

# Table of Contents

Summary of the Book	v
Acknowledgement	vii
List of Figures	xv
List of Tables	xvii
Chapter I	
Introduction	1
1.1 Background of Research	1
1.2 Statement of the Research's Problem	7
1.3 The Originality of the Research	9
1.4 Objective of the Research	12
1.5 Research Question	12
1.6 Importance of the Research	13
1.7 Outline of the Book	14
1.8 Limitation of the Research Study on the Definition of Terms (Keywords)	15
Chapter II	
Review of Related Literature	19
2.1 Participatory GIS	19
2.2 Vulnerability	20
2.3 Disaster	21
2.4 Local Involvement Leads to Mitigation Strategies	22
2.5 Coping Capacity to Flood Hazards	23
2.6 A Large Scale of Flood: The Case of the West-Malaka Sub-District	24
2.7 Concept of Resilience	27
2.7.1 Elements of Community Resilience	27
2.7.2 Processes of Community Resilience	28

2.7.3	Developing Partnerships and Connecting to the Public	31
2.7.4	Developing Media Partnerships	31
2.7.5	Building Broad Community Partnerships	32
2.7.6	The Notion of Resilience	33
2.7.6.1	Livelihood Assets on Resilience	34
Chapter III		
	Research Site and Methodologies	39
3.1	The Location of the Research	39
3.1.1	The History of the Geographic Site in Belu Regency	39
3.1.2	Population	41
3.1.3	Topography	41
3.1.4	Climate	43
3.1.5	Overview of Benanain River	45
3.1.5.1	The Sites of Benanain River	45
3.1.5.2	Upstream and Downstream Area of Benanain River	48
3.1.5.2.1	Physic of Benanain River	48
3.1.5.2.2	The Issue of Benanain River	49
3.1.6	Land use	50
3.1.7	Hydrology	52
3.2	Methodologies	53
3.2.1	The research's outline	53
3.2.2	The Mapping Process	55
3.2.3	Data Requirement and Data Source	58
3.2.4	Data Collection	59
3.2.4.1	Data Availability	59
3.2.4.2	Fieldwork Equipment	59
3.2.5	Technique of Sampling	60
3.2.6	Research Method of Collecting the Data	62
3.2.6.1	Questionnaire and Interview	62
3.2.6.2	Focus Group Discussion on participatory Geographic Information System	63

## Chapter IV

Socio-Economic Conditions and Flood Disasters Based on Respondent's Perception in Flood Affected Regions	65
4.1 Socio-Economic Conditions	65
4.1.1 Gender	65
4.1.2 Age	66
4.1.3 Education	67
4.1.4 Occupation	69
4.2 Respondents-based disaster perception towards the flood event in the study area through interviews	71
4.2.1 Frequency of Flood in the Study Area	73
4.2.2 Distribution of Floods in the Study Area	76
4.2.3 Duration of Flood Inundation Affected the Respondents' Houses in the Study Area	77
4.2.3.1 Lasaen Village	77
4.2.3.2 Umatoos Village	79
4.2.3.3 Fafoe Village	81
4.2.4 Water Depth Affected the Respondents' Houses in the Study Area	83
4.2.4.1 Water Depth Affected the Respondents' Houses in Lasaen Village	84
4.2.4.2 Water Depth Affected the Respondents' Houses in Umatoos Village	87
4.2.4.3 Water Depth Affected the Respondents' Houses in Fafoe Village	90
4.3 Respondents-Based Disaster Perception towards the Flood Events in the Study Area through Focus Group Discussion (FGD)	93
4.3.1 Process of Delineation and Discussion of Respondents in the Study Area	94
4.3.2 Result of Sketch Map (Flood Characteristics of the Community in the Study Area)	94
4.3.3 Duration of the Flood Inundation Affected the Respondents' Houses in the Study Area	96

4.3.3.1	Lasaen Village	96
4.3.3.2	Umatoos Village	97
4.3.3.3	Fafoe Village	98
4.4	The impact of Flood Disasters	99
4.4.1	Flood Risk to Local People’s Income (Livelihood)	99
4.4.2	Consequences of Floods	100
4.4.3	Flood Profile in the Study Area	103
4.4.3.1	Lasaen Village	103
4.4.3.2	Umatoos Village	106
4.4.3.3	Fafoe Village	108
 Chapter V		
	Flood Resilience Based on Community Perceptions in the Flood Regions (Lasaen, Umatoos, and Fafoe)	111
5.1	The Implemented Capitals of Resilience in Lasaen, Umatoos, and Fafoe	111
5.1.1	Human Capital	111
5.1.2	Natural Capital	112
5.1.3	Physical Capital	113
5.1.3.1	Assets of the Community	113
5.1.3.2	The Type of House Construction in the Study Area	113
5.1.4	Economic Capital	118
5.1.5	Social Capital	122
5.1.6	Law Capital	122
5.1.7	Political Capital	126
5.1.8	Cultural Capital	133
5.1.8.1	Custom in terms of spiritual/religious views	133
5.1.8.2	Customs in terms of local community wisdom (the role of customary leaders)	134
5.2	Resilience for the Flood Based on Community Perception through Focus Group Discussion (FGD)	136
5.3	The Value of the Resilience Factor by Weighting Calculation	137

Chapter VI	
The Trend of Supplying Augmentation Measures of Social and Institutional Performance in Flood Regions	139
6.1 The Trend of Augmentation Measures of Social Performance	139
6.1.1 Disaster Preparedness Team	139
6.1.2 Community-based Disaster Risk Management in the Case of Flood Resilience	139
6.1.3 Coordination and Communication for a Flood Alerting System	140
6.2 The Trend of Augmentation Measures of Institutional Performance	141
Chapter VII	
Conclusion and Recommendation of the Book	143
7.1 Conclusion	139
7.1.1 Flood Events	143
7.1.2 Community Resilience	144
7.2 Recommendations	145
References	147
Appendix I	153
Appendix II	171
Appendix III	178
Appendix IV	184
Appendix V	187