability of clean water and sanitation	3
<i>Social dimension</i>		<i>Social dimension</i>	
Strengthening trust, networks and social collaboration within communities	1	Increasing adaptive capability	1
Increasing security and safety within communities	2	Increasing social participation	2
Increasing social participation	3	Strengthening trust, networks and social collaboration within communities	3

Differences between the two districts can also be found in a comparison of the quantitative analyses of women policy makers'/implementers' perceptions regarding the benefits of mainstreaming gender. The differences appear in terms of the benefits of mainstreaming gender for achieving social sustainability (Table 9.15). Women policy makers/implementers in Sleman district perceive that awareness of women and men needs in reconstruction and strengthening trust, networks, and social collaboration within communities are the most important benefits of mainstreaming gender strategies, while in Bantul the women policy makers/implementers believe that strengthening trust, networks and social collaboration and increasing community participation are the most important benefits. Other than this, the results show many similarities. For example, in terms of economic sustainability, women policy makers/implementers give the highest rank to reducing poverty, particularly among women. With regard to environmental benefits, the women policy makers/implementers believe that increasing awareness of policy makers on the importance of disaster risk reduction ranks highest.

Table 9.15 Comparison of quantitative analyses of women policy makers/implementers' perceptions of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Economic sustainability</i>		<i>Economic sustainability</i>	
Reducing poverty, particularly among women	1	Reducing poverty, particularly among women	1
Improving district government economy	2	Increasing job opportunities, particularly for women	2
Increasing job opportunities, particularly for women	3	Increasing entrepreneurship, particularly for women	3
<i>Environmental sustainability</i>		<i>Environmental sustainability</i>	
Increasing awareness of policy makers on the importance of disaster risk reduction	1	Increasing awareness of policy makers on the importance of disaster risk reduction	1
Increasing awareness of community on the importance of disaster risk reduction	2	Increasing safe and clean water and sanitation	2
Friendly housing environment that meet women and men needs	3	Friendly housing environment that meet women and men needs	3
<i>Social dimension</i>		<i>Social dimension</i>	
Strengthening trust, networks and social collaboration within communities	1	Awareness of women's and men's needs in reconstruction	1
Increase community participation	2	Strengthening trust, networks and social collaboration within communities	2
Increasing community solidarity	3	Increasing access to social services	3

Likewise, men policy makers/implementers also show similarities in their perceptions regarding the benefits of mainstreaming gender; Table 9.16 shows these similarities in terms of the benefits for economic and environmental sustainability. For example, in terms of economic sustainability, male policy makers/implementers perceive such gender mainstreaming efforts as improving the district government economy; reducing poverty, particularly among women; and increasing job opportunities for women as the most important benefits for economic sustainability. With regard to environmental sustainability, male policy makers/implementers in Bantul and Sleman award the highest rank to increasing the awareness of policy makers and community as to the importance of disaster reduction and creating a friendly housing environment. With regard to social benefits, men policy makers/implementers in Bantul and Sleman perceive that strengthening trust, networks and social collaboration within communities and increasing community participation as most important.

Table 9.16 Comparison of quantitative analyses of men policy makers'/implementers' perception of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Economic sustainability</i>		<i>Economic sustainability</i>	
Improve district government economy	1	Improve district government economy	1
Reducing poverty, particularly among women	2	Reducing poverty, particularly among women	2
Increasing job opportunities, particularly for women	3	Increasing job opportunities, particularly for men	3
<i>Environmental sustainability</i>		<i>Environmental sustainability</i>	
Increasing awareness of policy makers as to the importance of disaster risk reduction	1	Increasing awareness of policy makers as to the importance of disaster risk reduction	1
Increasing community awareness as to the importance of disaster risk reduction	2	Increasing community awareness as to the importance of disaster risk reduction	2
Friendly housing environments that meet women's and men's needs	3	Friendly housing environments that meet women's and men's needs	3
<i>Social dimension</i>		<i>Social dimension</i>	
Strengthening trust, networks and social collaboration within communities	1	Increasing community participation	1
Increasing community participation	2	Strengthening trust, networks and social collaboration within communities	2
Increasing community solidarity	3	Awareness of women's and men's needs in reconstruction	3

The combined data set of men and women beneficiaries' responses shows that reducing women's poverty is among the most important benefits (Table 9.17). With regard to social sustainability, the respondents perceive increasing security and safety in reconstruction areas as the most important benefit. In terms of environmental sustainability, the respondents perceive that expanding areas with earthquake warning systems is among the most important benefits.

Table 9.17 Women and men beneficiaries' perceptions of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district

	Mean	<i>t</i>	SD	<i>p-value</i>	Rank
<i>Economic sustainability</i>					
Reducing women's poverty	4.98	58.562	0.553	0.000	1
Growth of micro, small and medium enterprises owned by women	4.97	58.833	0.552	0.000	2
Increasing job opportunities for women	4.96	58.436	0.571	0.000	3
Improving children's and family welfare	4.95	58.833	0.552	0.000	4
Increasing women's entrepreneurship	4.90	58.415	0.571	0.000	5
<i>Social sustainability</i>					
Strengthening trust, networks and social collaboration within communities	4.98	58.661	0.553	0.000	1
Increasing health access for children, particularly for women	4.95	58.811	0.552	0.000	2
Increasing <i>Posyandu</i> groups	4.94	58.412	0.561	0.000	3
Increasing educational access for children, particularly girls	4.90	58.821	0.551	0.000	4
Increasing security and safety in reconstruction areas	4.43	58.125	0.531	0.000	5
<i>Environmental sustainability</i>					
Expanding areas with earthquake warning systems	4.98	58.435	0.571	0.000	1
Friendly housing environments that meet women's and men's needs	4.96	58.562	0.552	0.000	2
Increasing availability of safe and clean water and sanitation infrastructures	4.95	58.734	0.542	0.000	3
Increasing organic farming	4.93	58.432	0.511	0.000	4
Waste management and clean environment	4.91	58.831	0.512	0.000	5

Furthermore, Table 9.18 shows the combined data set of women and men policy makers'/implementers' perceptions regarding the benefits of mainstreaming gender in both districts. The policy makers/implementers in both districts perceive that reducing women's poverty is among the most important benefits of mainstreaming gender for economic sustainability. With regard to social sustainability, the policy makers/implementers in both districts perceive that strengthening trust, networks and social collaboration within communities is the most important benefit. The policy makers/implementers perceive increasing awareness of policy makers on the importance of disaster risk reduction as the most important benefit of mainstreaming gender for achieving environmental sustainability in both districts.

Table 9.18 Women and men policy makers'/implementers' perceptions of the benefits of mainstreaming gender into sustainable reconstruction in Bantul and Sleman district

	Mean	<i>t</i>	SD	<i>p-value</i>	Rank
<i>Economic sustainability</i>					
Reducing poverty, particularly among women	4.98	58.562	0.559	0.000	1
Improving district government economy	4.96	58.721	0.553	0.000	2
Increasing job opportunities, particularly for women	4.95	58.723	0.572	0.000	3
Improving children's and family welfare	4.94	58.634	0.561	0.000	4
Increasing entrepreneurship, particularly for women	4.91	58.535	0.572	0.000	5
<i>Social sustainability</i>					
Strengthening trust, networks and social collaboration within communities	4.98	58.662	0.572	0.000	1
Increasing community participation	4.95	58.834	0.512	0.000	2
Increasing community solidarity	4.93	58.755	0.576	0.000	3
Awareness of women's and men's needs in reconstruction	4.92	58.634	0.558	0.000	4
Increasing security and safety in reconstruction areas	4.91	58.845	0.572	0.000	5
<i>Environmental sustainability</i>					
Increasing awareness of policy makers on the importance of disaster risk reduction	4.98	58.862	0.551	0.000	1
Increasing community awareness as to the importance of disaster risk reduction	4.96	58.834	0.550	0.000	2
Friendly housing environments that adopt women and men needs	4.95	58.735	0.577	0.000	3
Waste management and clean environment	4.93	58.836	0.561	0.000	4
Awareness of maintaining public infrastructures	4.90	58.635	0.570	0.000	5

The preceding section has detailed the benefits of mainstreaming gender in sustainable reconstruction, while the next section presents a cross-case analysis of constraining/enabling factors in mainstreaming gender in reconstruction in both Bantul and Sleman.

9.2.4 Constraining/enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction

Table 9.19 compares the qualitative results of constraining/enabling factors in mainstreaming gender in sustainable post-earthquake reconstruction in the districts of Bantul and Sleman. In general, the informants in both districts perceive similar constraining/enabling factors.

Table 9.19 Constraining and enabling factors of mainstreaming gender based on the responses of key informants in Bantul and Sleman district

Sustainable performance	Case Study	
	1	2
<i>Constraining factors</i>		
Low capacity of bureaucrats	Yes	Yes
Traditional bureaucratic culture	Yes	Yes
<i>Enabling factors</i>		
Women's participation	Yes	Yes
Women's leadership	Yes	Yes
Support from multiple stakeholders	Yes	Yes
Rich community social capital	Yes	Yes
District government commitment	Yes	Yes
Availability of gender framework	Yes	Yes
Adequacy of gender expertise	Yes	Yes

Similarities are also found among female policy makers'/implementers' perceptions of constraining and enabling factors in mainstreaming gender in both districts. Table 9.20 compares the quantitative analyses of women policy makers'/implementers' perceptions regarding the benefits of mainstreaming gender in both districts. In general, they provide similar answers regarding constraining and enabling factors in mainstreaming gender.

Table 9.20 Constraining and enabling factors of mainstreaming gender based on women policy makers'/implementers' responses in Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Constraining factors</i>		<i>Constraining factors</i>	
Patriarchal culture	1	Patriarchal culture	1
Resistance from some religious leaders	2	Resistance from some religious leaders	2
Poorly educated women and men	3	Poorly educated women and men	3
<i>Enabling factors</i>		<i>Enabling factors</i>	
Strong women's leadership	1	Strong women's leadership	1
Strong support from NGOs for promoting gendered risk reduction	2	Strong support from NGOs for promoting gendered risk reduction	2
High participation from women's groups	3	High participation from women's groups	3

For example, women policy makers'/implementers in both districts perceive that patriarchal culture, resistance from some religious leaders, and low educational levels among women and men are the

most important constraining factors in mainstreaming gender during reconstruction. In both districts, these respondents also perceive that strong women’s leadership, strong support from NGOs for promoting gendered risk reduction, and high participation of women’s groups during reconstruction are the most important enabling factors contributing to the effective mainstreaming of gender during reconstruction.

Men policy makers/implementers also have similar perceptions (Table 9.21). They perceive that existing patriarchal culture, resistance from some religious leaders, and low educational levels among women and men are the most important factors constraining the implementation of gender mainstreaming during reconstruction. Meanwhile, according to the same group of respondents, strong women’s leadership, strong support from NGOs for promoting gendered risk reduction, and high participation of women’s groups are the highest-ranking enabling factors contributing to the mainstreaming of gender during reconstruction.

Table 9.21 Constraining and enabling factors of mainstreaming gender into sustainable reconstruction based on men policy makers in Bantul and Sleman district

Case Study 1	Rank	Case Study 2	Rank
<i>Constraining factors</i>		<i>Constraining factors</i>	
Patriarchal culture	1	Patriarchal culture	1
Resistance from some religious leaders	2	Resistance from some religious leaders	2
Poorly educated women and men	3	Poorly educated women and men	3
<i>Enabling factors</i>		<i>Enabling factors</i>	
Strong women’s leadership	1	Strong women’s leadership	1
Strong support from NGOs for promoting gendered risk reduction	2	Strong support from NGOs for promoting gendered risk reduction	2
High participation of women’s groups	3	High participation of women’s groups	3

Further, Table 9.22 shows the combined data set of constraining factors of mainstreaming gender in attempting to achieve sustainability of reconstruction in Bantul and Sleman. The results of the quantitative studies show a greater number of constraining factors than the results of the qualitative studies. This may indicate that low capacity and traditional bureaucratic culture are the most important constraining factors revealed during reconstruction in both districts. The policy makers/implementers in both districts also answer that patriarchal culture, resistance from some

religious leaders, and low educated women and men are among the most important constraining factors in the mainstreaming of gender during reconstruction. Meanwhile, geographical challenges, less financial and technical support from national government, and less incentive for supporting gender mainstreaming are some less important constraining factors in the mainstreaming of gender according to policy makers/implementers in both districts.

Table 9.22 Constraining factors of mainstreaming gender into sustainable reconstruction as perceived by women and men policy makers/implementers in Bantul and Sleman district

	Mean	<i>t</i>	SD	<i>p-value</i>	Rank
Patriarchal culture	4.92	58.932	0.561	0.000	1
Resistant from some religious leaders	4.90	58.562	0.553	0.000	2
Resistant from senior bureaucrats	4.86	58.834	0.552	0.000	3
Lack capacity of bureaucrats	4.83	58.435	0.571	0.000	4
Less number of women in decision making	4.80	56.632	0.543	0.000	5
Coordination issues among district government, NGOs and International donors	4.76	56.631	0.541	0.000	6
Lack of detailed gender disaggregated data	4.74	56.673	0.551	0.000	7
Less incentive for supporting gender mainstreaming	4.73	57.672	0.562	0.000	8
Low educated women and men	4.72	57.321	0.582	0.000	9
Less financial and technical support from national government	4.71	56.532	0.542	0.000	10
Geographical challenges	4.68	56.531	0.541	0.000	11

Table 9.23 shows the combined data set of enabling factors in mainstreaming gender in the sustainability of reconstruction in Bantul and Sleman. The results of the combined data set show that strong women’s leadership, strong support from NGOs for promoting gendered risk reduction, and high participation from women’s groups are the highest-ranking enabling factors contributing to mainstreaming gender in both districts. These results are in line with the qualitative findings, which also indicate that women’s leadership and women’s participation are enabling factors in mainstreaming gender during reconstruction in both districts.

However, this study shows that support from community leaders, availability of gender-disaggregate data, and incentive for supporting gender mainstreaming are in the lowest rank of enabling factors. Although, in the lowest ranks these enabling factors should exist since

effectiveness of mainstreaming gender during reconstruction can only be achieved if community leaders support these efforts and policy makers have gender-disaggregate data which are used to support their decisions.

Table 9.23 Enabling factors of mainstreaming gender into sustainable reconstruction as perceived by women and men policy makers/implementers in Bantul and Sleman district

	Mean	<i>t</i>	SD	<i>p-value</i>	Rank
Strong women leadership	4.95	58.932	0.561	0.000	1
Adequate financial and technical assistance support from NGOs	4.91	58.562	0.553	0.000	2
High participation from women's groups	4.86	58.834	0.552	0.000	3
Adequate financial resources supporting gender mainstreaming programs	4.82	58.435	0.571	0.000	4
Political will of government	4.80	56.632	0.543	0.000	5
Policy and programs design linked disaster risk reduction and resilience	4.78	56.631	0.541	0.000	6
Appropriate tools for gender mainstreaming	4.76	56.673	0.551	0.000	7
Capacity of local gender institution	4.71	57.672	0.562	0.000	8
Gender sensitive budgeting	4.72	57.321	0.582	0.000	9
Availability of gender vulnerability assessment	4.70	56.532	0.542	0.000	10
Availability of gender capacity assessment	4.68	53.762	0.601	0.000	11
Availability of gender training	4.66	55.432	0.554	0.000	12
Availability of gender sensitive monitoring and evaluation mechanisms	4.65	46.363	0.525	0.000	13
Adequate gender expertise	4.35	47.762	0.578	0.000	14
Clear gender target	4.60	53.622	0.501	0.000	15
Number of women grassroots organization	3.49	46.342	0.567	0.000	16
Good communication and coordination	3.53	38.762	0.762	0.000	17
Support from community leaders	3.53	38.672	0.652	0.000	18
Availability of disaggregate data	3.47	38.621	0.878	0.000	19
Incentive for supporting gender mainstreaming	3.46	37.321	0.765	0.000	20

Having discussed the constraining and enabling factors contributing to mainstreaming gender in sustainable reconstruction, the next section presents the research validation with the intention of triangulating the findings of these case studies.

9.3. Validation

This section presents the analysis of the validation of the research findings. It was carried out through conducting interviews with eight experts who were asked their views on the research

findings. The section begins with the experts' views regarding gender vulnerability and capacity within post-earthquake reconstruction in both districts.

9.3.1 Gender vulnerability and capacities within post-earthquake reconstruction

Figure 9.1 shows the experts' views regarding women's vulnerabilities in both districts. The experts explain the most important of women's vulnerabilities as revealed during the reconstruction of Bantul and Sleman district. With regard to physical vulnerability, they find that pregnant women, older women and women with physical disabilities are the most vulnerable groups.

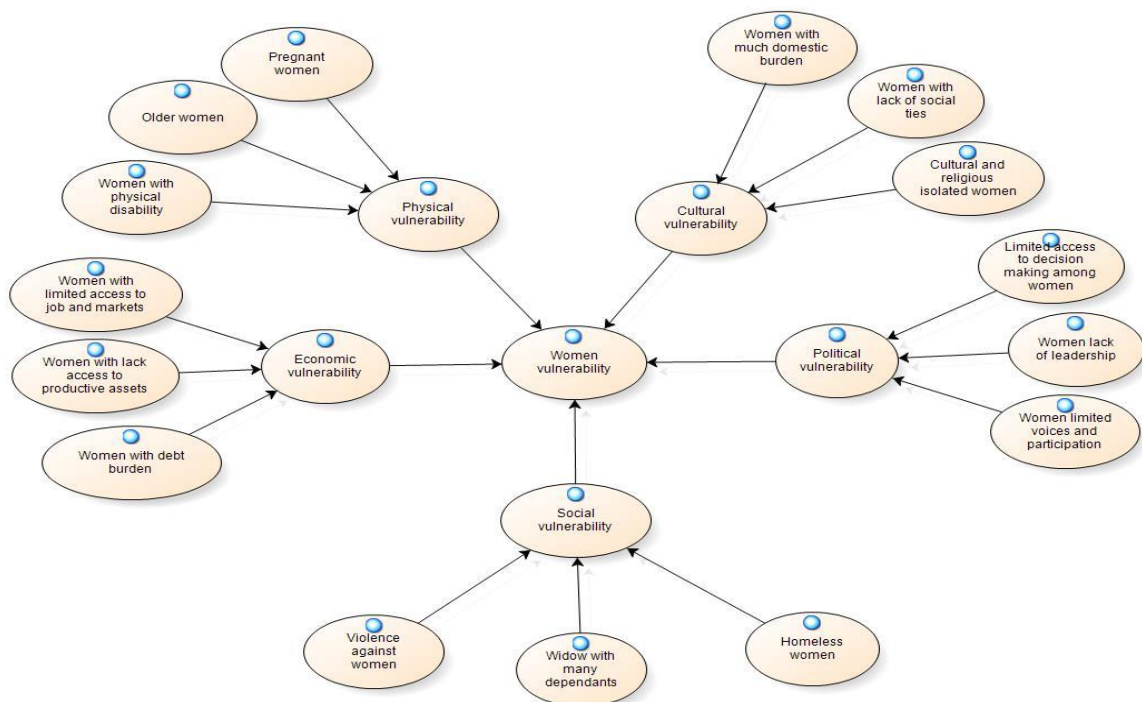


Figure 9.1 Women's vulnerabilities within post-earthquake reconstruction

In terms of economic vulnerability, the experts explain that women with high debt burdens, women who lack access to productive assets, and women with limited access to jobs and markets are the most vulnerable groups. They posit that widows with many dependents, homeless women and girls and women who have survived violence are the most vulnerable groups of women as revealed during reconstruction in both districts. Likewise, they report that culturally and religiously isolated women, women overburdened with domestic tasks and women who lack social ties are the most vulnerable in terms of cultural vulnerability. With regard to political vulnerability, the experts opine

that women with lack of leadership, women who lack access to decision-making and women whose voices and participation are limited are among the groups whose vulnerabilities most hinder sustainable post-disaster reconstruction in both districts. The interview transcripts below reflect the experts' views regarding women's vulnerability during reconstruction in both districts.

Well, in general women were more vulnerable than men following the earthquake in Bantul and Sleman. We found pregnant women, older women, and disabled women were most vulnerable groups as with their physical weaknesses their lives depended on their families and on other people in the villages (Interview with Expert 1).

Women were severely devastated following the earthquake. The quake left women as heads of household with sole responsibility for providing for the family. In addition to this bad condition, homeless women and girls, widows with many dependents, and women suffering violence also become vulnerable groups (Interview with Expert 2).

The quake has further caused detrimental effects for culturally and religiously isolated women, women overburdened with domestic tasks and women who lack social ties (Interview with Expert 2).

We also found that women with high debt burden, women with lack of access to productive assets and women with no access to jobs and markets are the most vulnerable groups in terms of economic vulnerability (Interview with Expert 2, a 45-year-old man).

We also see that lack of women's leadership and lack of women's participation in decision-making in some cases – particularly in the beginning of reconstruction – makes women more vulnerable as they face difficulty in taking advantage of the benefits of reconstruction (Interview with Expert 2).

On the other hand, the experts view men as having a smaller number of vulnerabilities during reconstruction. For example, the experts do not see political and cultural vulnerability faced by men in either district during reconstruction. In terms of economic vulnerability, though, they found that men with high debt burden, men who lack access to financial credit, and unemployed men are the most vulnerable groups following the quake. With regard to physical vulnerability, the experts found that older men and men with physical disabilities are the most vulnerable groups. Meanwhile, in terms of social vulnerability, the experts show that homeless men and boys and men who lack access to education and skills are the most vulnerable male groups during reconstruction. Figure 9.2 shows the experts' views regarding men's vulnerabilities in the context of reconstruction in Bantul and Sleman district.

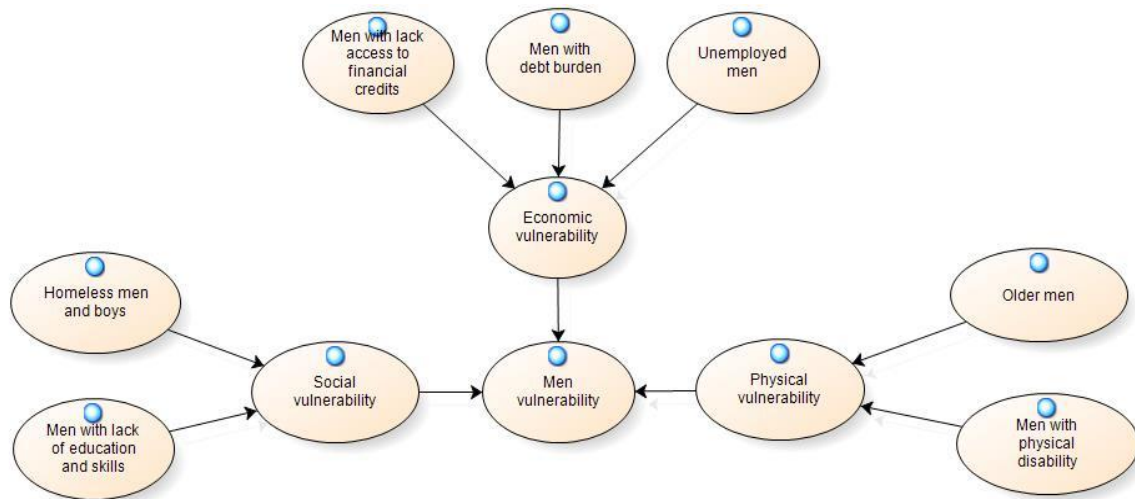


Figure 9.2 Men’s vulnerabilities within post-earthquake reconstruction

In general, men have fewer vulnerabilities than women during reconstruction in Bantul and Sleman. However, we also find that older women and men with physical disabilities are vulnerable during the reconstruction. Moreover, homeless men and boys as well as men with lack access to education and skills are also vulnerable due to limited access to housing and jobs (Interview with Expert 3).

With regard to economic vulnerability, we find that men who lack access to financial credit, men with high debt burden, and unemployed men are among the most vulnerable groups. Some families have been trapped by loan sharks as they face financial difficulties for survival during the period of one to six months following the quake (Interview with Expert 2).

The quake has significantly increased the unemployment rate in both districts because many industries and businesses have collapsed. Some men are facing high debt burden because their businesses were destroyed by the quake. This is particularly true for those who had significant debt before the quake (Interview with Expert 4).

The experts also discuss the most important women’s capacities shown during reconstruction in Bantul and Sleman district. In term of capacities related to environmental sustainability in Bantul and Sleman, the experts view women’s roles in creating a clean and healthy environment, creating a friendly housing environment and enlarging sustainable farming production as the most important. In terms of social sustainability, the experts find that women’s roles in creating safe and

secure communities, improving access to health and education services and strengthening community social capital are of greatest importance. With regard to economic sustainability, the experts show that supporting agriculture markets, creating small businesses, and mobilizing and creating rotating savings credit associations are the most important women’s capacities. Figure 9.3 shows the experts’ views regarding women’s capacities within the context of reconstruction in Bantul and Sleman.

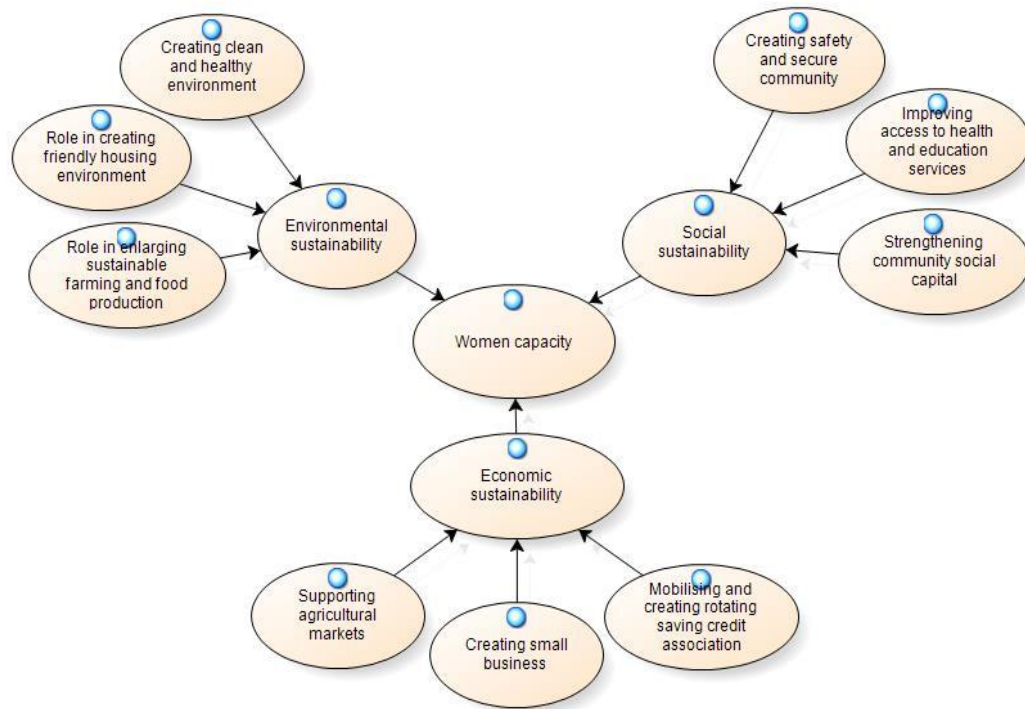


Figure 9.3 Women’s capacities within post-earthquake reconstruction

On the other hand, men’s capacities with regard to environmental sustainability include their roles in waste and recycling management, maintaining public infrastructures, and enlarging sustainable farming and food production. The experts also mention men’s capacities for promoting economic sustainability in both districts, including developing village tourism businesses, expanding SME businesses and promoting organic farming businesses. Meanwhile, the three most important men’s capacities related to social sustainability are strengthening community social capital, mobilizing people to participate in community activities, and creating safe and secure communities. The

following interview transcripts show the experts' views regarding women's and men's capacities during reconstruction in both districts.

Although women were the most vulnerable group, they showed their capacity. Their roles are significant in enhancing the sustainability of reconstruction in both districts. For example, they mobilised and organised themselves to do routine village labor, cleaning areas around the villages. Moreover, they initiated the planting of various trees and fruits as well as herbs and vegetables around their house to make the village area greener. Women also have a major role in providing health and education service for children and older people through Posyandu and the Village Health Centre (Interview with Expert 6).

Men have major roles in several areas such as maintaining public infrastructures around the villages, expanding organic farming, and creating secure and safe communities. In the Dome House reconstruction, men play a major role in developing the village into a village tourism centre. Men have organised themselves to perform various activities to attract people to come to the Dome House. For example, they regularly offer many traditional attractions and parties to welcome tourists coming to the Dome House areas (Interview with Expert 8).

The interesting thing is that we saw a distribution of roles among women and men during reconstruction in both districts and this is very important. Women and men work together to develop their homes, their communities, their villages for better lives for themselves and their families. Women and men work together to look after all the reconstruction outcomes and in some areas they are even able to improve them (Interview with Expert 7).

Figure 9.4 below shows men's capacities in three dimensions of sustainable reconstruction based on experts' views in both districts. It can be said that women and men have some similar capacities, such as roles in waste management and recycling, enlarging SMEs and strengthening community social capital. However, the experts view men and women as also having specific roles during reconstruction as distributed within communities in both districts. For example, the majority of men take a role in maintaining public infrastructures due to their strong physical ability, while women take responsibility for creating a clean and healthy environment around their houses and villages. This distribution of roles between women and men is needed to enhance the effectiveness of reconstruction in both districts.

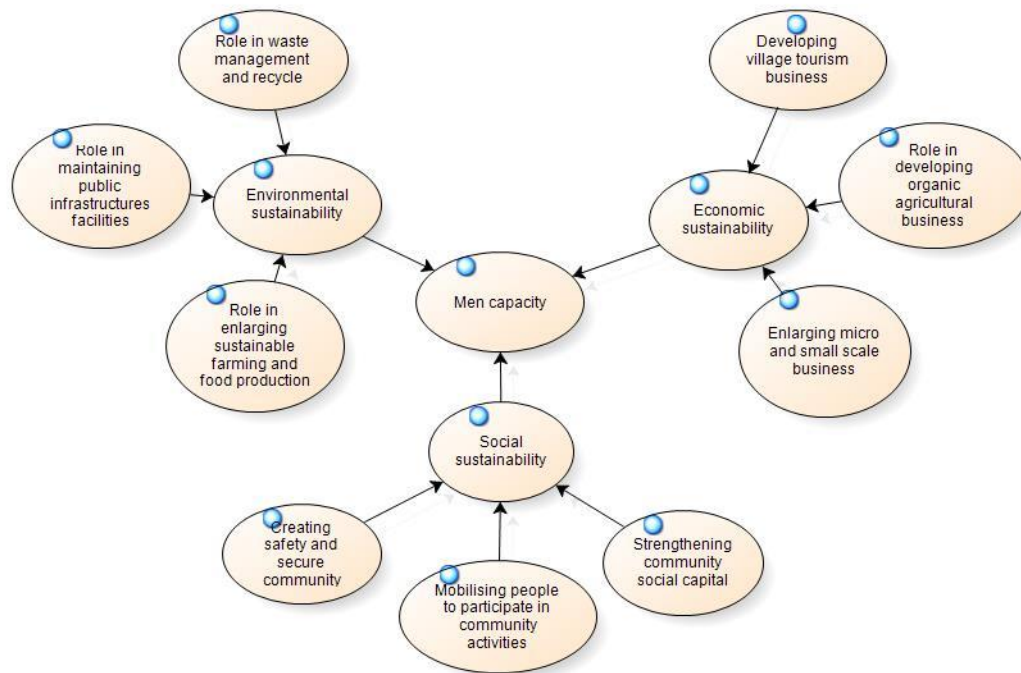


Figure 9.4 Men’s capacities within post-earthquake reconstruction

This section has addressed gender vulnerabilities and capacities in both districts, and the next section presents the experts’ views regarding gender mainstreaming strategies as introduced in both districts.

9.3.3 Gender mainstreaming strategies within post-earthquake reconstruction

Figure 9.5 below shows the experts’ views with regard to gender mainstreaming strategies during post-earthquake reconstruction in both districts. In term of gender mainstreaming strategies intended to address gender vulnerability, the experts divide it generally into three main strategies of sustainable reconstruction. Firstly, there are strategies to address economic vulnerabilities, such as protecting against child labor and trafficking of women, protecting women from indebtedness, protecting women’s right to productive assets and protecting unpaid women. Secondly, there are strategies to address environmental vulnerabilities. These consist of providing safe and secure housing reconstruction, maintaining public infrastructures, and improving the availability of clean water and sanitation. Thirdly, some gender mainstreaming strategies are intended to address social vulnerabilities; these include providing social benefits for women and men in poverty, providing

Posyandu for the elderly, pregnant women and children, protecting women from sexual abuse and violence, and providing health insurance for older people and pregnant women.

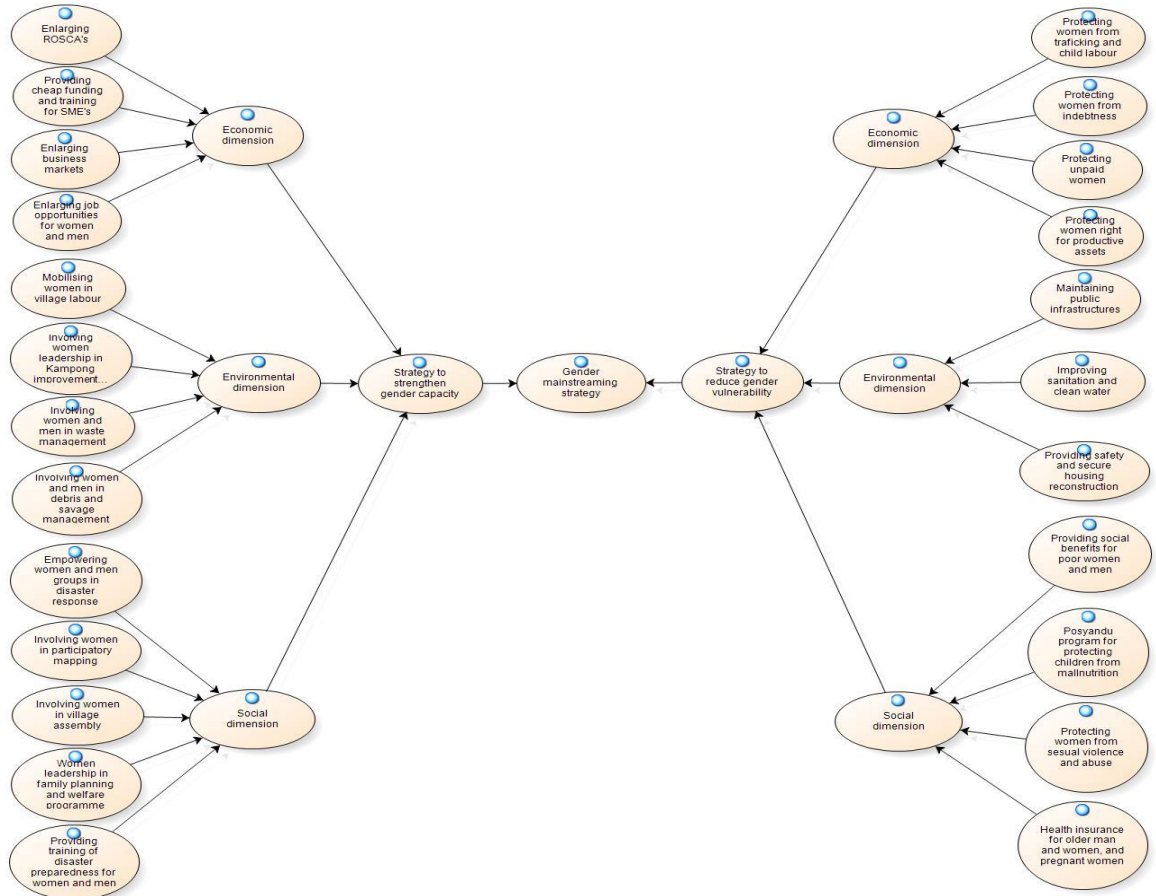


Figure 9.5 Gender mainstreaming strategies for sustainable post-earthquake reconstruction

Furthermore, the experts explain that strategies to promote gender capacities can be divided into three areas of sustainability. Economic sustainability includes strategies such as supporting ROSCAs, providing inexpensive funding and technical assistance to SMEs, enlarging business markets, and expanding job opportunities. Environmental sustainability consists of mobilizing women in village labor, involving women’s leadership in the *Kampong* development program, involving women and men in waste management and recycling, and involving women and men in debris and salvage management. Gender mainstreaming strategies to address social vulnerability include empowering women’s and men’s groups through disaster response training and workshops, involving women in

village assemblies, involving women in participatory mapping, and encouraging women's leadership in family welfare programs. The following interview transcripts express one expert's view regarding gender mainstreaming strategies in both districts.

The district governments in Bantul and Sleman have introduced various gender mainstreaming strategies to address gender vulnerabilities and to promote gender capacity. Strategies to address gender vulnerabilities can be divided into three classes. Firstly, there are strategies to address economic vulnerabilities such as protecting against child labor and the trafficking of women, protecting women from indebtedness, protecting women's right to productive assets, and protecting unpaid women. Secondly, there are strategies to address environmental vulnerabilities which consist of providing safe and secure housing reconstruction, maintaining public infrastructures, and improving clean water and sanitation. Thirdly, gender mainstreaming strategies to address social vulnerabilities include providing social benefits for women and men in poverty, providing Posyandu for the elderly, pregnant women and children, protecting women from sexual abuse and violence, and providing health insurance for older people and pregnant women (Interview with Expert 5).

On the other hand, the district governments of Bantul and Sleman have also introduced strategies to promote gender capacities. These strategies can also be divided into three. First is economic sustainability, which includes strategies such as supporting ROSCAs, providing inexpensive funding and technical assistance to SMEs, expanding business markets, and increasing job opportunities. Second is environmental sustainability, which consists of mobilizing women in village labor, involving women's leadership in the Kampong development program, involving women and men in waste management and recycling, and involving women and men in debris and savage management. Third, with regard to gender mainstreaming strategies to address social vulnerability the experts mention several strategies such as empowering women's and men's groups through disaster response training and workshops, involving women in village assemblies, involving women in participatory mapping in Bantul, and women's leadership in family welfare programs (Interview with Expert 5).

After discussing the experts' views regarding gender mainstreaming strategies in both districts, the next section presents the experts' views on the benefits of mainstreaming gender in sustainable post-earthquake reconstruction in the districts of Bantul and Sleman.

9.3.3. Benefits of mainstreaming gender into sustainable post-earthquake reconstruction

Figure 9.6 shows the experts' views on the benefits of mainstreaming gender in sustainable post-earthquake reconstruction in Bantul and Sleman. There are many benefits of mainstreaming gender, but in the experts' views, some of these are particularly important. In terms of economic

sustainability, the experts find that reducing poverty (especially among women), increasing job opportunities and increasing family welfare are the most important benefits.

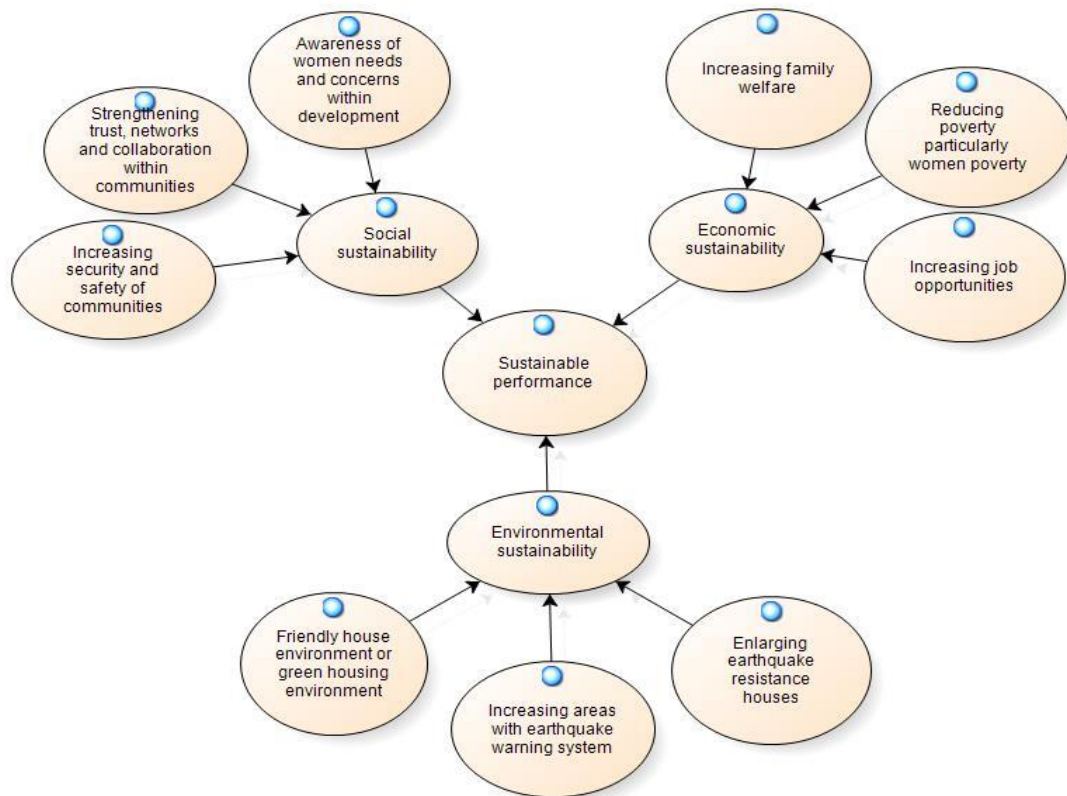


Figure 9.6 Benefits of mainstreaming gender in sustainable post-earthquake reconstruction

With regard to environmental sustainability, the experts posit that expanding areas with earthquake warning systems, enlarging earthquake-resistant houses, and creating friendly housing environments or green housing environments are the most important benefits. The experts view strengthening community trust, networks and collaboration; increasing the security and safety of communities; and encouraging awareness of women’s needs and concerns within development as the most important benefits in term of social sustainability. The following interview transcripts reveal the experts’ views with regard to these benefits.

There are many benefits of gender mainstreaming strategies that have been introduced by the district governments of Bantul and Sleman during reconstruction. However, we found some important benefits. For example, with regard to economic sustainability we found reducing poverty, particularly women's poverty, increasing job opportunities and increasing family welfare are the most important benefits. In terms of environmental sustainability, we found increasing areas with earthquake warning systems, enlarging earthquake-resistant houses, and creating friendly housing environments or green housing environments to be the most important benefits. With regard to social sustainability, strengthening community trust, networks and collaboration, increasing the security and safety of communities and awareness of women's needs and concerns within development are the most important benefits (Interview with Expert 6).

Yes, I think communities in both districts realise many benefits of these strategies for sustainability of development in both districts. We can see about seven years after the earthquake that people are now living much better. More than that, women and men have a strong spirit to work together in developing their communities, and this is good news for establishing sustainability of reconstruction outcomes across the affected areas (Interview with Expert 7).

The experts' views are consistent with the research findings, which also identify various benefits of gender mainstreaming that have been introduced during the reconstruction of Bantul and Sleman. Similarly, the findings also highlight benefits of gender mainstreaming strategies and divide them into three pillars of sustainable reconstruction. The next section discusses the experts' views regarding constraining and enabling factors contributing to the process of mainstreaming gender in both districts.

9.3.4. Constraining and enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction

Figure 9.7 shows the experts' views with regard to constraining and enabling factors of mainstreaming gender during post-earthquake reconstruction in Bantul and Sleman district. The experts point out several constraining factors such as traditional bureaucratic culture, resistance from senior bureaucrats, resistance from religious leaders, and low bureaucratic capacity with respect to gender mainstreaming. Further, the interview transcripts that follow explain the experts' views on the constraining and enabling factors in mainstreaming gender for sustainable reconstruction in both districts.

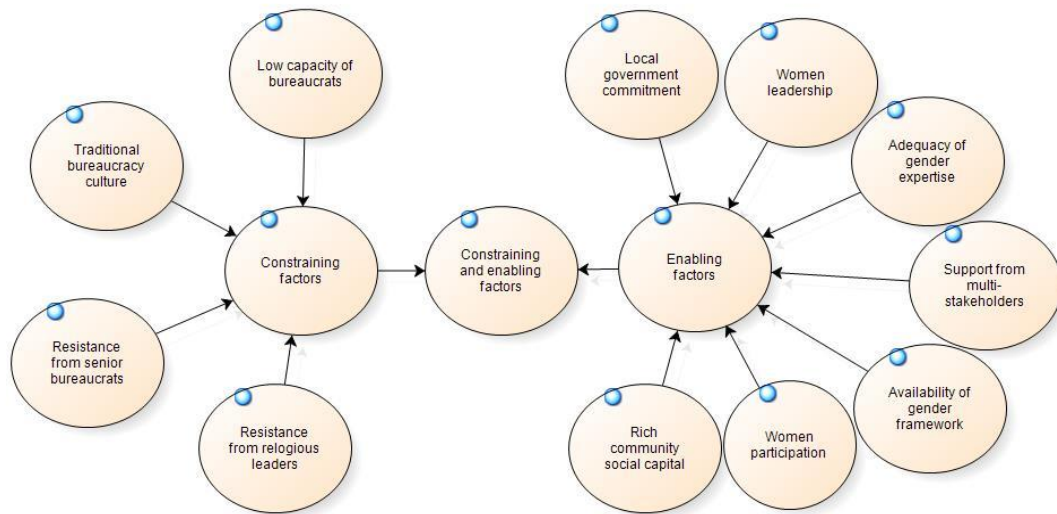


Figure 9.7 Constraining and enabling factors of mainstreaming gender within sustainable post-earthquake reconstruction

Yes, there are several constraining factors that hinder gender mainstreaming implementation in both communities. As we know, we live in a Javanese society which has a strong patriarchal culture. So, although the idea of gender mainstreaming has spread through universities and colleges, sometimes there is still resistance from older people who still strongly believe that women's roles are in domestic areas rather than public areas. We found that resistance also comes from senior bureaucrats as well religious leaders who always criticise the role of women in the public domain. However, for young bureaucrats with university educations, such beliefs have less influence (Interview with Expert 8).

The capacity of bureaucrats to implement the concept of gender mainstreaming across sectors is also an issue during reconstruction (Interview with Expert 2).

We find many enabling factors that enable effective introduction of gender mainstreaming during reconstruction in both districts. These factors include district government commitment, women's leadership, adequacy of gender expertise, support from multiple stakeholders, availability of gender policy frameworks, women's participation and rich community social capital across the villages in the districts (Interview with Expert 8).

As is clear from the interview transcripts, the experts see various enabling factors in Bantul and Sleman district that enable government to introduce gender mainstreaming during earthquake reconstruction. These enabling factors include district government commitment, women's

leadership, adequacy of gender expertise, support from multiple stakeholders, availability of gender policy frameworks, women's participation and rich community social capital across the villages in the districts.

9.4. Summary of the chapter and links

This chapter has presented a cross-case analysis and research validation. The cross-case analysis highlights some similarities and differences of gender mainstreaming and sustainability of post-earthquake reconstruction in the districts of Bantul and Sleman. It began with presenting similarities and differences regarding gender vulnerability and capacity in the two districts. Subsequently, it showed similarities and differences in gender mainstreaming strategies that have been introduced to promote sustainable reconstruction in both districts. Next, it showed some similarities and differences with regard to the benefits of these strategies for sustainability of reconstruction. Lastly, it mentioned constraining and enabling factors contributing to the process of mainstreaming gender in both districts. Meanwhile, research validation triangulates the results. It highlights the experts' views regarding the research findings. The next chapter presents the main findings of this research.

Chapter 10: Findings

10.1 Introduction

After presenting the data analysis in Chapter 9, this chapter discusses the key research findings. Firstly, it elaborates research findings with regard gender vulnerabilities and capacities within post-earthquake reconstruction. Secondly, it depicts type of strategies for mainstreaming gender in sustainable post-earthquake reconstruction. Thirdly, it presents findings related to the benefits of gender mainstreaming in the context of sustainability in post-earthquake reconstruction. Fourthly, it presents findings regarding key enabling and constraining factors in mainstreaming gender in sustainable post-earthquake reconstruction. The refinement of the conceptual framework based on the findings was presented in last section.

10.2 Gender vulnerabilities and capacities within post-earthquake reconstruction

10.2.1 Gender vulnerabilities

Natural hazards such as earthquake often exacerbate existing gender inequalities. Pelling and Castree (2001) points out that natural disasters are gender-constructed. Such gendered construction of natural disasters results from existing gender inequality within affected communities that leads to women more vulnerable than men following disasters (McLaughlin and Dietz, 2007). Enarson (2014) explains that gender relations, as power relations between women and men, often place women in a subordinated position in disaster contexts. Hence, women are made more vulnerable to disasters through existing socially constructed roles in the affected communities. Studies reveal that disasters reinforce and increase gender inequality, making bad situations worse for women (Palliyaguru and Amaratunga, 2011, Yumarni and Amaratunga, 2013, Yumarni and Amaratunga, 2015). Though post-earthquake reconstruction efforts are designed to bring various advantages to all members of affected communities both women and men, in real practice men receive more benefits than women, leaving women in vulnerable conditions. Hence, understanding gender vulnerability within a post-earthquake reconstruction context is critical to protect women and men from greater vulnerability, to achieve a better process of disaster management, and to enhance the sustainability of earthquake reconstruction and to build community resilience (Yumarni and Amaratunga, 2013, Yumarni and Amaratunga, 2015). The qualitative and quantitative findings

in Chapter 7 section 7.3.1.1 and 7.5.1.1, as well as 8 section 8.3.1.1 and 8.5.1.1, confirm that women are not only more deeply vulnerable but that they also have a larger number of types of vulnerabilities. Figure 10.1 presents the main of types of gender vulnerability found in this study.

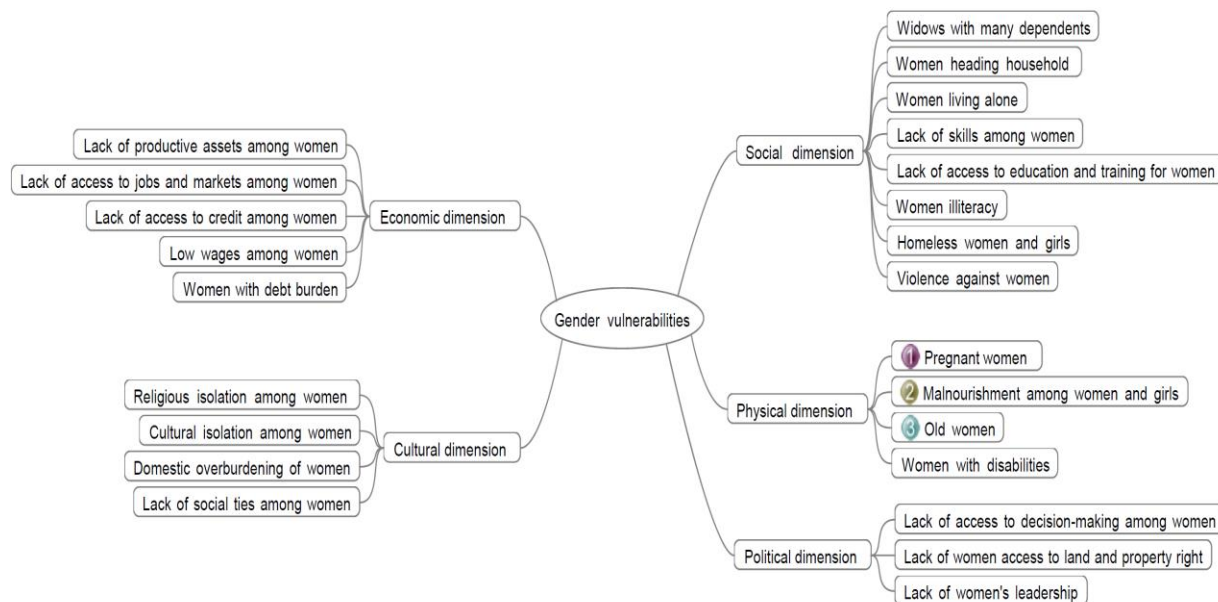


Figure 10.1 Types of gender vulnerabilities within post-earthquake reconstruction

This study shows that women have a larger number of vulnerabilities than men (Chapter 7 section 7.3.1.1 and Chapter 8 section 8.3.1.1). Women face all types of gender vulnerability during post-earthquake reconstruction. Among the most vulnerable groups are pregnant women, women with disabilities and older women. The qualitative findings also show that women have deeper vulnerabilities than men due to the existing patriarchal culture.

Studies suggest that women’s vulnerability in disaster contexts is linked with existing vulnerability in the affected communities (Moser and Moser, 2008; Enarson, 2014; Bradshaw, 2014). The qualitative findings of this study confirm that the root cause of vulnerability is that patriarchal culture that exists within the community. This patriarchal culture is manifested through discrimination against women, male domination, and the neglect of women’s rights and capacities during reconstruction. Traditional Javanese culture holds that women are mainly responsible for looking after children, preparing food for their families, collecting wood and fodder, making dung

cakes for fuel to cook food, and taking care of livestock. Men, meanwhile, are engaged in wage-earning activities like casual labor, rickshaw pulling, and working in their fields. Women's economic activities both inside and outside the home are less valued by the society than men's economic activities, and men are in most cases considered the breadwinners in their families, irrespective of their livelihood and level of wealth. Because of the discrimination that women face as well as their heavy workloads inside and outside the home, women have little opportunity to participate in public activities and decision-making processes, and their needs and voices are often overlooked. These factors, along with illiteracy and limited access to and control over resources, make women vulnerable during reconstruction.

10.2.2 Gender capacities

Despite the vulnerability of women to earthquakes, women can make a difference during reconstruction through their capacities to reduce economic, social and environmental vulnerability. The findings of this study confirm prior studies that have posited the importance of gender capacity during reconstruction (see for example Enarson 2014; Drolet *et al.*, 2015). Mies and Shiva (1993) explains that women have a privileged bond with nature and the environment. She points out the ethical point of "women as caretakers" and sees the linkage between nature and women as being due to a gendered cultural development that led to women having a deeper spiritual connection to nature than men. As producers and providers, women can help make their families and community less vulnerable to the effects of disasters. As shown in Chapter 7 section 7.3.1.2 and Chapter 8 section 8.3.1.2, women's capacities in the economic, social and environmental dimensions not only substantially reduce their families' and communities' vulnerability but also enhance the sustainability of families and communities following an earthquake. Figure 10.2 illustrates the primary gender capacities revealed during post-earthquake reconstruction in this study.

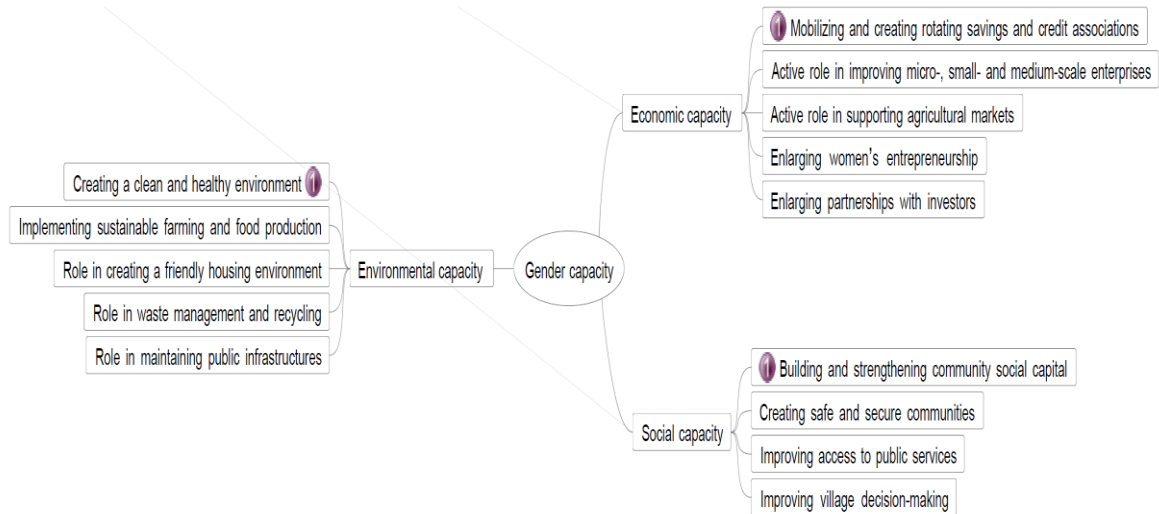


Figure 10.2 Types of gender capacities within post-earthquake reconstruction

Moreover, women's technological innovations can also bring ways to solve environmental issues following disasters. As Chowdury (2001) points out, given that women earn their livings from plants and materials, they have become active players in solving environmental sustainability problems. The findings of this study also show that women's active individual and collective roles in solving environmental sustainability problems following an earthquake include creating a clean and healthy environment, creating a friendly housing environment, being involved in waste management and recycling, and participating in sustainable farming and food production. This study also shows that women are survivors with their skills to cope and to protect fragile environments as well as their skills to protect people at risk during earthquake reconstruction. Women learners and educators increase their communities' capacity to cope with earthquakes. Their skills and knowledge are also a major resource during reconstruction. Their labor in home gardens and small plots of land provides more nutritious food and increases their families' and neighbors' self-sufficiency.

This study also shows that when women are encouraged in the reconstruction they are also able to work together and share their roles in enhancing the sustainability of reconstruction. This confirms Enarson (2014), who also demonstrate that women are not only able to work themselves but are also able to work together and share their roles with men during reconstruction. This study finds various examples of three dimensions of gender capacity in which women and men share roles during post-earthquake reconstruction. This study highlights that the participation of both women

and men during post-earthquake reconstruction is crucial to enhance sustainable development in the affected communities. In post-earthquake reconstruction, women and men face challenges including insufficient availability of resources and opportunities to meet their basic needs. Women's coping mechanisms during reconstruction have been found to be resourceful and innovative. Women's contributions are both different and complementary to the efforts of men. Hence, reconstruction can change and influence the value of gender roles and the positioning of the sexes in the affected communities.

10.3 Strategies for mainstreaming gender into sustainable post-earthquake reconstruction

Increased gender vulnerability and the neglect of gender capacity are two main gender inequality issues within disaster reconstruction; both present challenges to the achievement of sustainability in reconstruction. Hence, gender mainstreaming strategies for sustainable post-disaster reconstruction should address both issues. Gender mainstreaming strategies within sustainable reconstruction should not only incorporate strategies for protecting women from vulnerability but also for promoting women's capacity. These two types of strategies complement each other to help create gender equality and empowering women, both of which are fundamental for sustainable post-disaster reconstruction.

As discovered in the cross-case analysis, the two case studies show relatively similar gender mainstreaming strategies. Tables 10.1 and 10.2 were developed to tabulate types of gender mainstreaming strategies to overcome gender vulnerability and to strengthen gender capacity based on the case studies and expert interviews. While strategies to address gender vulnerability are purposed to address economic, social, physical, political and cultural vulnerabilities, the strategies to strengthen gender capacity are purposed to promote the economic, social and environmental capacities of both women and men in reconstruction.

Table 10.1 Key gender mainstreaming strategies to address gender vulnerabilities

Dimension of gender vulnerabilities	Type of gender vulnerabilities	Main factors of gender vulnerabilities	GM strategies to address gender vulnerabilities
Economic dimension	Women with lack of productive assets	Lack of legal right of women to productive assets	Protecting women's right to productive assets by implementing the productive assets rights (i.e. home and land) of women during reconstruction
	Women with high domestic burden	Traditional culture that puts women in domestic roles	Protecting women with high domestic burdens by empowering women's groups and providing gender training programs for men
	Women with lack of access to jobs and markets	Unequal job opportunities between women and men	Expanding job opportunities for women by providing equitable policies in job recruitment within reconstruction projects.
	Women with lack of access to financial credit	Lack access of women to productive assets	Providing cheap financial credit scheme and establishing BKM
	Women with low wages	Unequal job opportunities between women and men	Protecting unpaid women through an equal payment policy within reconstruction projects.
	Women and men with high debt burden	Economic loss from earthquake	Protecting women and men from indebtedness by providing cheap financial credit scheme and establishing BKM
Social dimension	Widow with many dependants	Limited social services	Providing social benefits for widows in poverty
	Women heading households	Limited social services	Providing social benefits for women in poverty who head households
	Women living alone	Limited social services	Providing social benefits for women in poverty who live alone
	Women with lack access to education	Traditional culture that puts women in domestic roles	Providing alternative education for women through implementing <i>Kejar Paket A, B and C</i>
	Violence against women	Insecure and unsafe places	Providing secure and safe places for women and girls by empowering men's and women's groups in community policing programs during reconstruction
	Women illiteracy	Traditional culture that put women in domestic roles	Providing alternative education for women through implementing <i>Kejar Paket A, B and C</i>
	Homeless women and men	Housing loss from earthquake	Providing shelters and centres for homeless women and men during 6-12 month reconstruction programs

Physical dimension	Pregnant women	Lack of public health services	Providing health insurance schemes and empowering village health posts or <i>Posyandu</i> for women and babies
	Older women and men	Limited social services	Providing social benefits for older women and men
	Malnourishment among women, girls and boys	Lack of food and public health services	Providing health insurance schemes and empowering village health posts or <i>Posyandu</i> for women and babies
	Women and men with disabilities	Limited social services	Providing social benefits for women and men with disabilities
Political dimension	Women's lack of access to decision making	Traditional culture that puts women in domestic roles	Involving women from planning, design and reconstruction both in the housing reconstruction and the livelihood recovery program
	Limited voices and participation among women	Traditional culture that puts women in domestic roles	Involving women from planning, design and reconstruction both in the housing reconstruction and the livelihood recovery program
	Women's lack of leadership	Traditional culture that puts women in domestic roles	Involving women from planning, design and reconstruction both in the housing reconstruction and the livelihood recovery program
Cultural dimension	Women's lack of social ties	Geographical remoteness	Empowering women's groups to provide social assistance for women with lack of social ties
	Culturally isolated women	Traditional culture that put women in domestic roles	Involving women from planning, design and reconstruction both in the housing reconstruction and the livelihood recovery program
	Religiously isolated women	Religious culture that subordinates women to men	Providing gender training to both male and female religious and community leaders
	Sexual abuse of women	Unsecure and unsafe places	Protecting women from sexual abuse and violence by empowering men's and women's groups in community policing programs during reconstruction

Table 10.2 Key gender mainstreaming strategies to strengthen gender capacities

Dimension of gender capacities	Type of gender capacities	Main challenges of gender capacities	GM strategies to strengthen gender capacities
Economic dimension	Women's active role in ROSCAs	Limited number of women's groups involved in ROSCAs	Mobilizing and creating ROSCAs across women's groups and neighbourhoods by integrating ROSCA activities with other community activities
	Women's and men's active roles in agricultural markets	Lack of financial credit, marketing and infrastructures	Supporting women and men in agricultural markets by providing financial credits, training and infrastructures, particularly to support organic agricultural products
	Women's and men's roles in SMEs	Lack of knowledge of marketing and financial credit	Supporting women's and men's roles in creating and developing SMEs by providing marketing training programs and financial credits
Social dimension	Richness of community social capital in the form of women's and men's groups as well as a tradition of community activities (i.e. <i>gotong royong</i> and <i>kerjabakti</i>)	Some women's groups were not involved within government programs	Strengthening community social capital through empowering women's and men's groups' involvement in reconstruction process from planning, reconstruction and design in both housing reconstruction programs and livelihood recovery programs
	Women's active roles in <i>Posyandu</i> and <i>PKK</i>	Some <i>Posyandu</i> and <i>PKK</i> are inactive due to the earthquake	Strengthening the role of <i>Posyandu</i> and <i>PKK</i> through providing healthcare training to <i>kader</i> as well as integrating <i>Posyandu</i> and <i>PKK</i> within district government programs for health
Environmental dimension	Women's roles in waste and recycling management	Low technical skill of women in recycling waste and management	Promoting women groups in waste and recycling management through providing technical skills for waste recycling management
	Women's and men's role in sustainable farming and food production	Lack of women's and men's knowledge in planting and marketing organic foods and vegetables	Promoting the role of women's and men's groups to enlarge activities related to sustainable farming and food production such as providing funding and training for the farmers
	Women's and men's role in creating green environment	Lack of women's and men's knowledge in development of a green environment	Strengthening the role of women and men in creating a green environment by providing training and giving free trees and vegetable seeds around the villages

10.4 Benefits of gender mainstreaming into sustainable post-earthquake reconstruction

Gender and built environment studies highlight that mainstreaming gender within post-disaster reconstruction is needed to enhance sustainable post-disaster reconstruction (Childs, 2006; Ginige *et al.*, 2014; Enarson, 2014, Bradshaw, 2015). When women are empowered, they will have capacities to improve their own lives and their families. The increasing women capacity will result in equality in controlling economic resources as well as in economic and political decision making which reduces various vulnerability faced by women during disaster. Accordingly, mainstreaming gender into post-earthquake reconstruction practices means that reconstruction efforts not only bring opportunities for women to make decisions but also enhance their capacities to assume responsibility for the best possible present and future of community development (Bradshaw, 2015). The findings of this study confirm the benefits of mainstreaming gender in sustainable post-earthquake reconstruction. This study shows those benefits can be classified into three types: economic, social, and environmental sustainability. Figure 10.3 presents these benefits.

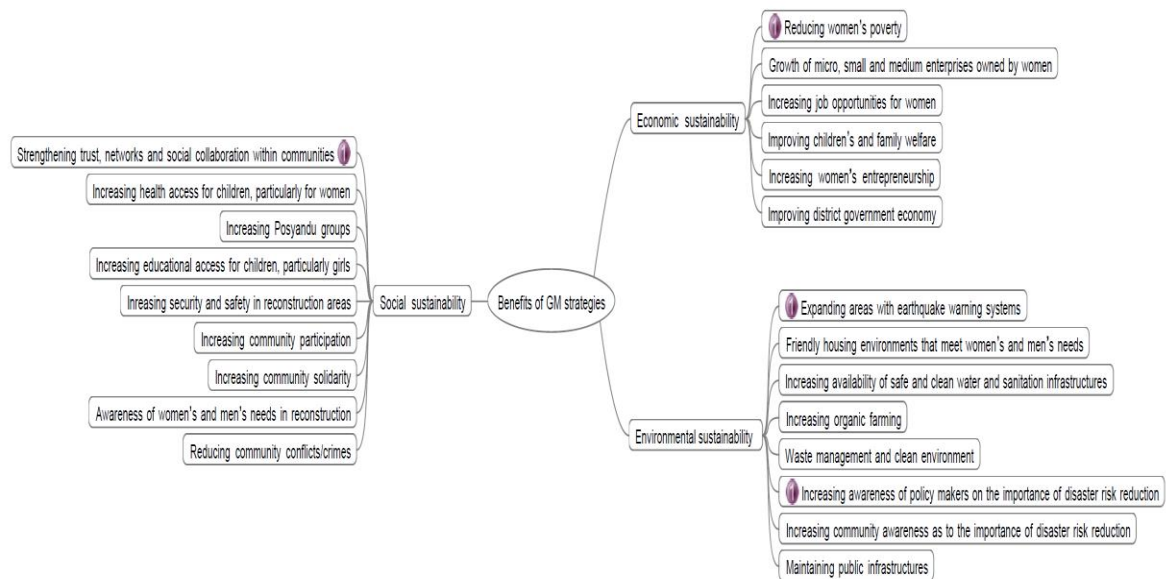


Figure 10.3 Benefits of mainstreaming gender into sustainable post-earthquake reconstruction

With regard to economic sustainability, this research found that mainstreaming gender in post-earthquake reconstruction enhances the economic sustainability of women, families, and district

government economies (Chapter 7 section 7.3.3 and 7.5.2 as well as Chapter 8 section 8.3.3 and 8.5.2). These findings confirm prior studies which have documented that when women have access to resources and opportunities and have an equal footing in economic life, they are in a better position to fulfil their role as drivers of reconstruction outcomes and to take advantage of sustainable and inclusive economic growth (Enarson, 2014; Drolet *et al.*, 2015). This study shows that when women have access to resources and opportunities, the benefits are not only for women and her families but also for district government economies. The study finds that, in terms of economic dimension of sustainability, reducing poverty among women is the most important benefit of mainstreaming gender within post-earthquake reconstruction.

With regard to social sustainability, this research found that mainstreaming gender within post-earthquake reconstruction brings benefits for women, community, and policy makers at the district government level. The findings confirm that expanding women's and men's roles and participation in post-disaster reconstruction ensures that the reconstruction process addresses women's and men's needs and concerns (Ariyabandu and Wickramasinghe, 2003; UNISDR, 2011). Women and men participation in planning, design, and construction within a post-disaster reconstruction process is important for creating a sense of belonging among community members; this, in turn, is a fundamental factor in creating cohesive communities. The qualitative findings in Chapter 7 section 7.3.3.3 and Chapter 8.3.3.3 show that expanding women's roles and participation within post-earthquake reconstruction enhances social sustainability through strengthening community social capital as well as improving access to public services. In terms of the social dimension of sustainability, strengthening community social capital is the most important benefit of mainstreaming gender.

In terms of environmental sustainability, this research found that mainstreaming gender within post-earthquake reconstruction improves environmental sustainability. Prior studies suggest that environmental sustainability requires a solid understanding of women's relationships to environmental resources, as well as their rights and roles in resource planning and management (Lizarralde *et al.*, 2009; Enarson, 2014; Drolet *et al.* 2015). Acknowledgment and incorporation of women's knowledge and experience of environment, as well as an understanding of the gender-specific impacts of environmental degradation, are essential for enhancing sustainability of environment in the disaster affected communities (Lizarralde *et al.*, 2009). The qualitative and

quantitative findings in Chapter 7 and 8 confirm that acknowledgment of women’s knowledge of the environment as well as involving women in the reconstruction process contributes to a sustainable environment through reducing environmental degradation and creating a green environment. In the context of the environmental dimension of sustainability, this study finds that expanding areas with earthquake warning systems is the most significant benefit from the beneficiaries’ perspective, while from policy makers/implementers perspective it shows increasing awareness of policy makers on the importance of disaster risk reduction is the most important benefit.

10.5 Key constraining/enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction

This research found key constraining factors of mainstreaming of gender in sustainable post-earthquake reconstruction. The results of the quantitative and qualitative studies in Chapter 7, 8 and 9 show several key constraining factors on the parts of government and society. From government, it shows that resistance from senior bureaucrats is the most important factors. From society, it shows that resistance from religious leaders and patriarchal culture within society are the most important factors. Figure 10.4 presents key constraining factors of mainstreaming gender into sustainable post-earthquake reconstruction as determined from this study.

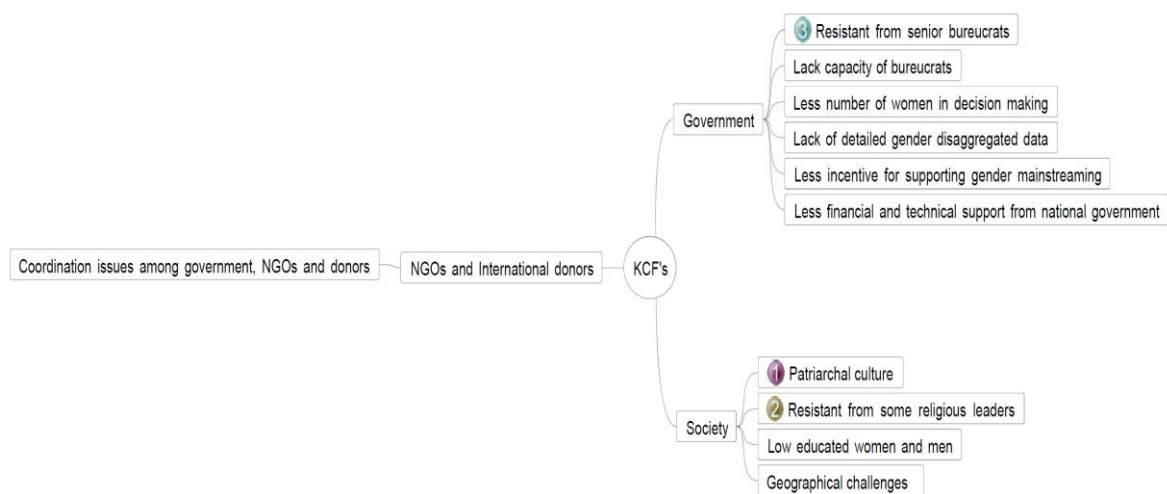


Figure 10.4 Key constraining factors of mainstreaming gender into sustainable post-earthquake reconstruction

The results of both quantitative and qualitative study show several key enabling factors from government, society and NGOs. From government's perspective, it is clear that strong women's leadership is the most important factors. From society, it is seen that support from active roles taken by women's groups are the most important factor. From NGOs, this study shows that adequate technical and financial support is the most important factors in mainstreaming gender. Figure 10.5 presents key enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction as determined from this study.



Figure 10.5 Key enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction

This study also identifies key enabling and constraining factors in mainstreaming gender in each phase of post-earthquake reconstruction. Table 10.3 shows key enabling factors and constraining factors within each phase of post-earthquake reconstruction. Within the planning and design phase, it shows supporting factors from government such as availability of gender vulnerability and capacity assessment, gender-disaggregate data and clean gender mainstreaming targets. On the other hand, a lack of detailed gender-disaggregate data, insufficient numbers of women in decision-

making, and resistance from senior bureaucrats are the constraining factors from government. Meanwhile, support from community leaders, active roles on the part of women’s groups, and rich traditional social capital are supporting factors from society. Resistance from religious leaders, the patriarchal nature of the culture within Javanese society and the lack of education and remoteness are constraining factors on the part of society within the planning and design phase. Meanwhile, adequate technical assistantship and the provision of gender expertise are supporting factors from NGOs.

Table 10.3 Key enabling and constraining factors of mainstreaming gender within each phase of post-earthquake reconstruction

Phase of PDR	Key Enabling Factors	Key Constraining Factors
Planning	Availability of gender vulnerability assessment	Lack detailed of gender-disaggregate data
	Availability of gender capacity assessment	Insufficient numbers of women in decision-making
	Availability of gender-sensitive monitoring and evaluation	Resistance from senior bureaucrats
	Clear gender targets	Less financial and technical support from national government
	Availability of gender-disaggregate data	Resistance from religious leaders
	Gender-sensitive budgeting	Patriarchal culture within society
	Policy and program designs linked with DRR strategies	Lack of education; remoteness
	Support from community leaders	
	Active roles on the part of women’s groups	
	Richness of traditional social capital	
	Adequacy of technical assistance	
	Provision of gender expertise	
	Designing	Availability of gender vulnerability assessment
Availability of gender capacity assessment		Insufficient numbers of women in decision-making
Availability of gender-sensitive monitoring and evaluation		Resistance from senior bureaucrats
Clear gender targets		Less financial and technical support from national government
Availability of gender-disaggregate data		Less incentive for gender mainstreaming
Gender-sensitive budgeting		Resistance from religious leaders

	Policy and program design linked with DRR strategies	Patriarchal culture within society
	Support from community leaders	Lack of education; remoteness
	Active roles on the part of women's groups	
	Richness of traditional social capital	
	Adequacy of technical assistance	
	Provision gender expertise	
Construction	Strong women's leadership	Insufficient numbers of women in decision-making
	Adequate financial resources	Resistance from senior bureaucrats
	Political will of government	Less financial and technical support from national government
	Appropriate tools for gender mainstreaming	Less incentive for gender mainstreaming
	Capacity of local gender institutions	Resistance from religious leaders
	Good communication and coordination	Patriarchal culture within society
	Incentive for supporting gender mainstreaming	Lack of education; remoteness
	Support from community leaders	
	Active roles on the part of women's groups	
	Richness of traditional social capital	
	Adequacy of financial supports	
	Adequacy of technical assistance	
	Provision of gender expertise	
	Good communication with government and society	
	Government	
	Society	
	NGOs	

Within the construction phase, the shows the importance of supporting factors from government such as strong women's leadership, the political will of government, and appropriate tools for gender mainstreaming. On the other hand, insufficient numbers of women in decision-making, resistance from senior bureaucrats, less financial and technical support from national government and less incentive for gender mainstreaming are the constraining factors from government. Meanwhile, support from community leaders, active roles on the part of women's groups, and rich

traditional social capital are supporting factors from society. Likewise, resistance from religious leaders, the patriarchal nature of culture within society, lack of education, and remoteness are constraining factors from society within the planning and design phase. Meanwhile, adequate financial and technical assistantship, provision of gender expertise and good communication with government and society are supporting factors from NGOs.

10.6. Overall research findings

This study was conducted based on a conceptual framework developed at the beginning of the study. The conceptual framework helped to identify key research issues and key concepts of this research. After a review of the literature, the researcher collected data that provided empirical evidence to analyze further to answer research questions and to achieve research objectives. Accordingly, this research acknowledged that gender vulnerabilities that challenge the sustainability of post-earthquake reconstruction as well as gender capacities that exist within post-earthquake reconstruction and can be promoted to enhance the sustainability of post-earthquake reconstruction. Subsequently, this research identifies some gender mainstreaming strategies that are intended to address gender vulnerability and to promote gender capacity within post-earthquake reconstruction. This research identified the benefits of these strategies in three dimensions of sustainable development (i.e. economic sustainability, social sustainability and environmental sustainability). Subsequently, the research depicts some key enabling and constraining factors for effective implementation of gender mainstreaming in the sustainability of post-earthquake reconstruction. Figure 10.6 presents the research findings that link with the conceptual framework in section six.

Gender vulnerability and capacity theory explain types of vulnerability and capacity and the factors thereof that could appear within the context of post-earthquake reconstruction. Types of gender vulnerability include five dimensions, while types of gender capacity can be divided into three dimensions. To achieve effective mainstreaming strategies, the strategies should address gender vulnerability and gender capacity equally. Further, to achieve effective implementation of gender mainstreaming strategies, policy makers should be aware of the key enabling and constraining factors that exist within post-earthquake reconstruction projects.

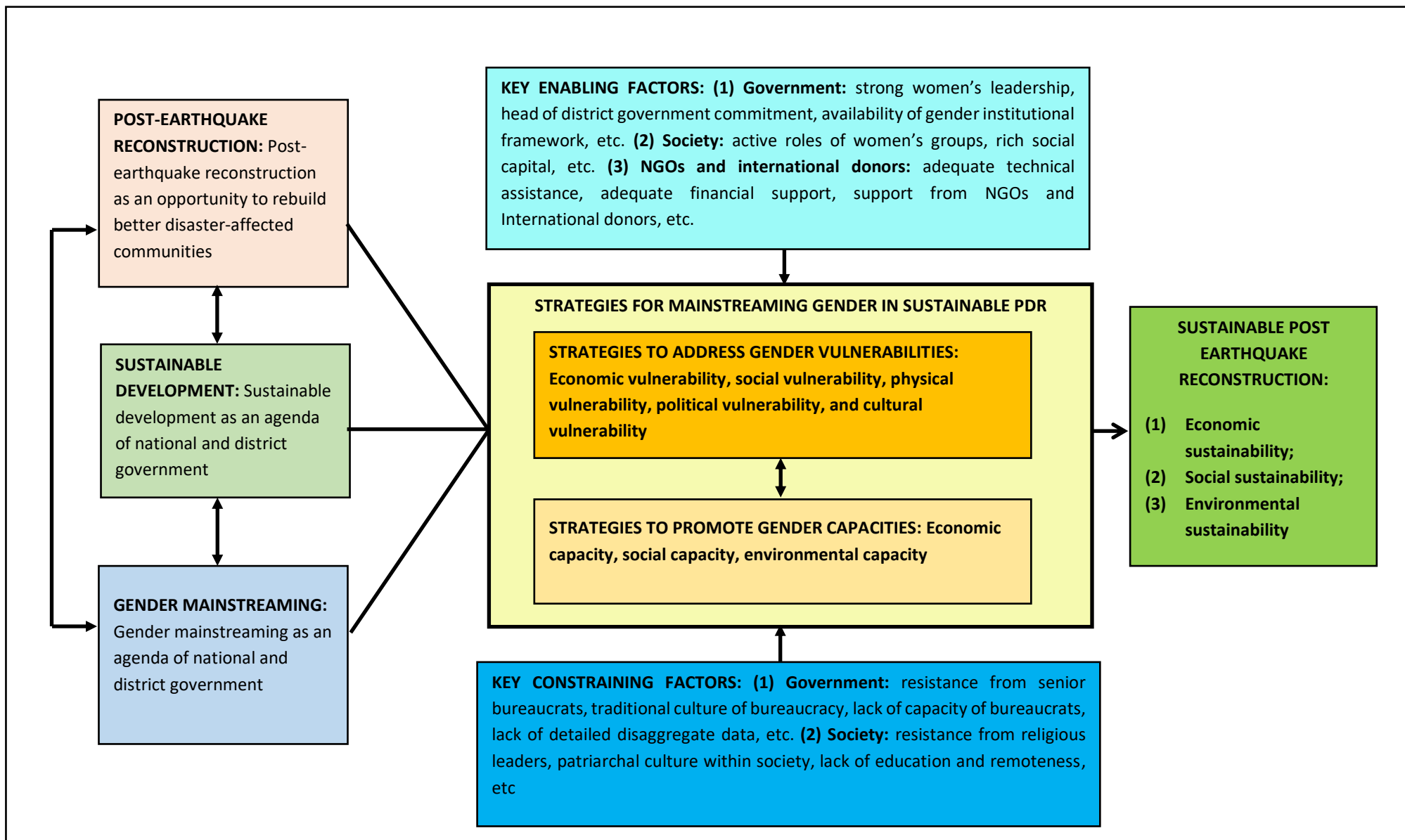


Figure 10.6 Overall research findings which linking to the conceptual framework

10.7 Summary of the chapter and links

This chapter discusses the key research findings. Section 10.2 discusses types of gender vulnerability and capacity revealed during post-earthquake reconstruction. Section 10.3 presents strategies for the mainstreaming gender into sustainable post-earthquake reconstruction. Section 10.4 discusses the benefits of gender mainstreaming in the sustainability of post-earthquake reconstruction. Section 10.5 discusses key constraining and enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction. Finally, Section 10.6 elaborates the refinement of the conceptual framework based on empirical findings. In chapter 11, we present the summary of the research findings, research limitations and future research directions to address limitations of the current research.

Chapter 11:

Conclusion and recommendations

11.1 Introduction

This last chapter consists of the summary of research aim and research objectives. Then, it presents key findings of each research objectives. The contribution of the research to theory and practice as well as research limitation are also presented. In the last section, a recommendation for future research based on the current research limitation is presented.

11.2 Summary of research aim and objectives

This research aims to provide policy relevant findings of strategies for mainstreaming gender to enhance the sustainability of post-earthquake reconstruction. In order to achieve this aim, this research has set the following objectives:

1. To investigate types of gender vulnerabilities which may affect the sustainability of post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
2. To investigate types of gender capacities which may contribute to the sustainability of post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
3. To elaborate various strategies of mainstreaming gender which is purposed to contribute to achieving sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
4. To identify various benefits of mainstreaming gender for achieving sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.
5. To identify various constraining and enabling factors for mainstreaming gender into sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.

11.3. Summary of key research findings

11.3.1 First research objective: To investigate types of gender vulnerabilities which may affect the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia

This study confirms that women are subject not only to deeper vulnerability but also to larger numbers of vulnerability. As presented in Chapter 7 (section 7.3.1.1 for qualitative research findings and section 7.5.2.1 for quantitative research findings of case study 1), Chapter 8 (section 8.3.1.1 for qualitative research findings and section 8.5.2.1 for quantitative research findings of case study 2), and Chapter 9 (section 9.2.1.1 for cross case studies and 9.3.1. for experts validation), women face various dimensions of vulnerability during reconstruction. The most vulnerable groups are pregnant women, women with disabilities and older women. The qualitative findings as detailed in Chapter 7, section 7.5.2.1 and Chapter 8, section 8.3.1.1 show that women have deeper vulnerability than men due to the existing patriarchal culture. This patriarchal culture is manifested in terms of discrimination against women, male domination, and neglected women's rights and capacities during reconstruction. Because of the discrimination that women face, and their heavy workload inside and outside the home, women have lack of opportunity to involve in various community activities and decision-making processes, and their needs and voices are often overlooked. These factors, along with illiteracy as well as limited access to and control over resources, make women vulnerable during reconstruction.

11.3.2 Second research objective: To investigate types of gender capacities which may contribute to the sustainability of post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.

Despite the vulnerability of women to earthquakes, women can make a difference during reconstruction through their capacities to improve economic, social and environmental vulnerability. As presented in Chapter 7 (section 7.3.1.2 for qualitative research findings and section 7.5.1.2 for quantitative research findings of case study 1), Chapter 8 (section 8.3.1.1 for qualitative research findings and section 8.5.2.2 for quantitative research findings of case study 2), and Chapter 9 (section 9.2.1.2 for cross case studies and 9.3.1. for experts validation), women's capacities in terms of the economic, social and environmental dimensions not only substantially reduce their families' and communities' vulnerability but also enhance the sustainability of their families and

communities following an earthquake. The findings of this study also show the importance of active roles on the part of women both individually and collectively in solving environmental sustainability problems following earthquakes through roles in creating a clean and healthy environment, creating housing friendly environments, contributing to waste management and recycling, and sustainable farming and food production. This study shows that women are survivors with their coping skills, knowledge and experience to protect fragile environments and people at risk during earthquake reconstruction. Women learners and educators increase society's capacity to cope with earthquakes. Their skills and knowledge are also a key resource during reconstruction. Their labor in home gardens and small plots of land provides more nutritious food and increases their families' and neighbors' self-sufficiency.

11.3.3 Third research objective: To elaborate strategies of mainstreaming gender which is purposed to contribute to achieving sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.

As presented in Chapter 7 (section 7.3.2.2 for qualitative research findings of case study 1), Chapter 8 (section 8.3.2.2 for qualitative research findings of case study 2), and Chapter 9 (section 9.2.2.2 for cross case studies and 9.3.2. for experts validation), gender mainstreaming strategies within the context of sustainable reconstruction should not only incorporate strategies for protecting against women's vulnerabilities but also strategies for promoting women's capacities. Both strategies are needed to create gender equality and women's empowerment, both of which are fundamental to sustainable reconstruction. The two case studies show relatively similar gender mainstreaming strategies to address gender vulnerability and to strengthen gender capacity. While strategies to address gender vulnerability are purposed to address economic, social, physical, political and cultural vulnerabilities, the strategies to strengthen gender capacity are purposed to promote women and men capacities to enhance sustainable post-earthquake reconstruction.

11.3.4 Fourth research objective: To identify benefits of mainstreaming gender for achieving sustainable post-disaster reconstruction in Bantul and Sleman Yogyakarta Province Indonesia.

As presented in Chapter 7 (section 7.3.3 for qualitative research findings and section 7.5.1 for quantitative research findings of case study 1), Chapter 8 (section 8.3.3 for qualitative research findings and section 8.5.1 for quantitative findings of case study 2), and Chapter 9 (section 9.2.3 for

cross case studies and 9.3.3. for experts validation), the benefits of gender mainstreaming in the context of the sustainability of post-earthquake reconstruction can be classified into three benefits: economic, social, and environmental sustainability. Regarding economic sustainability, this study finds that mainstreaming gender in post-earthquake reconstruction enhances the economic sustainability of women, families, and district government economies. This study shows that when women have access to resources and opportunities, the benefits reach not only women themselves, but also families and district government economies. The study finds that reducing women's poverty is the most important benefit of mainstreaming gender in the context of post-earthquake reconstruction in terms of the economic dimension of sustainability.

With regard to social sustainability, this research found that mainstreaming gender within post-earthquake reconstruction brings benefits for women, communities and policy makers in district governments. This study finds that expanding women's participation in post-earthquake reconstruction enhances social sustainability through the strengthening of community social capital as well as the improvement of access to public services. This study finds that strengthening community social capital is the most important benefit of mainstreaming gender in terms of the social dimension of sustainability. In terms of environmental sustainability, this research found that integrating gender mainstreaming in post-earthquake reconstruction substantially enhances the sustainability of environment of affected communities. This study confirms that acknowledgment of women's knowledge of the environment, as well as the involvement of women in the reconstruction process, contribute to the sustainability of the environment through the reduction of environmental degradation and the creation of a green environment. This study finds that expanding areas with earthquake warning systems is the most important benefit in terms of the environmental dimension of sustainability.

11.3.5 Fifth research objective: To identify constraining and enabling factors of mainstreaming gender into sustainable post-earthquake reconstruction in Bantul and Sleman Yogyakarta Province Indonesia

The results of both the quantitative and qualitative studies also show several key constraining factors coming from government and society. From the governmental perspective, this study has shown that resistance from senior bureaucrats is the most important constraining factor. From the

societal point of view, it shows that resistance from religious leaders and the patriarchal culture that forms Javanese society are the most important factors.

This research has identified key enabling factors of mainstreaming gender in sustainable post-earthquake reconstruction. As presented in Chapter 7 (section 7.3.4 for qualitative research findings and section 7.5.3 for quantitative research findings of case study 1), Chapter 8 (section 8.3.4 for qualitative research findings and section 8.5.3 for quantitative findings of case study 2), and Chapter 9 (section 9.2.4 for cross case studies and 9.3.4 for experts validation), several key factors from government, society and NGOs were identified. From the governmental perspective, it shows that strong women's leadership is the most important factors. On the part of society, it shows that active roles on the part of women's groups is the most important factor. From NGOs, it shows that adequate technical and financial support is the most important factor in mainstreaming gender.

11.4 Contribution to theory and practices

Chapter 6 presents detailed research findings of this study. These findings established the contribution of this research on theory and practice of mainstreaming gender within post-earthquake reconstruction. In this sub-section, we discuss the contribution of this research on theory and practice of gender mainstreaming and sustainable post-earthquake reconstruction.

11.4.1 Contribution to theory

This study merged literature from three main areas: post-disaster reconstruction management, gender mainstreaming, and sustainable development. By using the theories and concepts related to the subject areas, this research provides a better understanding of mainstreaming gender into sustainability of post-earthquake reconstruction. Hence, this research has two contributions to the theory in those areas. First, even though gender mainstreaming in post-disaster management activities has been widely emphasized within gender and disaster management studies, little research has been conducted to investigate how gender mainstreaming can be integrated within post-earthquake reconstruction. In addition, the literature contains little empirical evidence on gender mainstreaming within the reconstruction context particularly in the context of earthquake regions in a developing country. To address this gap in the knowledge domain, this research has explored policy-relevant findings regarding strategies to mainstreaming gender which the main

purpose to enhance the sustainability post-earthquake reconstruction. Second, this study has also contributed to theory by identifying types of gender vulnerability and gender capacity in the context of post-earthquake reconstruction. Various strategies for reducing gender vulnerability and for strengthening gender capacity are also identified. An additional contribution to the theory of this research is the establishment of key enabling and constraining factors in the mainstreaming of gender in the context of sustainability of post-earthquake reconstruction.

11.4.2 Contribution to practices

The main aim of this research is to provide policy relevant findings regarding strategies to mainstreaming gender to achieve sustainable post-disaster reconstruction. Since gender involves women and men, the perspectives of both on their vulnerabilities and capacities should be addressed. Hence, the study conducted its empirical evidence in two affected earthquake communities in Indonesia. To provide strategies of mainstreaming gender that may benefit for post-earthquake reconstruction activities and also to provide a better understanding of the research problem for the policy makers and policy implementers in the country who seek empirical evidence from the field. To enhance the validity of its empirical findings, this study has used local experts' viewpoints who have expertise and experience working on post-earthquake reconstruction as well as gender and development activities in Indonesia and developing countries. Hence, it is expected that this contribution to the understanding of issues of gender vulnerability and capacity as well as strategies and benefits of mainstreaming gender for sustainable post-earthquake reconstruction can enhance the contribution to practice, including the ministry of women's empowerment in Indonesia, which is looking forward to bringing in new policies related to mainstreaming gender in disaster risk reduction. Further, this study can also help the NGOs and International donors as well as humanitarian aid organization that involved in gender mainstreaming projects in Indonesia as well as other research institutions.

Moreover, the identification of gender vulnerabilities and gender capacities can guide practitioners when they conduct social mapping within post-earthquake reconstruction. The relevant gender mainstreaming strategies for reducing gender vulnerability and for strengthening gender capacity can serve as lessons learned for practitioners in mainstreaming gender within post-earthquake reconstruction. The identification of supporting and constraining factors in mainstreaming gender

within post-earthquake reconstruction can guide practitioners in ensuring the effectiveness of integrating gender mainstreaming within post-earthquake reconstruction. Finally, the framework provides a guideline as to how to integrate gender mainstreaming strategies into the achievement of sustainability in post-earthquake reconstruction.

11.5 Study limitations

This study adopted various techniques for collecting data. These techniques of data collection established the depth of the study by using various sources of its evidence. Furthermore, the similar issue was investigated quantitatively and qualitatively. However, the quantitative data analysis did not go beyond descriptive data analysis techniques due to the small number of questionnaire respondents in the sample.

This research study used a multiple case study approach as the replication logic and ensured the external validity of the findings. However, attempting to generalize the findings to a wider population is difficult as the findings are specific to the context of the case studies and policy makers' interviews. Nevertheless, the findings of expert interviews are not context specific. Thus, the overall study is therefore generalizable to appropriate domains.

Another limitation is that the case study data collection was limited to two districts in Indonesia. This was the case because the research problem was particularly related to Indonesia and other developing countries, as well as gender, mainstreaming within post-earthquake reconstruction projects. These characteristics were required for selection as case studies were readily available and accessible in Indonesia. Future studies might also undertake a comparison of case studies from other developing countries.

11.6 Recommendations

Based on the objectives of the study, some recommendations related practice of post-disaster reconstruction and future research are offered. The following sub-section explains recommendations of this study.

16.6.1. Practice of post-disaster reconstruction

16.6.1.1. The need of gender analysis for identifying gender vulnerability and gender capacity within post-disaster reconstruction activities

The first and second objectives of this study suggest the importance of identifying gender vulnerability and gender capacity within post-disaster reconstruction activities for ensuring sustainable post disaster reconstruction. In doing so, policy makers and policy implementers may use the identification of gender vulnerabilities and gender capacities from this study as a guide when they conduct social mapping for identifying gender vulnerability and gender capacity within post disaster reconstruction activities.

16.6.1.2. The need for introducing balance approach for mainstreaming gender into sustainable post-disaster reconstruction

The third objective of this study suggest that mainstreaming gender into sustainable post-disaster reconstruction should incorporate balance strategies that incorporate strategies for protecting gender vulnerabilities and strategies for promoting gender capacities. In doing so, policy makers and policy implementers can implement relevant gender mainstreaming strategies for protecting gender vulnerability and for promoting gender capacity from this study which can serve as lessons learned in mainstreaming gender within post-earthquake reconstruction.

16.6.1.3. The need to pay attention of key enabling and contraining factors for mainstreaming gender into sustainable post-disaster reconstruction

The last objective of this study suggest that policy makers and policy implementers should pay attention of key enabling and constraining factors of mainstreaming gender for enhancing sustainability of post-disaster reconstruction. In doing so, the identification of enabling and constraining factors in mainstreaming gender within post-earthquake reconstruction of this study can be used as a guide for ensuring the effectiveness of integrating gender mainstreaming within post-earthquake reconstruction.

16.6.2. Further research

11.6.2.1. Conducted research in the different contexts of reconstruction projects

Because the developed conceptual framework of this research was not tested and validated on other specific post-earthquake reconstruction projects, future investigation could be conducted to validate the conceptual framework of this study. To develop the framework further, it could be applied to two different contexts of reconstruction projects: a project in which only women are involved in post-earthquake reconstruction and a project in which women and men are involved in post-earthquake reconstruction.

16.6.2.2. Conducting the same study separately for different districts

This expert interviews highlight that the vulnerabilities and capacities of women and men in one district may differ from those in other districts. Hence, further research could be carried out in various districts to formulate gender mainstreaming strategies that more suitable for each district government. As Indonesia society consists of various ethnic and religious groups, further investigation may focus on particular socio-ethnic groups in the archipelago, which might have to differ beliefs and views on certain aspects of women's and men's vulnerabilities and capacities. Such a focus may help to provide more specific gender mainstreaming strategies and add further details to the developed conceptual framework.

16.6.2.3. Considering the views of men and women separately

Although some of the views of women and men were collected and analyzed together in this research, it would also be beneficial to conduct research which uses men's and women's views and perspective separately. By doing so, it would help the organizations that work on gender mainstreaming to address the concerns that arise due to society's cultural norms, beliefs, and practices in the affected communities. Such studies may help future projects on gender mainstreaming to be implemented more quickly in the affected communities.

11.7 Final note

The main findings of the research were summarized in this chapter. Five objectives of the research have also been achieved, ranging from the fundamental of understanding of various gender vulnerability and gender capacity, various strategies and the benefits of mainstreaming gender into sustainable post-earthquake reconstruction, and its enabling/constraining factors. Thus, this research has contributed to the theory and practice of mainstreaming gender within the context of

post-earthquake reconstruction. Further, the main limitation of the presented research and recommendation for future research suggested.

References

- Aboobacker, N. P., & Nakray, K. (2011). Gender mainstreaming in disaster management policies: indicators to mitigate vulnerability of women. *Paper presented at the conference on rethinking development in an age of scarcity and uncertainty, new values, voices, and alliances for increased resilience*, University of York.
- Abott, L. P. (2005). *Natural Disasters*, 5th Ed. New York: McGraw-Hill Science.
- Abowitz, D. A., & Toole, T. M. (2009). Mixed method research: Fundamental issues of design, validity, and reliability in construction research. *Journal of Construction Engineering and Management*, 136(1), 108-116.
- Abrahams, D. (2014). The barriers to environmental sustainability in post-disaster settings: a case study of transitional shelter implementation in Haiti. *Disasters*, 38(1), 25-49.
- Ackermann, F., Eden, C., & Cropper, S. (1992). *Getting started with cognitive mapping* (pp. 65-82). Banxia Software.
- Aguilar, A. (2002). *Stakeholder dialogues on sustainable development strategies: Lessons, opportunities and developing country case studies* (No. 26). In Dalal-Clayton, D.B, Swiderska, K., & Bass, S. (Ed.).
- Aguirre, B. E. (2002). "Sustainable development" as collective surge. *Social Science Quarterly, a Special Issue: Social Science and the Environment*, 83(1), 101-118.
- Alexander, D. (1997). The study of natural disasters, 1977-1997: Some reflection on a changing field of knowledge. *Disasters*, 21(4), 284-304.
- Alexander, D. (2006). Globalization of disaster: Trends, problems and dilemmas. *Journal of International Affairs*, 59(2), 1.
- Allard-Poesi, F. & Marechal, C. (2001). *Doing management research a comprehensive guide*. London: Sage publications limited. Pp. 31-49.
- Almaz, E. (1991). Perspective on gender and development. In Selassie, T.B (Ed.), *Gender Issues in Ethiopia*. Addis Ababa: Addis Ababa University.
- Alston, M. (2014). Gender mainstreaming and climate change women's studies. *International Forum*, 47, 287-294.
- Amaratunga, D., Haigh, R., & Pathirage, C. (2007). Knowledge sharing in disaster management strategies: Sri Lankan post-tsunami context. *Paper presented at the CIB World Building Congress 2007: Construction for Development*, Cape Town, South Africa.
- Anand, P. B. (2005). Getting infrastructures priorities right in post-conflict reconstruction research, *Paper (Vol. 2005): UNU-World Institute for Development Economic Research*.
- Anderson, C. (2002). *Gender matters: implication for climate variability and climate change and for disaster management in the Pacific islands*. InterCoast Newsletter.
- APWLD. (2005). *Why are women more vulnerable during disasters*. Bangkok: APWLD.
- Ariyabandhu, M. M. (2006). Gender issues in recovery from the December Indian Ocean Tsunami: The case of Sri Lanka. *Earthquake Spectra*, 22(S3), 75-79.

- Ariyabandhu, M. M. (2009). Sex, gender, and gender relations in disasters. In Enarson, E. & Chakrabarti, P.G.D. (Ed.), *Women, Gender, and Disaster*. India: Sage publication Private Limited.
- Ariyabandhu, M. M., & Wickramasinghe, M. (2003). *Gender dimensions in disaster management - A guide for South Asia*. Colombo: ITDG South Asia.
- Ariyabandhu, M. M. (2005). Hazard risk and water resource management. *Paper presented at the Preparatory Workshop on Sri Lanka National Water Development Report*, Paris, France.
- Artati, H. K. (2010). *Learning of women's role in each phase of disaster management through community empowerment: A case study of earthquake (2006) and Merapi eruption (2010) in Yogyakarta*. Tokyo: Tokyo Developing Learning centre.
- Asgary, A., Badri, A., Rafieian, M. & Hajinejad, A. (2006). Lost and used post-disaster development opportunities in Bam earthquake and the role of stakeholders. *Paper presented at the Third International Conference on Post-Disaster Reconstruction: Meeting Stakeholder Interests*, Florence.
- Asian Disaster Reduction Centre. (2005). *Total disaster risk management: Good practice*. Kobe, Japan: Asian Disaster Reduction Centre.
- Atkinson, G., Dietz, S., Neumayer, E., & Agarwala, M. (2014). *Handbook of sustainable development*, Edward Elgar Publishing.
- Baca, M., & Gorcun, O.F. (2006). Post-disaster reconstruction in rural and urban areas of turkey. *Paper presented at the international conference and student competition on post-disaster reconstruction: Meeting stakeholders interest*, Florence, Italy.
- Bantul Bureau of Statistics. (2007). *Bantul in figure 2006*. Bantul: BPS.
- Bappenas. (2006). *Indonesia development progress*, Bappenas: Indonesia
- Bappenas. (2007). *Indonesia development progress*, Bappenas: Indonesia
- Bappenas. (2011). *Indonesia development progress*, Bappenas: Indonesia
- Baradan, B. (2007, 17-19 May 2006). Analysis of the post-disaster reconstruction process following Turkish earthquakes, 1999. *Paper presented at the conference on post-disaster reconstruction: meeting stakeholder interests*, Firenze, Italy.
- Barakat, S. (2003). Housing reconstruction after conflict and disaster humanitarian policy group, *Network Papers*, 43, 1-40.
- Barenstein, J. D., & Pittet, D. (2007). *Post-disaster housing reconstruction: current trends and sustainable alternatives for tsunami-affected communities in coastal Tamil Nadu*. Canobbio: Institute for Applied Sustainability to the Built Environment, University of Applied Sciences of Southern Switzerland.
- Bauer, M. (2000). *Qualitative researching with text, image, and sound: A practical handbook*. London: Sage Publication.
- Baumwoll, J. (2008). The value of indigenous knowledge for disaster risk reduction. *Webster University, Webster Groves*.
- Bee, B., Biermann, M., & Tschakert, P. (2013). *Gender, development, and rights-based approaches: Lessons for climate change adaptation and adaptive social protection Research, action and policy: Addressing the gendered impacts of climate change*. Netherlands: Springer
- BNPB. (2008). *Laporan pemantauan dan evaluasi pelaksanaan rehabilitasi dan rekonstruksi pascabencana gempa bumi di Provinsi DI Yogyakarta dan Provinsi Jawa Tengah*. Jakarta, Indonesia: Badan Nasional Penanggulangan Bencana.
- BNPB. (2010). *Rekapitulasi bencana di Indonesia tahun 2010*. Retrieved 05/12/2011, from Badan Nasional Penanggulangan Bencana www.bnpb.go.id

- BNPB. (2006). *Preliminary damage and loss assessment Yogyakarta and Central Java Natural Disaster*. Jakarta, Indonesia: Badan Nasional Penanggulangan Bencana
- Benson, C., & Clay, E. (2003). Disasters, vulnerability, and the global economy. *Building Safer Cities: The Future of Disasters Risk*, 3, 3-32.
- Bhadra, S., & Pulla, V. (2014). *Community interventions in disasters. Community work: Theories, experiences and challenges*, UK: Cambridge University Press.
- Black, W. R. (2005). *Integrating sustainability into the transportation planning process sustainable transport: Definitions and responses (pp. 11-13)*. Netherlands: Sage Publications.
- Blackburn, S. (2004). *Women and state in modern Indonesia*. Cambridge, UK: Cambridge University Press.
- Blaikie, P., Cannon, T., Davis, I., & Wisner, B. (2014). *At risk: natural hazards, people's vulnerability and disasters*. London: Routledge.
- Blewitt, J. (2014). *Understanding sustainable development*. London: Routledge.
- Boserup, E. (1970). *Women in economic development*. London: Earth scan.
- Bowen, J. R. (1986). On the political construction of tradition: Gotong Royong in Indonesia. *The Journal of Asian Studies*, 45(3), 545-556.
- BPS (2006) *Indonesia Statistics*, BPS: Indonesia
- BPS (2007) *Indonesia Statistics*, BPS: Indonesia
- BPS (2011) *Indonesia Statistics*, BPS: Indonesia
- Bradshaw, S. (2001). Reconstructing roles and relations: Women's participation in reconstruction in post-Mitch Nicaragua. *Gender and Development*, 9(3), 79-87.
- Bradshaw, S., & Fordham, M. (2014). Double disaster: disaster through a gender lens. *Hazards, risks and disasters in society*, 233-251
- Bradshaw, S. (2015). Engendering development and disasters. *Disasters*, 39(1), 54-75.
- Branisa, B., Klasen, S., & Ziegler, M. (2013). Gender inequality in social institutions and gendered development outcomes. *World Development*, 45, 252-268.
- Brewer, J. & Hunter, A. (2006) *Foundations of multi method research*. London: Sage publications limited.
- Brightman, J. (2004). *Cognitive mapping: Theory and practice*: Value Magazine.
- Brink, P.J. & Wood, M.J. (1998) *Advanced design in nursing design*. 2nd ed. London: Sage publications limited.
- Broadbent, S. G. (2007). Rethinking future UK support to post-disaster reconstructions: Meeting stakeholder interests. *Paper presented at the Conference on Post-disaster reconstruction: Meeting stakeholder interests*, Firenze, Italy.
- BRR & International Partners. (2005). *Aceh Tsunami Report*. BRR: Jakarta.
- Buckle, P. (1995). A framework for assessing vulnerability. *The Australian Journal of Emergency Management*, 10(1), 11-15.
- Buckle, P., Mars, G., & Smale, S. (2000). New approaches to assessing vulnerability and resilience. *The Australian Journal of Emergency Management*, 15(2), 8-14.
- Byrne, B. A. (1995). *Gender, emergencies and humanitarian assistance*. Sussex: Institute of Development Studies.
- Campbell, J. R. (2006). *Traditional disaster reduction in Pacific Island communities (Vol. 38)*. Hamilton: University of Waikato.
- Canadian International Development Agency. (2004). *Accelerating Change: Resources for Gender Mainstreaming*. Retrieved from

- http://gametlibrary.worldbank.org/FILES/191_Toolkit%20for%20gender%20mainstreaming%20-%20CIDA.pdf
- Cannon, T. (1994). Vulnerability analysis and the explanation of 'natural' disasters. in a. varley (ed.), *disasters, Development and Environment*, 4, 13-30.
- Cannon, T. (2002). Gender and climate hazards in Bangladesh. *Gender and Development*, 10(2), 45-50.
- Chanamoto, N. J., & Hall, S. J. (2015). Gender equality, resilience to climate change, and the design of livestock projects for rural livelihoods. *Gender and Development*, 23(3), 515-530.
- Childs, M. (2006). Not through women's eyes: Photo-essays and the construction of a gendered tsunami disaster. *Disaster Prevention and Management*, 15(1), 202-212.
- Chodorow, N. J. (2014). *Femininities, masculinities, sexualities: Freud and beyond*: University Press of Kentucky.
- Chow, E. (2013). *Transforming gender and development in East Asia*. London: Routledge.
- Chowdhury, A. M. R., Bhuyia, A. U., Choudhury, A. Y., & Sen, R. (1993). The Bangladesh cyclone of 1991: why so many people died. *Disasters*, 17(4), 291-304.
- Chowdhury, J. R. (2001). Natural disaster. In Nishat, A., Ullah, M. & Haque, A.K.E. (Ed.), *Bangladesh environment outlook 2001*. Dhaka: Centre for Sustainable Development.
- Ciegis, R., Ramanauskiene, J., & Martinkus, B. (2015). The concept of sustainable development and its use for sustainability scenarios. *Engineering Economics*, 62(2).
- Ciegis, R., Ramanauskiene, J., & Startiene, G. (2015). Theoretical reasoning of the use of indicators and indices for sustainable development assessment. *Engineering Economics*, 63(4).
- Clarke, A. M. (1998). The qualitative-quantitative debate: Moving from positivism and confrontation to post-positivism and reconciliation. *Journal of Advanced Nursing*, 27(6), 1242-1249.
- Coleman, L. (2006). Frequency of man-made disasters in the 20th century. *Journal of Contingencies and Crisis Management*, 14(1), 3-11.
- Coles, A., Gray, L., & Momsen, J. (2015). *The Routledge handbook of gender and development*. London: Routledge.
- Collaborative, E. P. (2004). *Participatory planning guide for post-disaster reconstruction*. <http://www.tcgillc.com/tcgidocs/TCGI%20Disaster%20Guide.pdf>
- Collis J. & Hussey, R. (2003). *Business research: a practical guide for undergraduate and postgraduate students, 2nd Eds*. New York: Palgrave Macmillan.
- Coley, S.M. & Scheinberg, C.A. (2007) *Proposal writing: Effective grantsmanship. 3rd ed*. London: Sage publications limited.
- Commoner, B., Corr, M., & Stamler, P. J. (1971). The causes of pollution. *Environment: Science and Policy for Sustainable Development*, 13(3), 2-19.
- Connell, R. W. (2014). *Gender and power: Society, the person and sexual politics*. New Jersey: John Wiley and Sons.
- Coppola, D. (2011). *Introduction to international disaster management*. London: Elsevier.
- Cornwall, A., & Edwards, J. (2015). Introduction: Beijing+ 20-Where now for Gender Equality? *IDS Bulletin*, 46(4), 1-8.
- Council of Europe. (2004). *Gender Mainstreaming: Conceptual Framework, Methodology, and Presentation of Good Practice*. Strasbourg: Directorate General of Human Rights.
- CRED (Centre for Research on the Epidemiology of Disasters). (2010). *Database results*. Belgium: CRED.
- CRED (Centre for Research on the Epidemiology of Disasters). (2011). *Annual Disaster Statistical Review 2010: The numbers and trends*. Belgium: CRED.

- Creswell, J. W. (2007). *Qualitative inquiry and research design*, 2nd ed. California: Sage.
- Cuny, F. C. (1983). *Disasters and Development*. Oxford: Oxford University Press.
- Cutter, S. L. (1996). Vulnerability to environmental hazards. *Progress in Human Geography*, 20, 529-539.
- De Silva, N., & Ranasinghe, M. (2010). Maintainability risks of condominiums in Sri Lanka. *Journal of Financial Management of Property and Construction*, 15(1), 41-60.
- Dankelman, I., & Davidson, J. (1988). *Women and environment in The Third World: Alliance for the future*. London: Earthscan Publication Ltd.
- Davidson, C. H., Johnson, C., Gonzalo Lizarralde, G., Dikmena, N., & Sliwinski, A. (2007). Truths and myths about community participation in post-disaster housing projects. *Habitat International*, 31(1), 100-115.
- Delaney, P. L., & E. Shrader. (2000). *Gender and post-disaster reconstruction: The case of hurricane Mitch in Honduras and Nicaragua Decision Review Draft: LCSPG/LAC Gender Team*. The World Bank.
- Derbyshire, H. (2012). Gender mainstreaming: recognising and building on progress. Views from the UK Gender and Development Network. *Gender and Development*, 20(3), 405-422.
- Dercon, B., & Kusumawijaya, M. (2007). Two years of settlement recovery in Aceh and Nias: What should the planners have earned? *Paper presented at the 43rd ISOCARP Congress*, Antwerp, Belgium.
- Domeisen, N. (1997). The role of women in protecting communities from disasters. *Natural Hazards Observer*, 21(5), 157-173.
- Dora, C., Haines, A., Balbus, J., Fletcher, E., Adair-Rohani, H., Alabaster, G., & Neira, M. (2015). Indicators linking health and sustainability in the post-2015 development agenda. *The Lancet*, 385(9965), 380-391.
- Dowrick, D. J. (2003). *Earthquake risk reduction*. John Wiley & Sons.
- Drolet, J., Dominelli, L., Alston, M., Ersing, R., Mathbor, G., & Wu, H. (2015). Women rebuilding lives post-disaster: Innovative community practices for building resilience and promoting sustainable development. *Gender and Development*, 23(3), 433-448.
- Dufka, C. L. (1988). The Mexico City earthquake disaster. *The Journal of Contemporary Social Work*, 162-163.
- Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic Literature*, 50(4), 1051-1079.
- Duque, P. P. (2005). Disaster management and critical issues on disaster risk reduction in the Philippines. *Paper presented at the International Workshop on Emergency Response and Rescue*.
- Easterby-Smith M., Thorpe, R., & Jackson, P. (2008). *Management research: Theory and Practice*, 3rd ed. London: Sage Publication.
- Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of management review*, 14(4), 532-550.
- Elliott, J. (2012). *An introduction to sustainable development*. London: Routledge.
- EM-DAT. (2011). *Country profile of natural disasters: Indonesia*. From EM-DAT <http://www.EM-DAT.be/result-country-profile>.
- EM-DAT. (2015). *The International disaster database*. Belgium: CRED.
- Enarson, E., & Meyreles, L. (2004). International perspectives on gender and disaster: Differences and possibilities. *International Journal of Sociology and Social Policy*, 24(10/11), 48-93.
- Enarson, E. (2005). *Women hard-hit by Hurricane Katrina disaster*. Denver Post.

- Enarson, E., & Chakrabarti, P.G.D. (2009). *Women, Gender, and Disaster*. India: Sage Publication Privat Limited.
- Enarson, E. (2010). *A gendered human rights approach to rebuilding after disaster rebuilding sustainable communities for children and their families after disasters: a Global Survey (Vol. 13, pp. 13-28)*. Cambridge: Cambridge Scholars Publishing in association with GSE Research.
- Enarson, E. P. (2012). *Women confronting natural disaster: From vulnerability to resilience* (p. 245). Boulder, CO: Lynne Rienner Publishers.
- Enarson, E. (2014). Human security and disasters. *Human Security and Natural Disasters*, 37.
- Enarson E., Morrow, H. M. (1998). Why gender? Why women? An introduction to women and disaster. In Morrow, H.M. (Ed.). *The gendered terrain of disaster-through women's eyes* (pp. 2-5). London: Prager Publishers.
- Escamilla, E. Z., & Habert, G. (2015). Global or local construction materials for post-disaster reconstruction? Sustainability assessment of twenty post-disaster shelter designs. *Building and Environment*, 92(692-702).
- Eshghi, K., & Larson, R.C. (2008). Disasters: Lessons from the Past 105 years. *Disaster Prevention and Management: an International Journal*, 17(1), 62-82.
- Ferradas, P. (2006). Post-disaster housing reconstruction for sustainable risk reduction in Peru. *Open House International*, 31(1), 39-46.
- Fisher, M., Abate, T., Lunduka, R. W., Asnake, W., Alemayehu, Y., & Madulu, R. B. (2015). Drought tolerant maize for farmer adaptation to drought in sub-Saharan Africa: Determinants of adoption in eastern and southern Africa. *Climate Change*, 133(2), 283-299.
- Fordham, M. (2003). Gender, disaster and development. In Pelling, M. (Ed.), *Natural Disasters and Development in a Globalization World*. London: Routledge.
- Fordham, M. (2009). We can make things better for each other: Women and girls organise to reduce disasters in Central America'. In Enarson E. (Ed.), *Gender and Disaster: Global Issues and Initiatives* (pp. 175-188). India: Sage.
- Fothergill, A. (1996). The neglect of gender in disaster work: An overview of the literature. *The International Journal of Mass Emergencies and Disasters*, 14(1), 33-56.
- Gaillard, J. C., Fordham, M & Kristinne. (2015). Culture, gender, and disaster cultures and disasters: understanding cultural framings in *Disaster Risk Reduction* (Vol. 222).
- Garcia, C. C., & Zuniga, L.E.R. (2006). Balancing gender vulnerabilities and capacities in the framework of comprehensive disaster risk management: The Case of Mexico in Enarson E. (Ed.), *Women, Gender, and Disaster: Global Issues and Initiatives*. New Delhi: Sage Publication India Pvt Ltd.
- Ghuri, P. N., & Grønhaug, K. (2005). *Research methods in business studies: A practical guide*. Pearson Education.
- Gill, J., & Johnson, P. (2002). *Research methods for managers, 3rd ed*. London: Sage Publications.
- Ginige, K., Amaratunga, D. & R. Haigh. (2009). Mainstreaming gender in disaster reduction: Why and How? *Disaster Prevention and Management*, 18(1), 23-34.
- Ginige, K., Amaratunga, D., & Haigh, R. (2014). Tackling women's vulnerabilities through integrating a gender perspective into disaster risk reduction in the built environment. *Procedia Economics and Finance*, 18, 327-335.
- Ginige, K. N., Amaratunga, D., & Haigh, R. P. (2010). Mainstreaming women into disaster reduction decision making in the built environment: Research methodological perspectives. *Paper presented at the CIB 2010*, University of Salford, UK.
- Gopalan, P. (2001). The many faces of micro-credit. *Humanscape*, 6.

- Gritti, A. (2015). Building aid workers' resilience: Why a gendered approach is needed. *Gender and Development*, 23(3), 449-462.
- Grootaert, C. (1999). *Social capital, household welfare, and poverty in Indonesia*. World Bank Policy Research Working Paper. Indonesia: World Bank.
- Grootaert, C., & Van Bastelaer, T. (Eds.). (2002). *The role of social capital in development: An Empirical Assessment*. Cambridge: Cambridge University Press.
- Guba, E. G., & Lincoln, Y.S. (1994). Competing paradigms in qualitative research. In Denzin, Y.S. (Ed.), *Handbook of Qualitative Research*. Thousand Oak, Canada: Sage Publications.
- Guha-Sapir, D., Vos, F., Below, R., & Ponslerre, S. (2011). *Annual disaster statistical review 2010: The numbers and trends*. Brussel: Centre for Research on the Epidemiology of Disaster, Universite' Catholique de Louvain.
- Gummesson, E. (1991). *Qualitative methods in management research*. London: Sage Publications.
- Gunasekara, A. J. R. (2006). Building capacity for sustainable and participatory post0tsunami rebuilding. *Paper presented at the International Conference and Student Competition on Post-Disaster Reconstruction: Meeting Stakeholders Interest*, Florence, Italy.
- Haddow, G. D., & Bullock, J. A. (2003). *Introduction to emergency management*. New York, NY: Butterworth Heinemann.
- Haigh, R., & Amaratunga, D. (2010). An integrative review of the built environment discipline's role in the development of society's resilience to disasters. *International Journal of Disaster Resilience in the Built Environment*, 11(1), 11-24.
- Hamdi, N. (1990). *Housing without houses: Participation, flexibility, enablement*. New York: John Wiley and Sons.
- Hannan, C. (2004). Gender mainstreaming: A key strategy for promoting gender equality at national level. UN-ESCAP High-level Intergovernmental Meeting to Review Regional Implementation of the Beijing Platform for Action and its Regional and Global Outcomes, 7-10 September 2004
- Henderson, H. (1983). The warp and the weft, the coming synthesis of Eco-philosophy and Eco-feminism. In Caldecott, L. & Leland, S. (Ed.), *Reclaim the earth: women speak out for life on earth*. London: Women's Press.
- Hewitt, K. (1995). Excluded perspectives in the social construction of disaster. *International Journal of mass emergencies and disasters*, 13(3), 317-339.
- Hines, R. (2007). Natural disasters and gender inequalities: The 2004 Tsunami and the case of India. *Race, Gender, and Class*, 14(1/2), 60-68.
- Hirut, T. (2004). Violence against women in Ethiopia: a strong case of civil society concern. In Chowdhury, S., Wais, A., & Giorgis, K. W. (Ed.), *Civil society in Ethiopia: Reflections on realities and perspectives of hope*. Ethiopia: African-Asian Studies Promotion Association.
- Holling, C. S., Gunderson, L.H., & Peterson, G.D. (2002). Sustainability and anarchies. In Gunderson, H. & Holling, C.S. (Ed.), *Panarchy: Understanding transformations in human and natural systems (pp. 63-102)*. Washington, DC: Island Press.
- Hudson, A. (2002). Advocacy by UK-based development NGOs. *Nonprofit and Voluntary Sector Quarterly*, 31(3), 402-418.
- Hughes, J. (1994). *The philosophy of social research*. Essex: Longman.
- Hunt, S. D. (1993). Objectivity in marketing theory and research. *Journal of Marketing*, 57(2), 76-91.
- Hussey, J. A. R. H. (1997). *Business research: a practical guide for undergraduate and postgraduate students*. London: Macmillan.
- IFRC. (2005). Focus on reducing risk [Press release]

- IUCN/UNEP/WWF. (1991). *Caring for the earth: A Strategy for sustainable living*, Gland, Switzerland.
- Imran, S., Alam, K., & Beaumont, N. (2014). Reinterpreting the definition of sustainable development for a more ecocentric reorientation. *Sustainable Development*, 22(2), 134-144.
- Ingram, J. C., Guillermo, F., Rumbaitis-del Rio, C., & Khazai, B. (2006). Post-disaster recovery dilemmas: Challenges in balancing short-term and long-term needs for vulnerability reduction. *Environmental Science and Policy*, 9(7/8), 607-613.
- International Strategy for Disaster Reduction. (2002). *Gender mainstreaming in disaster reduction*. Geneva: UNISDR.
- Ismail, D., Majid, T. A., Roosli, R., & Ab Samah, N. (2014). Project management success for post-disaster reconstruction projects: international NGOs perspectives. *Procedia Economics and Finance*, 18, 120-127.
- Jabeen, H. (2014). Adapting the built environment: The role of gender in shaping vulnerability and resilience to climate extremes in Dhaka. *Environment and Urbanization*, 26(1), 147-165.
- Jauhola, M. (2010). Building back better? Negotiating normative boundaries of gender mainstreaming and post-tsunami reconstruction in Nanggroe Aceh Darussalam, Indonesia. *Review of International Studies*, 36, 29-50.
- Jayaraj, A. (2007). *Post-disaster Reconstruction Experiences in Andhra Pradesh*, In India. Retrieved from <http://www.grif.umontreal.ca/pages/i-rec%20papers/annie.pdf>
- JRF (2011) *Java Reconstruction Fund Progress Report*, Indonesia: JRF.
- Jigyasu, R. (2002, 23-25 May). From Marathwada to Gujarat - emerging challenges in post-earthquake rehabilitation for sustainable eco-development in South Asia. *Paper presented at the First International Conference on Post-disaster Reconstruction: Improving Post-disaster Reconstruction in Developing Countries*, Montreal, Canada.
- Jigyasu, R. (2004). Sustainable post-disaster reconstruction through integrated risk management - the case of rural communities in South Asia. *Paper presented at the Post-disaster Reconstruction: Planning for Reconstruction*. Coventry, UK.
- Johnson, P., & Duberley, J. (2000). *Understanding management research: An introduction to epistemology*. Sage.
- Jones, T. L. (2006). *Mind the gap! Post-disaster reconstruction and the transition from humanitarian relief*. London: RICS.
- Kabira, W. M., & Masinjila, M. (1997). *ABC of gender analysis*. Kenya: Forum for African Women Educationalists (FAWE).
- Kaglioglou, M., Cooper, R., Aouad, G., & Sexton, M. (2000). Rethinking construction: The generic guide to the design and construction process protocol. *Engineering Construction and Architectural Management*, 7(2), 141-153.
- Kennedy, J., Ashmore, J., Babister, E., & Kelman, I. (2008). The meaning of 'build back better': evidence from post-tsunami Aceh and Sri Lanka. *Journal of Contingencies and Crisis Management*, 16(1), 24-36.
- Khan, S., Cao, Q., Zheng, Y.M., & Zhu, Y. G. (2008). Health risks of heavy metals in contaminated soils and food crops irrigated with wastewater in Beijing, China. *Environmental Pollution*, 152(3), 686-692.
- Khatun, H. (2003). Livelihood strategies in disaster risk reduction in Bangladesh. In Sahni, P. & Ariyabandhu, M. (Ed.), *Disaster Risk Reduction in South Asia*. New Delhi: Prentice Hall of India private Limited.

- Khrisnaraj, M. (1997). Gender issues in disaster management: The Latur Earthquake. *Gender, Technology, and Development*, 1(3), 395-411.
- Kim, K., & Olshansky, R. B. (2014). The theory and practice of building back better. *Journal of the American Planning Association*, 80(4), 289-292.
- Lam, N. S., Arenas, H., Brito, P. L., & Liu, K. B. (2014). Assessment of vulnerability and adaptive capacity to coastal hazards in the Caribbean Region. *Journal of Coastal Research*, 70(473).
- Leach, M. (2015). *Gender equality and sustainable development*: Routledge.
- Leedy, P. (1989). *Practical research*. New York: Macmillan.
- Lewis, J. (1999). *Development in disaster-prone places: Studies of vulnerability*. London: Intermediate Technology.
- Lindell, M. K. (2010). Built-in resilience. *Nature Geoscience*, 3, 739-740.
- Lizarralde, G., Johnson, C., Davidson, C. (Eds.). (2010). *Rebuilding after disasters: From emergency to sustainability*. Abingdon, UK: Spoon Press.
- Lizarralde, G., Chmutina, K., Boshier, L., & Dainty, A. (2015). Sustainability and resilience in the built environment: The challenges of establishing a turquoise agenda in the UK. *Sustainable Cities and Society*, 15, 96-104.
- Mannakkara, S., Wilkinson, S., & Francis, T. R. (2014). "Build back better" principles for reconstruction. In Beer, M., Kougioumtzoglou, I. A., Patelli, E., & Siu-Kui Au, I. (Ed.), *Encyclopaedia of Earthquake Engineering* (pp. 1-12). Netherlands: Springer.
- Mannakkara, S., & Wilkinson, S. (2014). Re-conceptualising "building back better" to improve post-disaster recovery. *International Journal of Managing Projects in Business*, 7(3), 327-341.
- Mannakkara, S., & Wilkinson, S. (2015). Supporting post-disaster social recovery to build back better. *International Journal of Disaster Resilience in the Built Environment*, 6(2).
- Maskrey, A. (1989). *Disaster mitigation: a community based approach*. California: Oxfam publication.
- Mason, J. (2002). *Qualitative Researching, 2nd ed.* London: Sage Publication.
- Maxwell, J. A. (2005). *Qualitative research design (Vol. 41)*. London: Sage Publication.
- Mayner, L., & Arbon, P. (2015). Defining disaster: The need for harmonisation of terminology. *Australasian Journal of Disaster and Trauma Studies*, 19.
- McCarty, J. F. (2014). Using community led development approaches to address vulnerability after disaster: Caught in a sad romance. *Global Environmental Change*, 27, 144-155.
- McEntire, D. A. (2001). Triggering agents, vulnerabilities and disaster reduction: towards a holistic paradigm. *Disaster Prevention and Management*, 10(3), 189 - 196.
- McEntire, D. A., Crocker, G., & Peters, E. (2010). Addressing vulnerability through an integrated approach. *International Journal of Disaster Resilience in the Built Environment*, 1(1), 50-64.
- McLaughlin, & Dietz, T. (2007). Structure, agency, and environment: toward an integrated perspective on vulnerability. *Global Environmental Change*, 39(4), 99-111.
- McLeod, L. (2015). Post-Tsunami reconstruction in Indonesia: Negotiating normativity through gender mainstreaming initiatives in Aceh by Marjaana Jauhola. *Political Studies Review*, 13(2), 285-285.
- Meadowcroft, J. (1999). Planning for sustainable development: What can be learned from the critics? In M. Kenny, & Meadowcroft, J. (Ed.), *Planning Sustainability* (pp. 12-38). London: Routledge.
- Meadows, D. H., Meadows, D.L., Randers, J., & Behrens III, W. (1972). The limits to growth. In Conca, K. & Dabelko, G. D. (Ed.), *Green planets blues: Critical perspectives on global environmental politics*. Boulder, Colorado: Westview Press.

- Metri, B. A. (2006). Disaster mitigation framework for India using quality circle approach *Disaster Prevention and Management: an International Journal*, 15(4), 621-635.
- Mies, M., & Shiva, V. (1993). *Ecofeminism*: Zed Books.
- Miles, M. B., & Hubberman, A.M. (1994). *Qualitative data analysis*, 2nd ed. London: Sage Publication Ltd.
- Mileti, D. S. (1999). *Disaster by design: A reassessment natural hazards in the United States*. Washington D.C: Joseph Henry Press.
- Moe, L. M., & Pathranarakul, P. (2006). An integrated approach to natural disaster management: public project management and its critical success factors. *Disaster Prevention and Management*, 15(3), 396-413.
- Momsen, J. H. (2007). Gender and agro-biodiversity: Introduction to the Special Issue. *Singapore Journal of Tropical Geography*, 28, 1-6.
- Morchain, D., Prati, G., Kelsey, F., & Ravon, L. (2015). . . (2015). What if gender became an essential, standard element of vulnerability assessments? *Gender and Development*, 23(3), 481-496.
- Morrow, B., & Enarson, E. (1996). Hurricane Andrew through women's Eyes: Issues and recommendations. *International Journal of mass Emergencies and disasters*, (14), 5-22.
- Moser, C. (2012). Mainstreaming women's safety in cities into gender-based policy and programs. *Gender and Development*, 20(3), 435-452.
- Moser, C., & Moser, A. (2005). Gender mainstreaming since Beijing: a review of success and limitations in international institutions. *Gender & Development*, 13(2), 11-22
- Moser, C. (1989). Gender planning in the Third World: Meeting practical and strategic gender needs. *World Development*, 17(11), 1799-1825.
- Moser, C. (1993). *Gender planning and development: Theory, practice, and training*. London: Routledge.
- Moser, C. (1998). The asset vulnerability framework: reassessing urban poverty reduction strategies. *World Development*, 26(1), 1-19.
- Mukhopadhyay, M. (2014). Mainstreaming gender or reconstituting the mainstream? Gender knowledge in development. *Journal of International Development*, 26(3), 356-367.
- Mukuria, A., Aboulaifa, C., & Themme, A. (2005). *The context of women's health: results from the demographic and health surveys 1994-2001*. Maryland: ORC Macro.
- Murray, C. J. (2015). Shifting to sustainable development goals-implications for global health. *New England Journal of Medicine*, 373(15), 1390-1393.
- Muzaffer, B., & Omer, F. (2006). Post-disaster reconstruction in rural and urban areas of Turkey. *Paper presented at the International Conference and Student Competition on Post-disaster Reconstruction*, Florence.
- National Disaster Management Agency. (2009). *Evaluation on reconstruction earthquake areas at Jogjakarta and Central Java*. Retrieved from National Disaster Management Agency website: www.bnpb.go.id
- National Disaster Management Agency. (2016). Indonesia's current disasters status. BNPB: Jakarta.
- Neumayer, E. (2003). *Weak versus Strong Sustainability: Exploring the Limits of Two Opposing Paradigms*. Cheltenham: Edward Elgar.
- Neumayer, E., Plümper, T., & Barthel, F. (2014). The political economy of natural disaster damage. *Global Environmental Change*, 24, 8-19.
- Nguyen, T. P., & Chileshe, N. (2015). Revisiting the construction project failure factors in Vietnam. *Built Environment Project and Asset Management*, 5(4), 398-416.

- Nhundu, K., Mushunje, A., & Aghdasi, F. (2015). *Nature and role of water institutions-implications to irrigation water management in Zimbabwe*.
- Norton, J., & Chantry, G. (1993). Promoting principles for better typhoon resistance in buildings - a case study in Vietnam natural disasters: *Protecting Vulnerable Communities* (pp. 533-546). London.
- Norris, F. H., Stevens, S. P., Pfefferbaum, B., Wyche, K. F., & Pfefferbaum, R. L. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American journal of community psychology*, 41(1-2), 127-150.
- Oakley, A. (2015). *Sex, gender and society*. London: Ash gate Publishing, Ltd.
- OECD (2010), Women economic empowerment series, SIDA.
- Ofori, G. (2002). Construction industry development for disaster prevention and response. *Paper presented at the i-Rec International Conference on Post-Disaster Reconstruction: Planning for reconstruction*.
- Oliver, P. (2012) *Succeeding with your literature review: A handbook for students*. Berkshire: McGraw-Hill International.
- Oliver-Smith, A. (1982). Here there is life: the social and cultural dynamics of successful resistance to resettlement in post disaster Peru. In Hansen, A. & Oliver-Smith, A. (Ed.), *Involuntary migration and resettlement: the problems and responses of dislocated people* (pp. 85-103). Boulder, Colorado: Westview Press.
- Ophiyandri, T., Amaratunga, D., Pathirage, C., & Keraminiyage, K. (2013). Critical success factors for community-based post-disaster housing reconstruction projects in the pre-construction stage in Indonesia. *International Journal of Disaster Resilience in the Built Environment*, 4(2), 236-249.
- Orlikowski, W. J., & Baroudi, J.J. (1991). Studying information technology in organizations: Research approaches and assumptions. *Inform System Res.*, 2(1), 1-28.
- Østergaard, Lise (1992): "Gender", in Lise Østergaard (ed.), *Gender and Development: A Practical Guide*. London and New York: Routledge, 1-10.
- Oxfam. (2005). *Oxfam Briefing Note: The Tsunami's Impact on Women*.
- Oxfam (2010). *Gender, disaster risk reduction, and climate change adaptation: A learning companion Oxfam disaster risk reduction and climate change adaptation resources*. Wales: Scotland.
- Palliyaguru, R., & Amaratunga, D. (2011). Linking reconstruction to sustainable socio-economic development. In Amaratunga, D. & Haigh, R. (Ed.), *Post-disaster reconstruction of the built environment: Rebuilding for resilience* (pp. 268-286). New Delhi, India: Wiley-Blackwell, A. John Wiley and Sons.
- Palliyaguru, R., Amaratunga, D., & Baldry, D. (2013). Constructing a holistic approach to disaster risk reduction: the significance of focusing on vulnerability reduction. *Disasters*, 38(1), 45-61.
- Parpart, J. L. (2014). Exploring the transformative potential of gender mainstreaming in international development institutions. *Journal of International Development*, 26(3), 382-395.
- Passerini, E. (2001). Who is to blame for the failures of sustainable reconstruction projects? *Natural Hazards Review*, 2 (2), 45-53.
- Patel, V., Rodrigues, M., & DeSouza, N. (2014). Gender, poverty, and postnatal depression: a study of mothers in Goa, India. *American Journal of Psychiatry*.
- Peacock, W. G., Dash, N., & Zhang, Y. (2007). *Sheltering and housing recovery following disaster handbook of disaster research* (pp. 258-274). New York: Springer.

- Pelling, M., & Castree, B.B.N. (2001). *Natural disasters? Social nature: Theory, practice and politics*. Oxford: Blackwell.
- Peng, Y., Shen, Q., Shen, L., Lu, C., & Yuan, Z. (2014). (2014). A generic decision model for developing concentrated rural settlement in post-disaster reconstruction: a China study. *Natural hazards*, 71(1), 611-637.
- Petak W.J. & Elahi. S. (2000). The Northridge Earthquake, USA, and its Economic and Social Impact. *Paper presented at the Euro Conference on Global Change and Catastrophe Risk Management, Earthquake Risks in Europe*, Luxemburg, Austria.
- Peterman, A., Behrman, J. A., & Quisumbing, A. R. (2014). *A review of empirical evidence on gender differences in nonplan agricultural inputs, technology, and services in developing countries*. Netherlands: Springer
- PODES. (2013). *Village Potential Census*. Indonesia: BPS.
- Punch, K. (2005). *Introduction to social research: Quantitative and qualitative approaches*, 2nd ed. London: Sage.
- PSKP UGM (2011). *Studi dampak gempa bumi Yogyakarta terhadap kesehatan mental*. UGM: Yogyakarta.
- Putnam, R. D. (1993). *Making democracy work: Civic traditions in modern Italy*. Chichester: Princeton University Press.
- Ragin, C. C. (1987). *The comparative method: Moving beyond qualitative and quantitative strategies*. California: University of California Press.
- Razavi, S. (2012). World Development Report 2012: Gender equality and development-a commentary. *Development and Change*, 43(1), 423-437.
- Redclift, M., & Springett, D. (2015). *Routledge international handbook of sustainable development*. London: Routledge.
- Remenyi, D., Williams, B., Money, A., & Swartz, E. (1998). *Doing research in business and management: An introduction to process and method*. London: Sage.
- Reynolds, J. M. (1993). *The development of combined regional strategy for power generation and natural hazard risk assessment in a high-altitude glacial environment: an example from the Cordillera Blanca, Peru* *Natural Disasters: Protecting Vulnerable Communities* (pp. 38-50). London: Thomas Telford.
- Ridley, D.M. (2008). *The literature review: A step-by-step guide for students*. London: Sage publications.
- Sabat, A. K. D., B. (2007). *Women and natural disaster national level workshop on disaster and gender*. New Delhi: Serials Publications.
- Saito, Y. (2014). Progress or repetition? Gender perspectives in disaster management in Japan. *Disaster Prevention and Management*, 23(2), 98-111.
- Saunders, M., Lewis, P., & Thornhill A. (2009). *Research methods for business students*, 4th ed. Essex: Pearson Education Ltd.
- Schech, S., & Mohamad Mustafa, M. (2010). The politics of gender mainstreaming poverty reduction: An Indonesian case study. *Social Politics: International Studies. Gender, State, and Society*, 17(1), 111-135.
- Schreier, M. (2012). *Qualitative content analysis in practice*. Sage Publications.
- Schwoebel, M. (2004). Mainstreaming gender in disaster management support project, *Prepared by Centre to Development and Population Activities (CEDPA) and Chemotic International Inc*. India: USAID.

- Seager, J. (2014). *Disasters are gendered: what's new? Reducing disaster: early warning systems for climate change* (pp. 265-281). Netherlands: Springer.
- Sen, A. (2001). Population and gender equity. *Journal of public health policy*, 22(2), 169-174.
- Sekaran, U. (2003). *Research methods for business: A skill-building approach, 4th Eds.* New York; Chichester. New Jersey: John Wiley and Sons.
- Sexton, M. (2007). A supple approach to exposing and challenging assumption and PhD path dependencies in research. *Paper presented at The 3rd International Postgraduate Research Conference*, Lisbon.
- Sleman Bureau of Statistics. (2007). *Sleman in figure 2006*. Bantul: BPS.
- Shaluf, I. M., Ahmadun, F., & Said, A. M. (2003). A review of disaster and crisis. *Disaster Prevention and Management*, 12(1), 24-32.
- Shaluf, I. M. (2007). An overview on disasters. *Disaster Prevention and Management: an International Journal*, 16(5), 687-703.
- Shortall, S., & Bock, B. (2015). Introduction: Rural women in Europe: the impact of place and culture on gender mainstreaming the European Rural Development Programme. *Gender, Place and Culture*, 22(5), 662-669.
- Silverman, D. (2001). *Interpreting qualitative data: Methods for analysing talk, text, and interaction*, 2nd ed. London: Sage publication.
- Sinvhal, A. (2010). *Understanding earthquake disasters*. New Delhi: Tata McGraw Hill Education Pvt. Limited.
- Smith, G. P., & Wenger, D. (2007). Sustainable disaster recovery: operationalizing an existing agenda. In Rodriguez, H., Quarantelli, E.L., & Dynes, R.R. (Ed.), *Handbook of Disaster Research* (pp. 234-257). London: Springer.
- Smyth, I., & Sweetman, C. (2015). Introduction: Gender and resilience. , 23(3), 405-414. *Gender and Development*, 23(3), 405-414.
- Spence, J. T., & Helmreich, R. L. (2014). *Masculinity and femininity: Their psychological dimensions, correlates, and antecedents*. Texas: University of Texas Press.
- Steans, J. (2013). *Gender and international relations*. New Jersey: John Wiley and Sons.
- Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge University Press.
- Survey, U. S. G. (2011). Earthquake facts and statistics graphs largest and deadliest earthquakes by year: 1990 - Present.
- The Ministry of Women Empowerment (2016). *Progress of gender development in Indonesia*. Jakarta: The Ministry of Women Empowerment.
- The Ministry of Health (2009). *National Health Status Report*. Jakarta: The Ministry of Health.
- Thiruppugazh, V. (2007). Post-disaster reconstruction and the window of opportunity: a review of select concepts JTCDM Working Paper Series No. 3 Models and Research Studies. Mumbai: Tata Institute of Social Sciences Malati and Jal A.D. Naoroji (New) Campus.
- Thurairajah, N., Amaratunga, D., & Haigh, R. (2008). *Post-disaster Reconstruction as an opportunity for development: women's perspective*. Retrieved from http://usir.salford.ac.uk/9809/1/post_disaster.pdf website:
- Thurairajah, N., Amaratunga R.D.G., & Haigh, R. (2010). Gender inequality in post-disaster reconstruction: Does it prevail? *Paper presented at the COBRA 2010, Dauphine Universite, and Paris*.
- Trohanis, Z., & Read, G. (2010). *Housing reconstruction in urban and rural areas, East Asia and the Pacific (EAP)*, Disaster Risk Management notes working papers series.

- UNDP. (1992). *Global issue of disaster management and built environment*. Retrieved from <http://www.un.org/en/globalissues/environment/> website:
- UNDP. (2010). *Human development report 2010: The Real Wealth Nations: Pathways to human development (20th Anniversary Edition)*. New York: United Nations.
- UNDP. (2013). Fast Fact: Gender in Crisis Countries.
- UNDP. (2016). Technical Notes: Human Development Report 2016 Human Development for Everyone, New York: USA.
- UNDP. (2010). Technical Notes: Gender Inequality Index, New York: USA.
- UNEP & SKAT. (2007). *After the Tsunami: Sustainable building guidelines for South East Asia*: UNEP and SKAT
- UN-HABITAT. (2006). Post tsunami settlement recovery monitoring in Aceh.
- UNISDR. (2006). Guidelines for gender sensitive disaster management.
- UNISDR (2005) Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters.
- UNISDR. (2009). *Terminology on DRR* Retrieved from <http://www.unisdr.org/we/inform/terminology#letter-d> website:
- UNISDR. (2011). *HFA Progress in Asia-Pacific, Regional Synthesis Report 2009-2011* http://www.unisdr.org/files/21158_hfaprogressinasiapacific20092011.pdf,
- UNISDR. (2015). *Global assessment report on disaster risk reduction 2015*. Geneva, Switzerland.
- UNISDR (2015) Proceedings Third UN World Conference on Disaster Risk Reduction, 14-18 March 2015, Sendai-Japan.
- United Nations. (1992). *Special rapporteur's second report (n 12) 194: and UN Department of Humanitarian Affairs, Internationally agreed glossary of basic terms related to disaster management*. UN Doc. DHA/93/36.
- United Nations (1996). Report of the Fourth World Conference on Women. Beijing 4-15 September 1995. UN: New York.
- United Nations. (1997) United Nations Economic and Social Council (ECOSOC) July.
- United Nations. (2002). *Gender mainstreaming an overview*. Retrieved from <http://www.un.org/womenwatch/osagi/pdf/e65237.pdf>
- United Nations. (2015). *The Sendai Framework for Disaster Risk Reduction 2015-2030*, Sendai: Japan.
- United Nations. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development*. New York: USA: United Nations.
- United Nations Economic Commission for Latin America and the Caribbean (UNECLAC). (2003). *Handbook for Estimating the Socioeconomic and Environmental Effects of Disasters*. Santiago, Chile: UNECLAC.
- United Nations (2015). UN Sustainable Development Knowledge Platform.
- United Nations (2015). Resolution adopted by the General Assembly on 25 September 2015.
- United Nations (2016). *Global Sustainable Development Report 2016*, Department of Economic and Social Affairs, New York, July
- Valdes, H. M. (2009). A gender perspective on disaster risk reduction. In Enarson, E. & Chakrabarti, P.G.D. (Ed.), *Women, gender and disaster: Global issues and initiatives*. India: Sage Publication India Pvt Limited.
- Van Niekerk, D. (2007). Disaster risk reduction, disaster risk management: academic rhetoric or practical reality. *Disaster Management South Africa*, 4(1), 6.
- Vargas, C. M. (2002). Women in sustainable development: empowerment through partnership for healthy living. *World Development*, 30(9), 1539-1560.

- Vatsa, K. S. (2004). Risk, vulnerability and asset-based approach to disaster risk management. *International Journal of Sociology and Social Policy*, 24(10/11), 1-48.
- Vaughan, E. (2014). *Reconstructing communities: participatory recovery planning in post-disaster Japan*. (PhD), Cornell University.
- WCED. (1987). *Our common future*. World Commission on Environment and Development Oxford University Press, Oxford.
- Weichselgartner, J. (2001). Disaster mitigation: the concept of vulnerability revisited. *Disaster Prevention and Management*, 10(2), 85-95.
- Weichselgartner, J. (2001). Disaster mitigation: the concept of vulnerability revisited. *Disaster Prevention and Management: an International Journal*, 10(2), 85-95.
- Wellington, J.J., Bathmaker, A., Hunt, C., McCulloch, G. & Sikes, P. (2005) *Succeeding with Your Doctorate*. London: Sage publications.
- Wilkinson, S., Chang-Richards, A. Y., & Rotimi, J. O. B. . (2014). *Reconstruction following earthquake disasters encyclopaedia of earthquake engineering (pp. 1-11)*. Berlin: Springer Berlin Heidelberg.
- Wisner, B. (2003). Sustainable suffering? Reflections on development and disaster vulnerability in the Post-Johannesburg World. *Regional Development Dialogue*, 24(1; SEAS SPR), 135-148.
- Wisner, B., Blaikie, P., & Cannon, T. (2004). *At risks natural hazards, people's vulnerability and disasters*. London and New York: Routledge.
- World Bank. (2003). *World Development Report 2004: Making services work for poor people*. Washington DC: World Bank and Oxford University Press.
- World Bank. (2011). *Building on success: JRF effectively respond to multiple disasters in Yogyakarta, Indonesia*. World Bank: Jakarta.
- World Bank. (2012). *World Development Indicators 2012*. Washington DC, USA: the World Bank Group.
- Yaoxian, Y. (2002). Chinese experience with post-natural-disaster reconstruction. *Paper presented at the First International Conference on Post-Disaster Reconstruction: Improving Post-Disaster Reconstruction in Developing Countries*, Canada.
- Yaoxian, Y., & Okada, N. (2002). Integrated relief and reconstruction management following a natural disaster. *Paper presented at the Second Annual IIASA-DPRI Meeting, Integrated Disaster Risk Management: Megacity Vulnerability and Resilience*, Luxemburg, Austria.
- Yi, H., & Yang, J. (2014). Research trends of post-disaster reconstruction: The past and the future. *Habitat International*, 42, 21-29.
- Yin, R. K. (2009). *Case study research: design and methods, fourth edition*. California: Sage Publication.
- Yin, R. K. (2017). *Case study research and applications: Design and methods*. SAGE Publications.
- Yonder, A., Akcar, S., & Gopalan, P. (2005). Women's participation in disaster relief and recovery. In P. Council (Ed.), *Seeds Pamphlet of Population Council* (Vol. 22). New York: Population Council.
- Yumarni, T. & Amaratunga, D. (2017). Resource capability for local government in mainstreaming gender into disaster risk reduction: Evidence from Bantul Indonesia. *Journal of Regional and City Planning*, 28(2).
- Yumarni, T., Amaratunga, D., & Haigh, R. (2014). Assessing gender vulnerability within post-earthquake reconstruction: case study from Indonesia. *Procedia Economics and Finance*, 18, 763-771.

- Yumarni, T., & Amaratunga, D. (2015). Resource capability for local government in mainstreaming gender into disaster risk reduction: evidence from Indonesia. Research Report. UNISDR.
- Yumarni, T., Amaratunga, D., & Haigh, R. (2013). Gender Mainstreaming and Sustainable Post Disaster Reconstruction. *Proceedings of the ANDROID Doctoral School*.
- Yumarni, T. (2015). Women capacity, community resilience and sustainable post disaster reconstruction: case study from Indonesia. *Jurnal Ilmiah Administrasi Publik*, 1(1).
- Yumarni, T., Amaratunga, D., & Haigh, R. (2014), Women capacity, community resilience, and sustainable post-disaster reconstruction: case study from Indonesia, *2nd ANDROID Residential School*, 8-10 September, Media City UK, the University of Salford, UK the proceeding available at <http://www.disaster-resilience.net/images/Outputs/WP3/rds2014/annex%203.8.5.compressed.pdf>
- Yumarni, T., Amaratunga, D., & Haigh, R. (2013), Gender mainstreaming and sustainable post-disaster reconstruction: a literature review, *International Postgraduate Research Conference (IPGRC) 2013*, 8-10 April, Media City, University of Salford, UK
- Zetter, R. W. a. B., C. (2007). Gendering space for forcibly displaced women and children: concepts, policies and guidelines working *paper commissioned by the Inter-University Committee on International Migration for the United Nations Population Fund*. New York, NY: the United Nations Population Fund.

Appendix A: Semi structure Interview guide

Interview guide for policy makers:

Section 1: Date, time and location

Date :

Time :

Location:

Section 2: Informant characteristics

Name :

Address:

Contact detail : Phone: /Mobile phone: /email:

Office :

Sex : Female/male

Age :

Job :

Roles :

Working experience:

Section 3: Questions

1. What is your current position?
2. How long you work in the current position?
3. What is your main responsibilities as a policy maker during reconstruction?
4. What is your roles as a policy maker and how you do it during reconstruction?
5. What are vulnerabilities face by women and men during reconstruction?
6. What are the biggest vulnerabilities issues face by women and men during reconstruction?
7. What types of women and men capacity revealed during reconstruction?
8. What are the most important women and men capacity that significantly support reconstruction?
9. How is the sustainability of reconstruction in the district? Do you thinks the benefits of reconstruction sustainable?
10. Could you please explain more detailed economic, social and environmental sustainability achieved during reconstruction?

11. Do you think that gender mainstreaming can promote sustainability in post-earthquake reconstruction? In what ways can gender mainstreaming promote sustainability in post-earthquake reconstruction in the district?
12. What are strategies were used by district government to mainstreaming gender during each phase of reconstruction?
13. How gender mainstreaming is integrated in reconstruction policy? What are the roles of policy makers in promoting gender mainstreaming during reconstruction policy?
14. How gender mainstreaming strategies is applied during planning, implementation, monitoring and evaluation of reconstruction?
15. Does gender analysis always used as a part of the context analysis during reconstruction planning? How gender analysis was conducted within reconstruction planning?
16. How and to what extent reconstruction accommodate women as well as men concerns and needs during reconstruction planning, implementation, monitoring and evaluation?
17. How and to what extent reconstruction seek to address gender issues and gaps through addressing needs of men and women during reconstruction planning, implementation, monitoring and evaluation?
18. What is enabling and hinder factors in involving women and men within reconstruction planning, implementation, monitoring and evaluation?
19. How policy makers and communities solve various challenges to increase participation of women and men during reconstruction planning, implementation, monitoring and evaluation?
20. What constraining and enabling factors affect the mainstreaming of gender into sustainable post-earthquake reconstruction in the district?

Interview guide for policy implementers:

Section 1: Date, time and location

Date :

Time :

Location:

Section 2: Informant characteristics

Name :

Address:

Contact detail : Phone: /Mobile phone: /email:

Office :

Sex : Female/male

Age :

Job :

Roles :

Working experience:

Section 3: Questions

1. What is your current position?
2. How long you work in the current position?
3. What is your main responsibilities as an implementer?
4. What is your roles as an implementer and how you do it during reconstruction?
5. What are vulnerabilities face by women and men during implementing reconstruction?
6. What are the biggest vulnerabilities issues face by women and men during implementing reconstruction?
7. What types of women and men capacity revealed during implementing reconstruction?
8. What are the most important women and men capacity that significantly support implementing reconstruction?
9. How is the sustainability of reconstruction in the district? Do you thinks the benefits of reconstruction sustainable?
10. Could you please explain more detailed economic, social and environmental sustainability achieved during implementing reconstruction?

11. Do you think that gender mainstreaming can promote sustainability in post-earthquake reconstruction? In what ways can gender mainstreaming promote sustainability in post-earthquake reconstruction in the district?
12. What are strategies were used by district government to mainstreaming gender during each phase of reconstruction?
13. How gender mainstreaming is integrated in reconstruction policy? What are the roles of policy implementers in promoting gender mainstreaming during reconstruction policy?
14. How gender mainstreaming strategies is applied during planning, implementation, monitoring and evaluation of reconstruction?
15. Does gender analysis always used as a part of the context analysis during reconstruction planning? How gender analysis was conducted within reconstruction planning?
16. How and to what extent reconstruction accommodate women as well as men concerns and needs during reconstruction planning, implementation, monitoring and evaluation?
17. How and to what extent reconstruction seek to address gender issues and gaps through addressing needs of men and women during reconstruction planning, implementation, monitoring and evaluation?
18. What is enabling and hinder factors in involving women and men within reconstruction planning, implementation, monitoring and evaluation?
19. How policy makers and communities solve various challenges to increase participation of women and men during reconstruction planning, implementation, monitoring and evaluation?
20. What constraining and enabling factors affect the mainstreaming of gender into sustainable post-earthquake reconstruction in the district?

Interview guide for beneficiaries:

Section 1: Date, time and location

Date :

Time :

Location:

Section 2: Informant characteristics

Name :

Address:

Contact detail : Phone: /Mobile phone: /email:

Office :

Sex : Female/male

Age :

Job :

Roles :

Working experience:

Section 3: Questions

1. What were the conditions of women and men during and after earthquake?
2. Could you please explain detail situation of women and men during and after the earthquake?
3. What are reconstructions program that had been implemented in your village?
4. Do you think that the program is good? What are the benefits that you received from reconstruction program?
5. Do you participate on the program? To what extent you involve in the program? Please explain your participation in the program since planning to evaluation?
6. How is the sustainability of reconstruction in your village? Do you thinks the benefits of reconstruction sustainable?
7. Could you please explain more detailed economic, social and environmental sustainability achieved during implementing reconstruction?
8. To what extent did reconstruction programs satisfy the needs and concerns of women and men in this village?

9. How were women and men needs and concerns addressed and not addressed during reconstruction in this village?
10. Why women and men issues were successfully or unsuccessfully addressed during reconstruction programs in this village?
11. What were the positive and negative impacts of addressing women and men issues on the sustainability of reconstruction in this village?

Interview guide for experts

Section 1: Date, time and location

Date :

Time :

Location:

Section 2: Informant characteristics

Name :

Address:

Contact detail : Phone: /Mobile phone: /email:

Office :

Sex : Female/male

Age :

Job :

Roles :

Working experience:

1. What are vulnerabilities face by women and men during reconstruction?
2. What are the biggest vulnerabilities issues face by women and men during reconstruction?
3. What types of women and men capacity revealed during reconstruction?
4. What are the most important women and men capacity that significantly support reconstruction?
5. How is the sustainability of reconstruction in the district? Do you think the benefits of reconstruction sustainable?
6. Could you please explain more detailed economic, social and environmental sustainability achieved during reconstruction?

7. Do you think that gender mainstreaming can promote sustainability in post-earthquake reconstruction? In what ways can gender mainstreaming promote sustainability in post-earthquake reconstruction in the district?
8. What are strategies were used by district government to mainstreaming gender during each phase of reconstruction?
9. How gender mainstreaming is integrated in reconstruction policy? What are the roles of policy makers in promoting gender mainstreaming during reconstruction policy?
10. How gender mainstreaming strategies is applied during planning, implementation, monitoring and evaluation of reconstruction?
11. Does gender analysis always used as a part of the context analysis during reconstruction planning? How gender analysis was conducted within reconstruction planning?
12. How and to what extent reconstruction accommodate women as well as men concerns and needs during reconstruction planning, implementation, monitoring and evaluation?
13. How and to what extent reconstruction seek to address gender issues and gaps through addressing needs of men and women during reconstruction planning, implementation, monitoring and evaluation?
14. What is enabling and hinder factors in involving women and men within reconstruction planning, implementation, monitoring and evaluation?
15. How policy makers and communities solve various challenges to increase participation of women and men during reconstruction planning, implementation, monitoring and evaluation?
16. What constraining and enabling factors affect the mainstreaming of gender into sustainable post-earthquake reconstruction in the district?

Appendix B: Questionnaire for beneficiary

GENDER MAINSTREAMING AND SUSTAINABLE POST-DISASTER RECONSTRUCTION: EARTHQUAKE REGIONS IN INDONESIA

BENEFICIARIES SURVEY

Introduction

This survey is a part of Mrs. Tri Yumarni PhD research title “Gender mainstreaming and sustainable post-disaster reconstruction: Earthquake regions in Indonesia” at Salford University UK. This research aims to provide policy relevant findings regarding strategies to mainstreaming gender in order to enhance sustainability of post-earthquake reconstruction at Bantul and Sleman district Yogyakarta Province Indonesia.

Instruction

Please select the most appropriate answer by placing (X) in each question based on your experience and your view during post-earthquake reconstruction in your district. There are no right or wrong in these questions. Your identity is confidential.

Section 1: Respondent characteristics

Name :

Sex :

1. Female
2. Male

Age : years

Address:

RT :

RW :

Village :

District :

Phone :

Education:

1. No schooling
2. Elementary school
3. Junior secondary school
4. High school
5. University

Job :

1. Formal job
2. Non formal job

Do you live in this village when the earthquake strike in 2006?

1. Yes
2. No

How long you live in this village since the earthquake?

1. < 1 year
2. 1-3 years
3. 4-5 years
4. > 5 years

Did you receive reconstruction and livelihood recovery program?

1. Yes
2. No

If yes, what you receive?

1. House, safe water and sanitation
2. Business training and small credit
3. Received both programs

Section 2: Gender vulnerabilities during the earthquake

We would like to ask your opinion about situation of women and men vulnerabilities following the earthquake. 1 means not present at all and 5 means present to a great extent.

	No opinion	Not present at all	Present to a very small extent	Somewhat present	Present	Present to a great extent
Score	0	1	2	3	4	5
<i>Social dimension</i>						
Homelessness among women						
Homelessness among men						
Widows with many dependants						
Women heading household						
Women living alone						
Lack of skills among women						
Lack of access to education and training for women						
Women illiteracy						
Violence against women						
<i>Economic dimension</i>						
Women with debt burden						
Lack of productive assets among women						
Lack of access to jobs and markets among women						
Lack of access to credit among women						
Low wages among women						
<i>Physical dimension</i>						
Women with disabilities						
Men with disabilities						
Pregnant women						
Old women						
Old men						
Malnourishment among women and girls						

Mobilizing and creating rotating savings and credit associations							
Active role in improving micro-, small- and medium-scale enterprises							
Active role in supporting agricultural markets							
Enlarging women's entrepreneurship							
Enlarging partnerships with investors							
Enlarging men entrepreneurship							
Promoting handicraft export							
<i>Social sustainability</i>							
Building and strengthening community social capital							
Creating safe and secure communities							
Improving access to public services							
Improving village decision-making							
<i>Environmental sustainability</i>							
Creating a clean and healthy environment							
Implementing sustainable farming and food production							
Role in creating a friendly housing environment							
Role in waste management and recycling							
Role in maintaining public infrastructures							
<i>Others (please write):</i>							

Section 4: Benefits of mainstreaming gender in post-earthquake reconstruction

We would like to ask your opinion about various benefits of mainstreaming gender within post-earthquake reconstruction for enhancing sustainable development in your village. 1 means unimportant and 5 means very important.

	No opinion	Unimportant	Of little importance	Moderately important	Important	Very important
Score	0	1	2	3	4	5
<i>Economic sustainability</i>						
Reducing women's poverty						
Growing in micro, small and medium enterprises owned by women						
Increasing job opportunities for women						
Increasing job opportunities for men						
Improving children's and family welfare						
Increasing women entrepreneurship						
Improving family income						
<i>Social sustainability</i>						
Increasing security and safety within community						
Strengthening trust, networks and social collaboration within communities						
Increasing health services access particularly for women						
Increasing <i>Posyandu</i> groups						
Increasing educational access for children, particularly girls						
Increasing adaptive capability						
Increasing social participation						
<i>Environmental sustainability</i>						
Increasing areas with earthquake warning systems						
Friendly housing environments that adopt women and men needs						
Increasing safe and clean water and sanitation facilities						
Increasing organic farming						
Waste management and clean environment						
<i>Others (please write):</i>						

Thank you very much for taking the time to complete this questionnaire. If you need further information please contact Mrs. Tri Yumarni (Mobile Phone number: 08122721219).

GENDER MAINSTREAMING AND SUSTAINABLE POST-DISASTER RECONSTRUCTION: EARTHQUAKE REGIONS IN INDONESIA

POLICY MAKERS/IMPLEMENTERS SURVEY

Introduction

This survey is a part of Mrs. Tri Yumarni PhD research title “Gender mainstreaming and sustainable post-disaster reconstruction: Earthquake regions in Indonesia” at Salford University UK. This research aims to provide policy relevant findings regarding strategies to mainstreaming gender in order to enhance sustainability of post-earthquake reconstruction at Bantul and Sleman district Yogyakarta Province Indonesia.

Instruction

Please select the most appropriate answer by placing (X) in each question based on your experience and your view during post-earthquake reconstruction in your district. There are no right or wrong in these questions. Your identity is confidential.

Section 1: Respondent characteristics

Name :

Sex : 1. Female 2. Male

Age : years

Address:

RT :

RW :

Village :

District :

Phone :

Organization:

1. Government
2. Local Non-Government Organization
4. International Non-Government Organization
5. International Donors
6. University
7. Others

What is your role during post-earthquake reconstruction?

1. Policy maker
2. Implementer

Please, write your current position:

How long you have been working in your current position?

1. < 3 years
2. 3-5 years
3. > 5 years

Section 2: Benefits of integrating gender mainstreaming to enhance sustainability of post-earthquake reconstruction

We would like to ask your opinion about various benefits of mainstreaming gender within post-earthquake reconstruction for enhancing sustainable development in your district. 1 means unimportant and 5 means very important.

	No opinion	Unimportant	Of little importance	Moderately important	Important	Very important
Score	0	1	2	3	4	5
<i>Economic sustainability</i>						
Reducing poverty, particularly among women						
Improving district government economy						
Increasing job opportunities, particularly for women						
Increasing job opportunities, particularly for men						
Improving children's and family welfare						
Increasing entrepreneurship, particularly for women						
<i>Social sustainability</i>						
Increasing security and safety in communities						
Strengthening trust, networks and social collaboration within communities						
Increasing community solidarity						
Increasing community participation						
Awareness of women and men needs in reconstruction						
Increasing access to social services						
<i>Environmental sustainability</i>						

Expanding areas with earthquake warning systems						
Increasing community awareness as to the importance of disaster risk reduction						
Increasing awareness of policy makers on the importance of disaster risk reduction						
Friendly housing environments that meet women and men needs						
Increasing safe and clean water and sanitation						
Waste management and clean environment						
Awareness of maintaining public infrastructures						
<i>Others (please write):</i>						

Section 3: Enabling factors of integrating gender mainstreaming to enhance sustainability of post-earthquake reconstruction

We would like to ask your opinion about various enabling factors of mainstreaming gender within post-earthquake reconstruction for enhancing sustainable development in your district. 1 means unimportant and 5 means very important.

	No opinion	Unimportant	Of little importance	Moderately important	Important	Very important
Score	0	1	2	3	4	5

Strong women's leadership						
Strong support from NGOs for promoting gendered risk reduction						
High participation from women's groups						
Adequate financial resources supporting gender mainstreaming programs						
Political will of government						
Policy and program design linked disaster risk reduction and resilience						
Appropriate tools for gender mainstreaming						
Capacity of local gender institution						
Gender-sensitive budgeting						
Availability of gender vulnerability assessment						
Availability of gender capacity assessment						
Availability of gender training						
Availability of gender-sensitive monitoring and evaluation mechanisms						
Adequate gender expertise						
Clear gender target						
Number of women's grassroots organizations						
Good communication and coordination						
Support from community leaders						
Availability of disaggregate data						
Incentive for supporting gender mainstreaming						
<i>Others (please write):</i>						

Section 4: Constraining factors of integrating gender mainstreaming to enhance sustainability of post-earthquake reconstruction

We would like to ask your opinion about various constraining factors of mainstreaming gender within post-earthquake reconstruction for enhancing sustainable development in your district. 1 means unimportant and 5 means very important.

	No opinion	Unimportant	Of little importance	Moderately important	Important	Very important
	0	1	2	3	4	5
Patriarchal culture						
Resistance from some religious leaders						
Lack of capacity of bureaucrats						
Smaller number of women in decision-making						
Resistance from senior bureaucrats						
Coordination issues among district government, NGOs and international donors						
International donors and NGOs with a strong top down project						
Short time project of International donors and NGOs						
Lack of detail in gender-disaggregated data						
Less incentive for supporting gender mainstreaming						
Less financial and technical support from national government						
Low educated women and men						
Less number of women in decision making						

