

## CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

### 7.1 INTRODUCTION

The researcher concludes the thesis through achieving the objectives of the study i.e. 1) to describe the intensity of flooding 2). Describe level of social vulnerability along WTC and to develop community based flood disaster and vulnerability assessment framework. Bringing community participation to flood disaster management is a difficult task, and all actors in the field can recognize that it is so energy consuming. However, patience and listening are often rewarded with great achievements, to which all the examples described above can attest.

There is now a clear perception that flood disaster management cannot be treated in isolation and implemented solely in cooperation with disaster management agencies. Owing to the diverse factors contributing to disaster risk and the far-reaching impacts of a natural disaster, community-based disaster risk management can only have a sustainable impact as a multi- sectoral along WTC (Bekasi and karawang), comprising a broad range of sectors, Disaster Management Services, Environmental management, Water & Sanitation, , Housing, health and social development) at local and provincial levels.

### 7.2 CONCLUSION

The findings show the description of the intensity of flooding, level of social vulnerability and the framework for reducing future community vulnerability in the context of flood disaster management. this indicated that there exist significant relationships amongst the key variables such as income, livelihood, period of stay, size of family, gender, age, educational level, domestic water source and housing status have been weighted to generate social vulnerability of the households along West Tarum Canal. The combination of these factors can be especially valuable for

estimating and identifying the most vulnerable household in the study area. It was found that only a few households have high vulnerability, most of households have moderate and low vulnerability for social economy. It is likely that only a few households have average moderate and high vulnerability on each parameter, while the other households have a high vulnerability on one parameter. It can be summarized that, the reason why the people still live in these areas (flood prone areas) is not only because they own property, cheap house, and better access to economic activity but also their combination of social vulnerability to flood hazard is not so high. But also due to their capabilities such as organizations and local traditions attached them to these places

Vulnerability is a detector of susceptibility and capacities of any system. Social systems in context to a hazard are determined by their physical location, temporal development, their internal and external influences and exchanges. This place-based notion of complex problems can be measured by the exposure of this system to external threats. Place-based exposure however, only manifests as a problem, when certain negative and positive, passive and active abilities and conditions coincide. Encompassing the exposure, susceptibility and capacities of a system at risk provides a broad research lens that helps to capture aspects that might have been neglected by traditional hazard or risk analyses so far.

Areas along West Tarum Canal (Karawang and Bekasi) are Metropolitan cities of Jakarta the capital of Indonesia, so there is a growing trend of increasing social and economic costs that include the under-development and lack of essential services, population and economic growth, informal settlements, rapid and unplanned urbanization, unpredictable climate change and environmental degradation. With the increasing level of flood disaster risks and a growing percentage of residents that occupy hazardous areas, these areas can become a breeding ground for diseases unless placement and development of communities are done through design and development

planning with the aims of altering the effects of such events.

For the West Java government to successfully reduce vulnerability of communities along WTC to flood disasters and meet the sustainable development, approaches to integrated development planning, spatial planning and community involvement in decision making need to be implemented. Development planning is essential for reducing the negative conditions that are found in the study areas. Structural poverty, standardized infrastructure and housing, high population densities, the concentration of economic assets and industrial activities can be reduced by either placing strict limits on development in hazardous areas, building regulations that ensures structures that can withstand flood disasters, land use practices and development that do not impact deforestation or wetlands negatively. Educating the community about these limits can contribute to the community being a flood disaster resilient community.

Flood risk reduction must become an important part of development programmes and risk reduction efforts should not only be induced by good governance and partnerships with multi-actor cooperation, but it should be integrated with poverty reduction, development policies, plans and programmes. Flood disaster reduction involves understanding and addressing the risks and vulnerabilities that people face and the preparedness of the community to disasters. The vulnerability to future disaster risks in this areas should be promoted in the following plans: Integrated Development Plan, the region Development Strategy and Spatial Development Framework.

Governments can prepare baseline assessments on flood disaster reduction; monitor and assess the physical, social, economic and environmental vulnerabilities as a means to adjusting early warning systems; incorporate catastrophes into economic projects; promote the integration of risk reduction into development planning strategies; and involve the local community in all aspects of disaster risk reduction with the objective of reducing flood disaster.

### **7.2.1 Challenges**

This must be denoted for avoiding uncritical application and uncommented transfer of the approach of this study. Data availability, spatial and temporal resolution of the data are limitations for capturing certain social aspects like people's perception about floods and preparedness for the large research area. The hazard scenarios are limited to inundation extent and full data coverage was not available.

Within the methodology, the challenges lie within an objective selection of the variables and the weighting procedure, even when a comprehensive conceptual framework guides the systematization. It is within the nature of indicators and quantification that the actual phenomena are only indirectly measured and often generalizations must be made. Therefore, the indicators are valid only for describing average characteristics of the demographic composition of Karawang, Bekasi regency and Bekasi city not for capturing the vulnerability of single households. As with every analytical concept, many assumptions are made, and it must be encouraged to regard this study results not as definite but rather as starting point for improvement and further research.

The assessment of social vulnerability is not an end in itself and does not stop at the description of potential demographic weaknesses and strengths. Social vulnerability is one dimension of vulnerability besides the vulnerability of infrastructure, of the environment or else. Social vulnerability is also one part of disaster risk assessments and crucial information for supplementing hazard assessments.

### **7.2.2 Contribution**

This study contributes to recent research activities around social vulnerability in two respects. First, it increases information about social vulnerability in Indonesia particularly West Java province. Second, it aligns with the research direction of interdisciplinary science that is especially enhanced in the field of the human-

environment nexus. Vulnerability, resilience, climate change and sustainability are high on the agenda of national policy and research. These are fields where advancement in information depth and awareness are prerequisites for developing strategies for the future in the light of population growth and environmental strain. Knowledge on complex relationships translated into measurable indicators will be a key field for the identification and valuation of future action priorities.

### **7.3 Recommendations to Decrease Community Vulnerability to Floods**

Based on the key results presented above, I present six recommendations for policy-making that follow from this research:

1. The use of decision support tools, including PAR models, is important for assessing the effectiveness of adaptations both in current and future scenarios and should be used to inform international and national policy for CBDM and be made available at more regional and local scales for regions and communities that are particularly vulnerable to disasters.
2. Promoting better, proactive, integrated adaptations which have been shown in this research to be effective in reducing vulnerability will assist communities to live more sustainably in the face of flood risk. This is particularly important given the likely increase in flood risk under future climate change.
3. Government involvement is still important in enhancing the resilience and standard of living of low to middle income families. The model presented here indicates that improving the quality of the municipal disaster unit, assisting low income families with housing construction, insurance and cash payments are likely to be the most effective forms of involvement.
4. Since villagers live below the poverty line, creating alternative economic sources to stakeholders may increase villagers' capacity to respond to future floods. However, based on the model's outputs, increases to income not only

increase the villagers' savings but also raise the potential for damage/losses. Therefore, the need for applying other proactive adaptations should follow up enhancing villagers' economic capacity described in points 3 and 4 to avoid increases to damage/losses.

5. With some adjustments this model can be applied to other case studies or hazard types with different types of proactive adaptations. Assessing other possible proactive adaptations in a variety of cases will improve the concept and practice of vulnerability assessment.

## References

- Abarquez, I, and Z Murshed. 2004. "Community-Based Disaster Risk Management: Field Practitioners' Handbook." : 150.
- Adger, W. Neil. 2006. "Vulnerability." *Global Environmental Change* 16(3): 268–81.
- ADPC. 2006. "Community-Based Disaster Risk Management for Local Authorities." *Asian Disaster Preparedness Centre*: 174.
- Agency, National, and Disaster Management. 2007. "Law of the Republic of Indonesia Number 24 of 2007 Concerning Disaster Management." *Management* (24).
- Alaghmand, Sina. 2009. "River Modelling for Flood Risk Map Prediction : Case Study of Sungai Kayu Ara." *Integration The Vlsi Journal* (July).
- Alam, Khurshid, and Sahar Bhatti. 2012. "Disaster Risk Reduction in Pakistan : The Contribution of DEC Member Agencies , 2010-2012." : 2010–12.
- Alexander, David. 2000. "Confronting Catastrophe, New Perspective on Natural Disaster."
- Allen, F., and A. Babus. 2010. "Network in Finance." *Network based strategies and competencies*: 1–20.
- Anh, Tran Tuan, Tran Van Giai Phong, Tran Huu Tuan, and Martin Mulenga. 2013. "Community Consultation for Housing in Vietnamese Cities : A Comparative Case Study between Hue and Da Nang." : 67.
- Anonim. 2001. "Pedoman Koordinasi Penanggulangan Bencana Di Lapangan."
- Arnstein, Sherry R. 1969. "A Ladder Of Citizen Participation." *Journal of the American Institute of Planners* 35(4): 216–24.  
<http://www.tandfonline.com/doi/pdf/10.1080/01944366908977225>.
- Badan Pusat Statistik Indonesia. 2013. *Badan Pusat Statistik Indonesia Proyeksi Penduduk Indonesia Indonesia Population Projection 2010-2035*.
- Baker, Stacey Menzel. 2009. "Vulnerability and Resilience in Natural Disasters: A Marketing and Public Policy Perspective." *Journal of Public Policy & Marketing* 28(1): 114–23.
- Bankoff, Greg, Georg Frerks, and Dorothea Hilhorst. 2004. "Mapping Vulnerability: Disasters, Development, and People." *Development* 22(3): 236.  
<http://books.google.com/books?id=uGBYX4wVMkkC&pgis=1>.
- Becker, Julia, David Johnston, and Douglas Paton. 2015. *Communication of Risk: A Community Resilience Perspective*.
- Bempah, Sherry Adomah. 2011. "The Impact of Natural Disasters on Development Supervisor." : 133.
- Béné, Christophe et al. 2017. "Resilience as a Policy Narrative: Potentials and Limits in the Context of Urban Planning." *Climate and Development* 0(0): 1–18.  
<https://www.tandfonline.com/doi/full/10.1080/17565529.2017.1301868>.
- Benson, Charlotte, and John Twigg. 2009. "Mainstreaming Disaster Risk Reduction

- into Development : Challenges and Experience the Philippines Tools for Mainstreaming in Disaster Risk :” *The international federation of Red cross and Red Crescent societies* (March): 1–60.
- Besar, Balai, and Sungai Citarum. 2013. “Public Information Booklet West Tarum Canal Rehabilitation.”
- Beverton, R. J. H. 1972. “Institute of Hydrology.” *Nature* 235(119): 291–291.
- Birkmann, Jörn. 2006. “Measuring Vulnerability to Promote Disaster-Resilient Societies : Conceptual Frameworks and Definitions.” *Measuring Vulnerability to Natural Hazards; Towards Disaster Resilient Societies* 1: 9–54.
- Blaikie, Piers, Cannon Terry, Davis Ian, and Wisner Ben. 1996. “At Risk: Natural Hazards, People’s Vulnerability, and Disasters.” *Human Ecology* 24(1): 141–45.
- BNPB, National Disaster Management Agency of the Republic of Indonesia -. 2012. “Regulation of the Head of National Disaster Management Agency of the Republic of Indonesia Number 3 Year 2012 on Regional Capacity Assessment Guide in Disaster Relief.” : 42.
- Bohle, H-G. 2001. “Vulnerability and Vulnerability and Criticality: Perspectives from Social Geography.” *IHDP/The International Human Dimension Programme on Global Environmental Change* (2): 1–4.
- BPS Jawa Barat. 2015. “Jawa Barat in Figures 2015.”  
[http://jabar.bps.go.id/new/website/pdf\\_publicasi/Jawa-Barat-Dalam-Angka-2015.pdf](http://jabar.bps.go.id/new/website/pdf_publicasi/Jawa-Barat-Dalam-Angka-2015.pdf).
- BPS Provinsi Jawa Barat. 2016. “Jawa Barat in Figures 2016.” : 683.
- Brinkman, Todd J. et al. 2016. “Arctic Communities Perceive Climate Impacts on Access as a Critical Challenge to Availability of Subsistence Resources.” *Climatic Change* 139(3–4): 413–27. <http://dx.doi.org/10.1007/s10584-016-1819-6>.
- Britton, Neil R., and Gerard J. Clark. 1999. “Emergency Management and Insurance: Toward a Collaborative Approach.” *Proceedings of a conference sponsored by Aon Group Australia Limited*: 219–38.
- Brown, L. and Strega, S. 2005. “Social Work Research Methods: Qualitative and Quantitative Approaches .” : 3–6.
- Brown, Leslie Strega, Susan. 2013. “Research As Resistance.” *Journal of Chemical Information and Modeling* 53(9): 1689–99.
- Brugnach, M., M. Craps, and A. Dewulf. 2014. “Including Indigenous Peoples in Climate Change Mitigation: Addressing Issues of Scale, Knowledge and Power.” *Climatic Change* (November).
- Bruns, Bryan, D J Bandaragoda, M. Samad, and J. D. Bandaragoda. 2001. Proceedings of the Regional Workshop, Malang, Indonesia, January 15-19 *Integrated Water-Resources Management in a River-Basin Context: Institutional Strategies for Improving the Productivity of Agricultural Water Management*. <http://ageconsearch.umn.edu/bitstream/118403/2/H030265.pdf>.
- Cannon, Terry. 2000. “VULNERABILITY ANALYSIS AND DISASTERS Terry Cannon Chapter in: D J Parker (Ed.)” *Floods*.

- Cannon, Terry, John Twigg, and Jennifer Rowell. 2003. "Register of Methodologies – Guidance Notes Social Vulnerability , Sustainable Livelihoods and Disasters."
- Carri, and Adam Rose. 2009. "Economic Resilience to Disaster: Carri Research Report 8." : 58.
- Carter, Nick W. 1991. Asian Development Bank *Disaster Management: A Disaster Manager's Handbook*. bases.bireme.br VN - readcube.com.
- Cash, David W., and Susanne C. Moser. 2000. "Linking Global and Local Scales: Designing Dynamic Assessment and Management Processes." *Global Environmental Change* 10(2): 109–20.
- Center for Excellence in Disaster Management and Humanitarian Assistance. 2015. "Indonesia Disaster Management Reference Handbook 2015." *Journal of Chemical Information and Modeling* 53(9): 1689–99.
- Christie, Michael. 2000. "Implementation of Realism in Case Study Research Methodology Authors." *International Council for Small Business Annual Conference Brisbane Australia Retrieved April 2*: 1–36.  
[http://ecsocman.edu.ru/data/588/656/1219/case\\_st.pdf](http://ecsocman.edu.ru/data/588/656/1219/case_st.pdf).
- Citarum. 2013. "FOR A BETTER FUTURE CITARUM RIVER RIVERS in INDONESIA • Indonesia Has at." (April).
- Clark, Andrew. 2007. "Understanding Community: A Review of Networks, Ties and Contacts." *ESRC National Centre for Research Methods Working Paper Series* 9(7): 37.
- Collins, Andrew E. 2010. "Disaster and Development." *Development in Practice* 20(7): 904–5.
- Colussi, Michelle M. 2000. *The Community Resilience Manual: A Resource for Rural Recovery and Renewal*.
- Cottle, S. 1998. "Ulrich Beck, 'Risk Society' and the Media: A Catastrophic View?" *European Journal of Communication* 13(1): 5–32.  
<http://ejc.sagepub.com/cgi/doi/10.1177/0267323198013001001>.
- Crain, Caitlin Mullan, Kristy Kroeker, and Benjamin S. Halpern. 2008. "Interactive and Cumulative Effects of Multiple Human Stressors in Marine Systems." *Ecology Letters* 11(12): 1304–15.
- Cutter, Susan L et al. 2008. "Community and Regional Resilience: Perspectives from Hazards, Disasters, and Emergency Management." *Geography* 1(7): 2301–6.  
[http://www.resilientus.org/library/FINAL\\_CUTTER\\_9-25-08\\_1223482309.pdf](http://www.resilientus.org/library/FINAL_CUTTER_9-25-08_1223482309.pdf).
- D'Arrigo, Rosanne et al. 2011. "Reconstructed Streamflow for Citarum River, Java, Indonesia: Linkages to Tropical Climate Dynamics." *Climate Dynamics* 36(3): 451–62.
- Damage, Assessing, and Defining Reconstruction Policy. "Early Recovery : The Context for Housing." *Communities*: 7–22.
- Dekens, Julie. 2007. "Local Knowledge for Disaster Preparedness: A Literature Review." *International Centre for Integrated Mountain Development (ICIMOD)*: 97.  
<http://lib.icimod.org/record/22470>  
<http://lib.icimod.org/record/22470/files/DPL>

- .pdf.
- Dow, James. 2007. "A Scientific Definition of Religion." *Anpere: Anthropological Perspectives on Religion*: 1–15. <http://www.anpere.net/2007/2.pdf>.
- Draft, Working. 2013. "Effective Humanitarian Feedback Mechanisms Methodology Summary for a Joint ALNAP and CDA Action." (February).
- Dryzek, John S. 2005. "The Politics of the Earth." : 288.  
[http://books.google.ca/books?id=FQ9\\_AAAAMAAJ](http://books.google.ca/books?id=FQ9_AAAAMAAJ).
- ECHO, UNESCAP, and ADPC. 2008. "Community-Based Disaster Risk Reduction in Indonesia." *East Asia* (April).
- Eichelberger, Laura. 2012. "Sustainability and the Politics of Calculation : Technologies of Safe Water , Subject-Making , and Domination." *Journal of Political Ecology* 19: 146–61.
- Flanagan, Barry E. et al. 2011. "A Social Vulnerability Index for Disaster Management." *Journal of Homeland Security and Emergency Management* 8(1): 1–22.
- Folke, Carl. 2006. "Resilience: The Emergence of a Perspective for Social-Ecological Systems Analyses." *Global Environmental Change* 16(3): 253–67.
- Franco, Z E et al. 2008. "Causality, Covariates and Consensus in ISCRAM Research: Towards a More Robust Study Design in a Transdisciplinary Community." *International Journal of Emergency Management* 5(1–2): 100–122.  
<http://www.embase.com/search/results?subaction=viewrecord&from=export&id=L352242928>\n<http://dx.doi.org/10.1504/IJEM.2008.019909>\n<http://wa2jp9pc9c.search.serialssolutions.com?sid=EMBASE&issn=14714825&id=doi:10.1504/IJEM.2008.019909&atitle=Causality,+cov>.
- Frerks, Georg, Jeroen Warner, and Bart Weijs. 2011. "The Politics of Vulnerability and Resilience." *Ambiente & sociedade* 14(2): 105–22.
- Fu, Tsung-hsi, Wan-i Lin, and Jyh-cherng Shieh. 2013. "The Impact of Post-Disaster Relocation on Community Solidarity : The Case of Post-Disaster Reconstruction after Typhoon Morakot in Taiwan." 7(6): 1964–67.
- Gervacio, Ramonnetto, and Maria Teresa Sharon Liong. 2014. "Combined Literature Review: Health, Social and Economic Impacts of Extreme Events." : 557.
- Gilbert, C. 1995. "Studying Disaster: A Review of Main Conceptual Tools." *International Journal of Mass Emergencies and Disasters* 13(3): 231–40.  
<http://www.ijmed.org/articles/319/download/>.
- Godschalk, David R. 2003. "Urban Hazard Mitigation: Creating Resilient Cities." *Natural Hazards Review* 4(3): 136–43.  
[http://ascelibrary.org/doi/10.1061/\(ASCE\)1527-6988\(2003\)4:3\(136\)](http://ascelibrary.org/doi/10.1061/(ASCE)1527-6988(2003)4:3(136)).
- De Graaf, Jody. 2016. "Cloudburst Emergency Planning in Urban Areas." (June).
- Group, Aon. 1999. "DISASTERS BY DESIGN Dennis S. Mileti." (1975): 1–16.
- Hapsari, Ratih Indri, and Mohammad Zenurianto. 2016. "American Journal of Engineering Research ( AJER ) View of Flood Disaster Management in Indonesia and the Key Solutions American Journal of Engineering Research ( AJER )." (3): 140–51.

- Hewitt, Kenneth. 2017. Identifying Emerging Issues in Disaster Risk Reduction, Migration, Climate Change and Sustainable Development *Identifying Emerging Issues in Disaster Risk Reduction, Migration, Climate Change and Sustainable Development*. <http://link.springer.com/10.1007/978-3-319-33880-4>.
- Holling, C S. 1973. "RESILIENCE AND STABILITY OF ECOSYSTEMS." *Annu.Rev.Ecol.Syst.* 4: 1–23.
- Hossain, Anwar. 2014. "Gender Issues in Community-Based Disaster Management : A Study on Flood Affected People in Bangladesh Institute of Social Welfare and Research University of Dhaka May 2014." (May).
- "ICWRMIP - Sub. Component 2-1." (october 2010): 10–119.
- Indonesia Constitution. 2002. "The 1945 Constitution of the Republic of Indonesia." 1(1): 19. [http://www.ilo.org/wcmsp5/groups/public/---ed\\_protect/---protrav/---ilo\\_aids/documents/legaldocument/wcms\\_174556.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---ilo_aids/documents/legaldocument/wcms_174556.pdf).
- Indrayana, Denny. 2008. "Indonesian Constitutional Reform 1999-2002 an Evaluation of Constitution-Making in Transition." (December).
- Jensen, Jonathan A, and The Ohio. 2014. "2014 North American Society for Sport Management Conference ( NASSM 2014 ) BIRGing 40 Years Later : A Replication of Cialdini ' S Seminal Study Pittsburgh , PA May 27 – 31 , 2014 Page 299 2014 North American Society for Sport Management Conference ( NASSM." (Nassm): 299–300.
- Joakim, E. 2011. "Post-Disaster Recovery and Vulnerability." *Disaster and Emergency Management in Canada*: 1–26.
- Johnston, Alastair Iain. 2007. "Socialization in International Relations Theory." *Social States: China in International Institutions, 1980-2000*.
- Kapoor, I. 2001. "Towards Participatory Environmental Management?" *Journal of environmental management* 63(3): 269–79.
- Katz, Elihu, and Tamar Liebes. 2007. "'No More Peace!': How Disaster, Terror and War Have Upstaged Media Events." *International Journal of Communication* 1(1): 157–66.
- Keith, Hamish D. 2008. "DISASTER MANAGEMENT AND RESPONSE: A LIFELINES STUDY FOR THE QUEENSTOWN LAKES DISTRICT."
- Kelman, Ilan. 2007. "Understanding Vulnerability to Understand Disasters." *Panel contribution to the Population-Environment ...*: 1–14. <http://host.jibc.ca/crhnet/resources/onlineBook/Kelman.pdf>.
- Klein, Richard J T, Robert J. Nicholls, and Frank Thomalla. 2003. "Resilience to Natural Hazards: How Useful Is This Concept?" *Environmental Hazards* 5(1–2): 35–45.
- Koike, T et al. 2015. "River Management System Development in Asia Based on Data Integration and Analysis System (DIAS) under GEOSS." *Science China Earth Sciences* 58(1): 76–95. <http://www.scopus.com/inward/record.url?eid=2-s2.0-84926659315&partnerID=40&md5=7052355c1a4798312660b44f06173663>.
- Krischke, Paulo J. 2006. "Political Learning in Territories of Exclusion , Conflict and

- Popular Organization ( Research Notes ) 1 Aprendizado Político Em Territórios de Exclusão , Conflito E Organização Popular ( Notas de Pesquisa ).” 42(2): 105–10.
- Kundzewicz, Zbigniew W, and Poland Germany. 2012. “Changes in Impacts of Climate Extremes : Human Systems and Ecosystems Coordinating Lead Authors : Lead Authors : Review Editors : Contributing Authors :” *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC)*: 231–90.
- Lavell, Allan 1997. 1998. “Decision Making and Risk Management.” : 23–25.
- Lincoln, Near. 2011. “Durham Research Online EXCEPTIONALLY.” 44(August).
- Lindell, Michael K. 2013. “Disaster Studies.” *Current Sociology* 61(5–6): 797–825. <http://csi.sagepub.com/content/61/5-6/797>  
<http://csi.sagepub.com/content/61/5-6/797.full.pdf>.
- Lindley, Sarah et al. 2011. “Climate Change, Justice and Vulnerability.” *Joseph Rowntree Foundation* (November): 1–180. <http://nationalfloodforum.org.uk/wp-content/uploads/JRF-climate-change-social-vulnerability-full.pdf>.
- Lloyd, G. 2006. “Planning and the Public Interest in the Modern World.” *The Sir Partick Geddes Commemorative Lecture* (June).
- Luers, Amy L. 2005. “The Surface of Vulnerability: An Analytical Framework for Examining Environmental Change.” *Global Environmental Change* 15(3): 214–23.
- McLaughlin, Paul, and Thomas Dietz. 2008. “Structure, Agency and Environment: Toward an Integrated Perspective on Vulnerability.” *Global Environmental Change* 18(1): 99–111.
- Mercer, Jessica, Dale Dominey-Howes, Ilan Kelman, and Kate Lloyd. 2007. “The Potential for Combining Indigenous and Western Knowledge in Reducing Vulnerability to Environmental Hazards in Small Island Developing States.” *Environmental Hazards* 7(4): 245–56.
- Methodology, Realist, Case Study, Business Working, and Paper Series. 1998. “Use Resea R Ch Bank.” 1: 19–35.
- Ministry of Public Works. 2007. “Indonesia : Integrated Citarum Water Resources Management Project ( Financed by the Technical Assistance Special Fund).” *Report on Roadmap and Program Development* (January 2007).
- Mitchell, Kenneth E et al. 2004. “The Multi-Institution North American Land Data Assimilation System (NLDAS): Utilizing Multiple GCIP Products and Partners in a Continental Distributed Hydrological Modeling System.” *J. Geophys. Res.* 109(D7): D07S90–. <http://dx.doi.org/10.1029/2003JD003823>.
- Morrow, Betty H. 2009. “Risk Behavior and Risk Communication: Synthesis and Expert Interviews.” *Final Report for the NOAA Coastal Services Center* (July): 1–52.
- Morrow, Betty Hearn. 1999. “Identifying and Mapping Community Vulnerability.” *Disasters* 23(1): 1–18.

- Mosse, David. 1998. "Making and Misconceiving Community in South Indian Tank Irrigation." *CROSSING BOUNDARIES, Conference of the International Association for the Study of Common Property*: 1–20.  
<http://dlc.dlib.indiana.edu/dlc/handle/10535/882>.
- Næss, Lars Otto, Ingrid Thorsen Norland, William M. Lafferty, and Carlo Aall. 2006. "Data and Processes Linking Vulnerability Assessment to Adaptation Decision-Making on Climate Change in Norway." *Global Environmental Change* 16(2): 221–33.
- National Disaster Management Authority (BNPB). 2014. "Badan Nasional Penanggulangan Bencana." : 1–9.
- Nations, United et al. 2012. "Economic and Social Council." 8(August): 1–13.
- Nielsen, Samuel William. 2005. "Public Education for Disaster Management: A Phenomenographic Investigation." : 1–393.
- Njie, Baboucarr, and Soaib Asimiran. 2014. "Case Study as a Choice in Qualitative Methodology." *IOSR Journal of Research & Method in Education (IOSR-JRME)* 4(3): 35–40. <http://www.iosrjournals.org/iosr-jrme/papers/Vol-4 Issue-3/Version-1/E04313540.pdf>.
- Nsoronfor, Innocent Forba. 2014. "Exploring Social Vulnerability to Natural Disasters in Urban Informal Settlements - Perspectives from Flooding in the Slums of Lagos, Nigeria." : 183. [http://kups.uni-koeln.de/6367/1/End\\_Vers\\_Dissertation\\_2.pdf](http://kups.uni-koeln.de/6367/1/End_Vers_Dissertation_2.pdf).
- Nyakundi, Hellen, Stephen Mogere, Isaac Mwanzo, and Andre Yitambe. 2010. "Community Perceptions and Response to Flood Risks in Nyando District, Western Kenya." *Jamba: Journal of Disaster Risk Studies* 3(1): 346–66.  
<http://www.jamba.org.za/index.php/jamba/article/view/35>.
- Ophiyandri, Taufika. 2015. "Advantages and Limitations of Community-Based Post-Disaster Housing Reconstruction Project." : 1–9.
- Osti, R., and K Miyake. 2009. *Forms of Community Participation in Disaster Risk Management Practices*.
- Participation, Promoting Community, Integrated Water, and Resources Management. 2016. "Involving Communities in Indonesia." (April).
- Paul Shitangsu Kumar. 2013. "Vulnerability Concepts and Its Application in Various Fields: A Review on Geographical Perspective." *J. Life Earth Sci.*, 8: 63–81.
- Peters, B. G., and J. Pierre. 1998. "Governance Without Government? Rethinking Public Administration." *Journal of Public Administration Research and Theory* 8(2): 223–43. <https://academic.oup.com/jpart/article-lookup/doi/10.1093/oxfordjournals.jpart.a024379>.
- Philip, Martin. 2003. *Towards a Clearer Understanding of "Vulnerability" in Relation to Chronic Poverty* Martin Prowse School of Economic Studies / IDPM Graduate School of Social Science and Law University of Manchester CPRC Working Paper No 24 Chronic Poverty Research Centre.
- Platform, Global. 2007. "Disaster Risk Reduction : 2007 Global Review." (June).
- Presiden, Peraturan. 1999. "Presiden Republik Indonesia." 1(1): 1–16.

- [http://www.komnasham.go.id/sites/default/files/dokumen/UU NO 39 TAHUN 1999 HAM\\_0.pdf](http://www.komnasham.go.id/sites/default/files/dokumen/UU_NO_39_TAHUN_1999_HAM_0.pdf).
- Priestley, M. & Hemingway, L. 2007. "Disability and Disaster Recovery: A Tale of Two Cities?" *Journal of Social Work in Disability & Rehabilitation* 24(1): 23–42. <http://linkinghub.elsevier.com/retrieve/pii/S0967070X05000909>.
- Reddy, E. Rajaram et al. 2000. "Telemedicine and Fetal Ultrasonography in a Remote Newfoundland Community [8]." *Cmaj* 162(2): 206–7.
- Reddy, J N. 2000. "Analysis of Functionally Graded Plates." *INTERNATIONAL JOURNAL FOR NUMERICAL METHODS IN ENGINEERING Int. J. Numer. Meth. Engng* 47(June 1999): 663–84.
- Rowe, G. 2004. "Evaluating Public-Participation Exercises: A Research Agenda." *Science, Technology & Human Values* 29(4): 512–56. <http://sth.sagepub.com/cgi/doi/10.1177/0162243903259197>.
- Sandman, Peter M. 1993. *Responding to Community Outrage : Strategies for Effective Risk Communication .*
- Schipper, E.L.F. 2007. "Climate Change Adaptation and Development : Exploring the Linkages." *Change* 107: 20. [http://www.preventionweb.net/files/7782\\_twp107.pdf](http://www.preventionweb.net/files/7782_twp107.pdf).
- Science, Introduction et al. 2000. "Research Design and Method." : 36–39.
- Silverman, D. 2000. "Silverman, D. (2000). *Doing Qualitative Research: A Practical Handbook*. Thousand Oaks, CA: Sage."
- Slovic, Paul, Baruch Fischhoff, and Sarah Lichtenstein. 1982. "Why Study Risk Perception?" *Risk Analysis* 2(2): 83–93.
- Smit, Barry, and Johanna Wandel. 2006. "Adaptation, Adaptive Capacity and Vulnerability." *Global Environmental Change* 16(3): 282–92.
- Smith, Keith, and David N. Petley. 2008. Routledge| Taylor & Francis Group *Environmental Hazards: Assessing Risk and Reducing Disaster*. <http://bookzz.org/book/593050/d0df70>.
- Stewart, Robert M. 2007. "Community Perspectives of Flood Risk and Social Vulnerability Reduction: The Case of the Red River Basin." : 377.
- Stoker, Gerry. 1998. "Governance as Theory: Five Propositions." *International Social Science Journal* 50(155): 17–28. <http://doi.wiley.com/10.1111/1468-2451.00106>.
- Striley, Katie, and Kimberly Field-Springer. 2016. "When It's Good to Be a Bad Nurse: Expanding Risk Orders Theory to Explore Nurses' Experiences of Moral, Social and Identity Risks in Obstetrics Units." *Health Risk & Society* 18(1–2): 77–96.
- Sutardi. 2004. "Action Report toward Flood Disasters Reduction Indonesian Case." : 1–20. <http://www.internationalfloodnetwork.org/AR2006/AR06Sutardi.pdf>.
- Svendsen, Mark, and Philippus Wester. 2005. "Managing River Basins : An Institutional Perspective." *Managing*: 1–18.
- Tan, Bach, Virginia Murray Uk, Mark Pelling Uk, and Jürgen Pohl Germany. 2012. "Determinants of Risk : Exposure and Vulnerability Coordinating Lead

- Authors : Lead Authors : Review Editors : Contributing Authors :” *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - A Special Report of Working Groups I and II of the Intergovernmental Panel on Climate Change (IPCC)*: 65–108.
- Tapsell, Sue et al. 2010. “Social Vulnerability to Natural Hazards.” *Contract* 1(11): 524. [http://caphaz-net.org/outcomes-results/CapHaz-Net\\_WP4\\_Social-Vulnerability2.pdf](http://caphaz-net.org/outcomes-results/CapHaz-Net_WP4_Social-Vulnerability2.pdf).
- Thinda, Thabang Karneels Abel. 2009. “Community-Based Hazard and Vulnerability Assessment: A Case Study in Lusaka Informal Settlement, City of Tshwane.” (May): 138.
- Twigg, John. 2004. “Disaster Risk Reduction.” *Good Practice Review* 44(0): 1–377. [http://www.ifrc.org/PageFiles/95743/B.a.05.Disaster.risk.reduction\\_Good.Practice.Review\\_HP.N.pdf](http://www.ifrc.org/PageFiles/95743/B.a.05.Disaster.risk.reduction_Good.Practice.Review_HP.N.pdf).
- . 2013. 7 *International Journal of Production Research An Integrated Conceptual Framework for Long-Term Social-Ecological Research*. <http://community.eldis.org/.59e907ee/Characteristics2EDITION.pdf>.
- U.S Department of State. 2012. “Guinea 2012 International Religious Freedom Report.” <http://www.state.gov/documents/organization/208688.pdf>.
- UNISDR. 2009. “2009 UNISDR Terminology on Disaster Risk Reduction.” *International Strategy for Disaster Reduction (ISDR)*: 1–30. [www.unisdr.org/publications](http://www.unisdr.org/publications).
- United Nations. 1994. “Yokohama Strategy and Plan of Action for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation.” *World Conference on Natural Disaster Reduction Yokohama, Japan, 23-27 May 1994* (May 1994): 23–27.
- Vulnerability, Factsheet Social. 2010. “CRN REPORT Factsheet Social Vulnerability to Disasters.” (November).
- Wachtendorf, Tricia. 2001. “SUGGESTIONS FOR CANADIAN INTERORGANIZATIONAL COLLABORATION IN DISASTER MITIGATION.”
- Wagenet, Linda P., and Max J. Pfeffer. 2007. “Organizing Citizen Engagement for Democratic Environmental Planning.” *Society & Natural Resources* 20(February 2005): 801–13.
- Wardak, Zabihullah Sadiqi, Vaughan Coffey, and Bambang Trigunaryah. 2013. “Critical Factors for Successful Housing Reconstruction Projects Following a Major Disaster.” : 1–12.
- Wibowo, Agus, Indra Surbakti, and Ridwan Yunus. 2013. “Indonesia Disaster Database.” *Expert Group Meeting on Improving Disaster Data to Build Resilience in Asia and the Pacific*.
- Williams, Brian N, Ralph S Brower, and W Earle Klay. 2016. “Community-Centred Police Professionalism: A Template for Reflective Professionals and Learning Organisations with Implications for the Co-Production of Public Safety and Public Order.” *The Police Journal* 89(2): 151–73.

- Wisner, Ben. 2003. "Indicators for Disaster Risk Management." (November).
- Wisner et al. 2013. "The Unisdr Needs a Better Definition of 'vulnerability.'" (Figure 1): 1–8.
- WSSD. 2002. "Johannesburg Declaration on Sustainable Development." I(June 1972): 16–19. <http://www.joburg.org.za/pdfs/johannesburgdeclaration.pdf>.
- Wu, Wei-ning, Kaiju Chang, and Yi-en Tso. 2016. "If Only We Knew What We Know : Factors for Mobilizing Citizen Participation in Community-Based Emergency Preparedness." (64).
- Yin, Robert K. 2009. 5. Applied social research methods series ; *Case Study Research : Design and Methods*. <http://unisa.aquabrowser.com/?itemid=|unisa-bibs|1104221>.
- Zein, Muhammad. 2010. "A Community Based Approach of Flood Hazard and Ulnerability Assessment in Flood Prone Areas; a Case Study in Kelurahan, Indonesia."
- Zhou, Zhiqing. 2012. "Public Participation in EIA , China."
- Zinn, Jens, and Patricia Fitzsimons. "Literature Review and Uncertainty in Climate Change Adaptation."
- Zwi, Anthony B et al. 2013. "Do Community Based Disaster Risk Management ( CBDRM ) Initiatives Reduce the Social and Economic Cost of Disasters ?" (June): 1–53.