

Disaster Risk Reduction
Methods, Approaches and Practices

Riyanti Djalante
Matthias Garschagen
Frank Thomalla
Rajib Shaw *Editors*

Disaster Risk Reduction in Indonesia

Progress, Challenges, and Issues

 Springer

Disaster Risk Reduction

Methods, Approaches and Practices

Series editor

Rajib Shaw, Keio University, Fujisawa, Japan

About the Series

Scope of the Series

Disaster risk reduction is a process, which leads to the safety of community and nations. After the 2005 World Conference on Disaster Reduction, held in Kobe, Japan, the Hyogo Framework for Action [HFA] was adopted as a framework of risk reduction. The academic research and higher education in disaster risk reduction has made/is making a gradual shift from pure basic research to applied, implementation-oriented research. More emphasis is given on the multi-stakeholder collaboration and multidisciplinary research. Emerging university networks in Asia, Europe, Africa and the Americas have urged for the process-oriented research in disaster risk reduction field. Keeping this in mind, this new series will promote the outputs of action research on disaster risk reduction, which will be useful for a wider range of stakeholders including academicians, professionals, practitioners and students and researchers in the related field. The series will focus on some of the emerging needs in the risk reduction field, starting from climate change adaptation, urban ecosystem, coastal risk reduction, education for sustainable development, community-based practices, risk communication, human security, etc. Through academic review, this series will encourage young researchers and practitioners to analyse field practices and link it to theory and policies with logic, data and evidences. Thus, the series emphasizes evidence-based risk reduction methods, approaches and practices.

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Frank Thomalla • Rajib Shaw
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Foreword

Reducing disaster risks and building resilience amongst communities and nations are key goals in the so-called Post-2015 Development Agenda and its policy frameworks, including the Sendai Framework for Disaster Risk Reduction, the Paris Agreement on climate change, the Sustainable Development Goals of the 2030 Agenda and the New Urban Agenda.

According to the WorldRiskReport published by UNU-EHS and the Alliance Development Works, Indonesia is amongst the countries with the highest risk from environmental hazards and climate change impacts. The risk effects from local environmental degradation, global climate change, rapid urbanization, coastal development as well as socio-economic disparity are increasingly felt, not only in big cities like Jakarta but increasingly in smaller cities and rural areas of Indonesia. The Indian Ocean Tsunami in 2004 has shown the high potential for disaster in Indonesia, but has also lead to concerted academic, practical and political action for the reduction of such risks. Indonesia can therefore draw on a number of positive lessons in resilience building. However, many questions and challenges still persist.

The Indonesian Institute of Sciences (LIPI) is an important partner of UNU-EHS. Both institutions have collaborated in research and capacity building of government officials and students, starting after the 2004 Indian Ocean Tsunami within the German-Indonesian Tsunami Early Warning System (GITEWS) project and since 2014 within the TWIN-SEA expert network on coastal adaptation towards climatic and societal changes in Southeast Asia.

I welcome the publication of this edited book *Disaster Risk Reduction in Indonesia: Progress, Challenges and Issues*. The book gathers important analyses by 80 authors from all over the world on key topics concerned with disaster risk reduction in Indonesia. A multitude of factors affecting the governance for DRR is being discussed. In addition to discussion on roles of different actors and organizations and mainstreaming to important sectors such as education, urban planning and infrastructure, there are also analyses of factors affecting community resilience, discussed from various angles including those of psychology and the studies of culture and religion.

With Indonesia's strong commitment to the implementation of the Sendai Framework for Disaster Risk Reduction over the coming years, the book offers a timely and highly relevant entry point into the study of achievements and positive lessons as well as remaining challenges and emerging new problems with regard to the country's efforts on resilience building. I appreciate the great added value that this book will bring not only for academic circles but also for risk practitioners and policymakers.

I wish to thank the editors and contributing authors for their efforts in producing such an important and timely contribution for research and practice on DRR in Indonesia.

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We would like to express our gratitude to all the authors from different parts of the world who are working on DRR topics on Indonesia. It is great to see such enormous development in the degree of collaboration amongst Indonesian and international authors, as well as between early career researchers and PhD students and the more senior colleagues with extensive expertise and experiences in DRR. The topics discussed have ranged widely from the DRR governance and roles of different actors from the international to local level to discussions on legal, technical, psychological, religion and cultural aspects of DRR in Indonesia.

Our appreciation is also extended to the colleagues at UNU-EHS and external reviewers who have been involved in the review processes and discussions which also help shape the book. We would also like to thank Harry James, who has worked hard to proofread and edit all of the chapters.

Finally, Dr. Riyanti Djalante would specifically like to thank the Alexander von Humboldt Foundation for the Fellowship for Experienced Researchers, which enabled her to conduct her research at the UNU-EHS, Germany. She would like to express her gratitude to the mayor of Kendari City, Dr. Asrun, and the rector of Haluoleo University, Prof. Usman Rianse, of the organizations that she affiliated with in Indonesia. She would also like to thank her family and friends who have

been the source of continuous support and for making the time in Bonn truly enjoyable. It has been a great pleasure to work with everyone in this endeavour.

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Contents

1	Introduction: Disaster Risk Reduction in Indonesia: Progress, Challenges, and Issues	1
	Riyanti Djalante, Matthias Garschagen, Frank Thomalla, and Rajib Shaw	
Part I Disaster Risk Governance from National to Local Level and Its Integration into Development Sectors		
2	A Review of Disaster Trend and Disaster Risk Governance in Indonesia: 1900–2015	21
	Riyanti Djalante and Matthias Garschagen	
3	Toward Integrated and Inclusive Disaster Risk Reduction in Indonesia: Review of Regulatory Frameworks and Institutional Networks	57
	Andri N.R. Mardiah, Jon C. Lovett, and Nukila Evanty	
4	Disaster Risk Reduction in Post-Decentralisation Indonesia: Institutional Arrangements and Changes	85
	Ashok Das and Asrizal Luthfi	
5	Disaster Risk Reduction (DRR) Capacity and Capability of Local Government in Indonesia	127
	Esti Anantasari, Michele Daly, Phil Glassey, Emily Grace, Maureen Coomer, and Richard Woods	
6	Examining the Adequacy of Legal and Institutional Frameworks of Land and Forest Fire Management from National to Community Levels in Indonesia	157
	Laely Nurhidayah and Riyanti Djalante	

7	Disaster Education and School Safety Governance after the 2004 Indian Ocean Tsunami in Indonesia: From National Policy to Local Implementation	189
	Mizan Bustanul Fuady Bisri and Aiko Sakurai	
8	Integrating Disaster Risk Reduction and Climate Change Adaptation into School Curricula: From National Policy to Local Implementation	213
	Nurmalahayati Nurdin, Irina Rafliana, Sri Hidayati, Rina Suryani Oktari, and Riyanti Djalante	
9	Spatial Planning, Disaster Risk Reduction, and Climate Change Adaptation Integration in Indonesia: Progress, Challenges, and Approach	235
	Nurrohman Wijaya, Mizan Bustanul Fuady Bisri, Adiwan Fahlan Aritenang, and Aria Mariany	
Part II Roles of Different Actors for DRR		
10	The Role of Local Government in Post-Disaster Road Reconstruction: Assessment of Factors Affecting Local Government Road Maintenance Capacity	255
	Ezri Hayat and Dilanthi Amaratunga	
11	Manufacturing Firms' Adaptations to Floods and Proposal for Integrative Adaptive Regional Development in Jakarta	281
	Thomas Neise, Javier Revilla Diez, Matthias Garschagen, Riyanti Djalante, Kurnia Novianti, and Choerunisa Noor Syahid	
12	Media and Visual Representation of Disaster: Analysis of Merapi Eruption in 2010	307
	Muzayin Nazaruddin	
13	The Role and Capacity of Disabled People's Organisations (DPOs) as Policy Advocates for Disability Inclusive DRR in Indonesia	335
	Michelle Villeneuve, Alex Robinson, Pradytia Putri Pertiwi, Sarina Kilham, and Gwynnyth Llewellyn	
14	The Role of the Panglima Laot Customary Institution in the 2004 Indian Ocean Tsunami Recovery in Aceh	357
	Michael Boyland, Agus Nugroho, and Frank Thomalla	
15	The Role of Faith-Based Organizations (FBOs) as Risk Communicators: Case Study of Bandung, West Java	377
	Farah Mulyasari and Rajib Shaw	

16	The Role of a Women’s Collective in Rebuilding Livelihoods After a Disaster: Case Study of Salam Village, Yogyakarta.....	395
	Karen E. McNamara, Rachel Clissold, Jasmine Pearson, Danielle McLeod-Robertson, Amy Ward, and Lacey Allgood	
17	Science Communication for Disaster Risk Reduction: Role of LIPI Through the COMPRESS Program	411
	Irina Rafflesia	
Part III Emerging Issues in DRR Research and Practice		
18	Ecosystem-Based Disaster Risk Reduction in Indonesia: Unfolding Challenges and Opportunities	445
	Annisa Triyanti, Yvonne Walz, Muhammad Aris Marfai, Fabrice Renaud, and Riyanti Djalante	
19	Culture and Community Resilience to Flooding: Case Study of the Urban Coastal Community in Jakarta.....	469
	Gusti Ayu Ketut Surtiari, Riyanti Djalante, Neysa Jacqueline Setiadi, and Matthias Garschagen	
20	Religious Interpretations and Psychological Recovery from the Aceh 2004 Tsunami: The Promise of Heaven, Healing the Trauma	495
	Maila Dinia Husni Rahiem, Nur Surayyah Madhubala Abdullah, and Steven Eric Krauss	
Part IV Measuring Hazards, Risks and Community Resilience		
21	Flood Risk in Polder Systems in Jakarta: Present and Future Analyses	517
	Yus Budiyo, Muhammad Aris Marfai, Jeroen Aerts, Hans de Moel, and Philip J. Ward	
22	Forest and Land Fires Hazard Level Modeling: Case study of Kapuas, Central Kalimantan	539
	Achmad Siddik Thoha, Bambang Hero Saharjo, Rizaldi Boer, and Muhammad Ardiansyah	
23	Tsunami Resilient Preparedness Indicators: The Effects of Integrating Religious Teaching and Roles of Religious Leaders.....	561
	Wignyo Adiyoso and Hidehiko Kanegae	
24	Social Capital and Disaster Preparedness in Indonesia: A Quantitative Assessment Through Binary Logistic Regression	589
	Mohammad Dokhi, Tiodora Hadumaon Siagian, Agung Priyo Utomo, and Eka Rumanitha	

**25 Measuring Community Resilience to Natural Hazards:
Case Study of Yogyakarta Province 609**
Herryal Z. Anwar, Emilia Yustiningrum, Nina Andriana,
D.T.P. Kusumawardhani, Saut Sagala, and Anggun Mayang Sari

Index..... 635

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List of Abbreviations and Non-English Words

Abbreviations

AAAA	Addis Ababa Action Agenda
AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ACCCRN	Asian Cities Climate Change Resilience Network
ACTIVED	Actions Changing the Incidence of Vector-Borne Endemic Diseases
ADB	Asian Development Bank
ADRAS	Australian Development Research Awards Scheme
AHA Centre	Coordinating Centre for Humanitarian Assistance on Disaster Management
AMAN	<i>Aliansi Masyarakat Adat Nusantara</i> (Indonesian Indigenous Peoples' Alliance)
AMCDRR	Asian Ministerial Conference on Disaster Risk Reduction
API	<i>Adaptasi Perubahan Iklim</i> (Climate Change Adaptation)
APN	Asia-Pacific Network for Global Change Research
ARF	Aceh Recovery Framework
ASB	<i>Arbeiter-Samariter-Bund Deutschland</i> eV Indonesia and Philippines Office (Workers' Samaritan Federation)
ASCE/SEI	American Society of Civil Engineers/Structural Engineering Institute
ASEAN	Association of Southeast Asian Nations
ASTAAG	Asia Science Technology and Academic Advisory Group
AusAid	Australian Aid
BAKORNAS	<i>Badan Koordinasi Nasional</i> (National Coordinating Board)
BAKORNAS PB	<i>Badan Koordinasi Nasional Penanggulangan Bencana</i> (National Coordination Board for Disaster Management)
BAKORNAS PBA	<i>Badan Koordinasi Nasional Penanggulangan Bencana Alam</i> (National Coordination Board for Natural Disaster Management)

BAKORNAS PBP	<i>Badan Koordinasi Nasional Penanggulangan Bencana dan penanganan pengungsi</i> (National Coordination Board for Disaster and Displaced People Management)
BAPPEDA	<i>Badan Perencanaan Pembangunan Daerah</i> (District or Provincial Development Planning Agency)
BAPPENAS	<i>Badan Perencanaan Pembangunan Nasional</i> (National Development Planning Agency)
BIG	<i>Badan Informasi Geospasial</i> (Geospatial Information Agency)
BKSDA	<i>Badan Konservasi Sumber Daya Alam</i> (Nature Conservation Agency Indonesia)
BKSDA	<i>Balai Konservasi Sumber Daya Alam</i> (Natural Resources Conservation Unit)
BMKG	<i>Badan Meteorologi, Klimatologi dan Geofisika</i> (Indonesian Agency for Meteorology, Climatology and Geophysics)
BNPB	<i>Badan Nasional Penanggulangan Bencana</i> (National Disaster Management Agency)
BP2BAP	<i>Badan Pertimbangan Penanggulangan Bencana Alam Pusat</i> (National Board for Natural Disaster Management)
BPBA	<i>Badan Penanggulangan Bencana Aceh</i> (Aceh Disaster Management Agency)
BPS	National Bureau of Statistics (<i>Badan Pusat Statistik</i>).
BRR	<i>Badan Rehabilitasi dan Rekonstruksi</i> (Rehabilitation and Reconstruction Agency)
CBFiM	Community-Based Fire Management
CBO	Community-based organizations
CBSO	Community-based society organization
CCA	Climate change adaptation
CDRP	Centre for Disability Research and Policy
CFAN	Coordination Forum for Aceh and Nias
CMA	Composite Mapping Analysis
CONSRN	Consortium to Restore Shattered Livelihoods in Tsunami-Devastated Nations
COP	Conference of the Parties
COP21	The twenty-first session of the Conference of the Parties, Paris, France – 2015 Paris Climate Conference
COREMAP	Coral Reef Rehabilitation and Management Program
CRAA	Climate Risk and Adaptation Assessment
CRED	Centre for Research on the Epidemiology of Disasters
CSO	Civil Society Organization
DAK	<i>Dana Alokasi Khusus</i> (Special Allocation Fund)
DAU	<i>Dana Alokasi Umum</i> (General Allocation Fund)
DBH	<i>Dana Bagi Hasil</i> (Revenue Sharing Fund)
DEM	Digital elevation model
DEPDAGRI	<i>Departemen Dalam Negeri</i> (Department of Foreign Affairs)
DFAT	Department of Foreign Affairs and Trade

DFID	Department of International Development
DIBI	<i>Data dan Informasi Bencana Indonesia</i> (Indonesia Disaster Database)
DiDRR	Disability-Inclusive Disaster Risk Reduction
DiDRRN	Disability-Inclusive Disaster Risk Reduction Network
DKM	<i>Dewan Keluarga Masjid</i> (Mosque Family Council)
DNPI	<i>Dewan Nasional Perubahan Iklim</i> (National Climate Change Council)
DPD	<i>Local Representative Council</i> (Dewan Perwakilan Daerah)
DPOs	Disabled People's Organizations
DRF	Disability Rights Fund
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction and Management
DSP	<i>Dana Siap Pakai</i> (Ready-to-Use Fund)
Eco-DRR	Ecosystem-Based Disaster Risk Reduction
EM-DAT	Emergency Events Database
EMDAT-CRED	Emergency Events Database of the Centre for Research on the Epidemiology of Disasters
ENSO	El Niño-Southern Oscillation
FAO	Food and Agriculture Organization of the United Nations
FBO	Faith-based organization
FEMA	Federal Emergency Management Agency
FGD	Focus group discussions
FIRMS	Fire Information for Resource Management System
GDP	Gross domestic product
GERHAN	<i>Gerakan Reklamasi Hutan dan Lahan</i> (Movement for Forest and Land Reclamation)
GIS	Geographic information system
GITEWS	German-Indonesian Tsunami Early Warning System
GIZ	<i>Deutsche Gesellschaft für Internationale Zusammenarbeit</i> (German Society for International Cooperation)
GoI	Government of Indonesia
GR	Government Regulation
HFA	Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters
HPH	<i>Hak Pengusahaan Hutan</i> (forest concession permit)
HTI	<i>Hutan Tanaman Industri</i> (industrial plantation forest)
IABI	<i>Ikatan Ahli Kebencanaan Indonesia</i> (Indonesia Disaster Experts Association)
ICCSR	Indonesia Climate Change Sectoral Roadmap
ICSF	International Collective in Support of Fishworkers
ICSU	International Council for Science
IDDR	International Day for Disaster Reduction
IFRC	International Federation of Red Cross and Red Crescent Societies
IGES	Institute for Global Environmental Strategies