Supplementary Material

# Supplementary Material A

1. **EconLit: 434 results (10 included 424 excluded based on title and abstract)**

* Keyword 1: Flood hazard mitigation and cost benefit analysis and net present value-184 results (listed: 9)
* Keyword 2: Stormwater mitigation and cost benefit analysis (18 results: 1 listed)
* Keyword 3: Stormwater mitigation and cost benefit analysis (2 results: 0 listed)
* Keyword 4: Watershed cost benefit analysis:  13 results (0 listed)
* Keyword 5: Flood and cost benefit analysis (15 results: 0 listed; contains lots of duplicates)
* Keyword 6: Environmental justice and flood mitigation cost benefit analysis and net present value-202 results (0 listed)

1. **Web of Science: 484 results (48 included 436 excluded based on title and abstract)**

* Keyword 1: Flood hazard mitigation and cost benefit analysis (60 results: 13 listed)
* Keyword 2: Stormwater mitigation and cost benefit analysis (29 results: 3 listed)
* Keyword 3: Stormwater and cost benefit analysis (158 results: 2 listed)
* Keyword 4: Environmental justice and cost benefit analysis and flood (6 papers: 0 listed)
* Keyword 5: Watershed cost benefit analysis and flood (52 results: 2 listed)
* Keyword 6: Flood mitigation and cost benefit analysis (166 results: 15 listed)
* Keyword 7: Equity in flood risk (13 listed)

1. **Google scholar: 400 (44 included 356 excluded based on title and abstract)**

* Keyword: BCA of flood mitigation measures in USA (12700 results: Reviewed about 400 :44 listed)

# Supplementary Material B: List of Full References for the 29 Included Studies

1. Alves, A., B. Gersonius, Z. Kapelan, Z. Vojinovic and A. Sanchez (2019). "Assessing the Co-Benefits of green-blue-grey infrastructure for sustainable urban flood risk management." Journal of environmental management **239**: 244-254.
2. Arrighi, C., L. Rossi, E. Trasforini, R. Rudari, L. Ferraris, M. Brugioni, S. Franceschini and F. Castelli (2018). "Quantification of flood risk mitigation benefits: A building-scale damage assessment through the RASOR platform." Journal of environmental management **207**: 92-104.
3. Atoba, K., G. Newman, S. Brody, W. Highfield, Y. Kim, and A. Juan (2021). "Buy them out before they are built: Evaluating the proactive acquisition of vacant land in flood-prone areas." Environmental conservation **48**(2): 118-126.
4. Atoba, K. O., S. D. Brody, W. E. Highfield, C. C. Shepard, and L. N. Verdone (2021). "Strategic property buyouts to enhance flood resilience: a multi-criteria spatial approach for incorporating ecological values into the selection process." Environmental Hazards **20**(3): 229-247.
5. Burnett, K., C. Wada and A. Balderston (2017). "Benefit-cost analysis of watershed conservation on Hawai'i Island." Ecological Economics **131**: 262-274.
6. Cooper, W., F. Garcia, D. Pape, D. Ryder, and B. Witherell (2016). "Climate change adaptation case study: benefit-cost analysis of coastal flooding hazard mitigation." Journal of Ocean and Coastal Economics **3**(2): 3.
7. Davlasheridze, M., K. O. Atoba, S. Brody, W. Highfield, W. Merrell, B. Ebersole, A. Purdue, and R. W. Gilmer (2019). "Economic impacts of storm surge and the cost-benefit analysis of a coastal spine as the surge mitigation strategy in Houston-Galveston area in the USA." Mitigation and adaptation strategies for global change **24**(3): 329-354.
8. Dittrich, R., T. Ball, A. Wreford, D. Moran and C. J. Spray (2019). "A cost‐benefit analysis of afforestation as a climate change adaptation measure to reduce flood risk." Journal of Flood Risk Management **12**(4): e12482.
9. Dong, You, and Dan M Frangopol. (2017). "Probabilistic Life-Cycle Cost-Benefit Analysis of Portfolios of Buildings under Flood Hazard." Engineering Structures **142**: 290-99.
10. Florec, V., M. Chalak and A. Hailu (2017). "Integrating intangible values in economic analyses of flood mitigation: a case study of the Brown Hill and Keswick creeks catchment in Adelaide." Australian Journal of Emergency Management, The **32**(4): 30-36.
11. Garrote, J., N. Bernal, A. Díez-Herrero, L. Martins and J. Bodoque (2019). "Civil engineering works versus self-protection measures for the mitigation of floods economic risk. A case study from a new classification criterion for cost-benefit analysis." International journal of disaster risk reduction **37**: 101157.
12. Huang, C.-L., N.-S. Hsu, H.-J. Liu, and Y.-H. Huang (2018). "Optimization of low impact development layout designs for megacity flood mitigation." Journal of hydrology **564**: 542-558.
13. Johnson, K. A., O. E. Wing, P. D. Bates, J. Fargione, T. Kroeger, W. D. Larson, C. C. Sampson and A. M. Smith (2020). "A benefit–cost analysis of floodplain land acquisition for US flood damage reduction." Nature Sustainability **3**(1): 56-62.
14. Kind, J., W. W. Botzen and J. C. Aerts (2020). "Social vulnerability in cost-benefit analysis for flood risk management." Environment and Development Economics **25**(2): 115-134.
15. Kind, J., W. Wouter Botzen and J. C. Aerts (2017). "Accounting for risk aversion, income distribution and social welfare in cost‐benefit analysis for flood risk management." Wiley Interdisciplinary Reviews: Climate Change **8**(2): e446.
16. Kousky, C., S. M. Olmstead, M. A. Walls, and M. Macauley (2013). "Strategically placing green infrastructure: cost-effective land conservation in the floodplain." Environmental science & technology **47**(8): 3563-3570.
17. Kousky, C. and M. Walls (2014). "Floodplain conservation as a flood mitigation strategy: Examining costs and benefits." Ecological Economics **104**: 119-128.
18. Molinari, D., S. Dazzi, E. Gattai, G. Minucci, G. Pesaro, A. Radice and R. Vacondio (2021). "Cost-benefit analysis of flood mitigation measures: A case study employing high-performance hydraulic and damage modelling." Natural hazards **108**(3): 3061-3084.
19. Nelson, K. S. and J. Camp (2020). "Quantifying the benefits of home buyouts for mitigating flood damages." Anthropocene **31**: 100246.
20. Nordman, E. E., E. Isely, P. Isely, and R. Denning (2018). "Benefit-cost analysis of stormwater green infrastructure practices for Grand Rapids, Michigan, USA." Journal of Cleaner Production **200**: 501-510.
21. Oladunjoye, O. A., D. G. Proverbs, B. Collins and H. Xiao (2019). "A cost-benefit analysis model for the retrofit of sustainable urban drainage systems towards improved flood risk mitigation." International Journal of Building Pathology and Adaptation.
22. Ramirez, J., W. L. Adamowicz, K. W. Easter and T. Graham‐Tomasi (1988). "Ex post analysis of flood control: Benefit‐cost analysis and the value of information." Water Resources Research **24**(8): 1397-1405.
23. Ruig, L. T. de, T. Haer, H. de Moel, W. W. Botzen and J. C. Aerts (2020). "A micro-scale cost-benefit analysis of building-level flood risk adaptation measures in Los Angeles." Water Resources and Economics **32**: 100147.
24. Tate, E., A. Strong, T. Kraus and H. Xiong (2016). "Flood recovery and property acquisition in Cedar Rapids, Iowa." Natural Hazards **80**(3): 2055-2079.
25. Ventimiglia, U., A. Candela and G. T. Aronica (2020). "A cost efficiency analysis of flood proofing measures for hydraulic risk mitigation in an urbanized riverine area." Water **12**(9): 2395.
26. Vojinovic, Z., W. Keerakamolchai, S. Weesakul, R. S. Pudar, N. Medina, and A. Alves (2016). "Combining ecosystem services with cost-benefit analysis for selection of green and grey infrastructure for flood protection in a cultural setting." Environments **4**(1): 3.
27. Watson, K. B., T. Ricketts, G. Galford, S. Polasky and J. O'Niel-Dunne (2016). "Quantifying flood mitigation services: The economic value of Otter Creek wetlands and floodplains to Middlebury, VT." Ecological Economics **130**: 16-24.
28. Wobus, C., J. Porter, M. Lorie, J. Martinich and R. Bash (2021). "Climate change, riverine flood risk and adaptation for the conterminous United States." Environmental Research Letters **16**(9): 094034.
29. Yildirim, E. and I. Demir (2021). "An integrated flood risk assessment and mitigation framework: A case study for middle Cedar River Basin, Iowa, US." International Journal of Disaster Risk Reduction **56**: 102113.

# Supplementary Material C: List of Excluded Articles

1. Rojas, R., L. Feyen and P. Watkiss (2013). "Climate change and river floods in the European Union: Socio-economic consequences and the costs and benefits of adaptation." Global Environmental Change 23(6): 1737-1751.

2. Landry, C. E., J. S. Pippin and R. Zarei (2020). "Using Meta-Analysis to Assess Benefits of Green Infrastructure Investments: Application to Small Urban Projects in Hinesville, GA." GA (November 3, 2020).

3. McGee, K. (2021). "A place worth protecting: Rethinking cost-benefit analysis under FEMA's flood-mitigation programs." U. Chi. L. Rev. 88: 1925.

4. Allaire, Maura. (2020). "Disparities in Disaster Assistance: A Comparison of the Social Benefits of Flood Insurance and Compensation." Water Economics and Policy 6 (04): 2050007.

5. Adler, M. D. (2006). "Equity analysis and natural hazards policy." On risk and disaster: Lessons from Hurricane Katrina.

6. Atkinson, G. and S. Mourato (2008). "Environmental cost-benefit analysis." Annual review of environment and resources 33(1): 317-344.

7. Boadway, Robin. (2006). "Principles of Cost-Benefit Analysis." Public Policy Review 2 (1): 1-44.

8. Chalk, Angela, Cheryl Austin, Katherine Prevost, Jeff Supak, and Dana Brown. (2021). The Benefits of Community-Driven Green Infrastructure. Earth Economics.

9. Cristiano, Elena, Stefano Farris, Roberto Deidda, and Francesco Viola. (2021). "Comparison of Blue-Green Solutions for Urban Flood Mitigation: A Multi-City Large-Scale Analysis." PLoS ONE 16 (1): e0246429.

10. Cristiano, Elena, Salvatore Urru, Stefano Farris, Dario Ruggiu, Roberto Deidda, and Francesco Viola. (2020). "Analysis of Potential Benefits on Flood Mitigation of a Cam Green Roof in Mediterranean Urban Areas." Building and Environment 183: 107179.

11. Cutter, Susan L, Lindsey Barnes, Melissa Berry, Christopher Burton, Elijah Evans, Eric Tate, and Jennifer Webb. (2008). "A Place-Based Model for Understanding Community Resilience to Natural Disasters." Global Environmental Change 18 (4): 598-606.

12. Cutter, S. L., C. T. Emrich, D. Morath and C. Dunning (2013). "Integrating social vulnerability into federal flood risk management planning." Journal of Flood Risk Management 6(4): 332-344.

13. Davis, Tyler Blake. (2010). "Criticisms and Revisions to the Us Army Corps of Engineers Principles and Guidelines for Benefit-Cost Analysis (Part 2)."

14. Elliott, James R, Phylicia Lee Brown, and Kevin Loughran. (2020). "Racial Inequities in the Federal Buyout of Flood-Prone Homes: A Nationwide Assessment of Environmental Adaptation." Socius: Research for a Dynamic World 6: 2378023120905439.

15. Emrich, Christopher T, Eric Tate, Sarah E Larson, and Yao Zhou. (2020). "Measuring Social Equity in Flood Recovery Funding." Environmental Hazards 19 (3): 228-50.

16. Fung, Juan, and Jennifer Helgeson. (2017). "Defining the Resilience Dividend: Accounting for Co-Benefits of Resilience Planning." US Department of Commerce.

17. Genovese, Elisabetta, and Thomas Thaler. (2020). "The Benefits of Flood Mitigation Strategies: Effectiveness of Integrated Protection Measures." AIMS Geosciences 6 (4): 459-72.

18. Godschalk, David R, Adam Rose, Elliott Mittler, Keith Porter, and Carol Taylor West. (2009). "Estimating the Value of Foresight: Aggregate Analysis of Natural Hazard Mitigation Benefits and Costs." Journal of Environmental Planning and Management 52 (6): 739-56.

19. Hudson, Paul, and WJ Wouter Botzen. (2019). "Cost–Benefit Analysis of Flood‐Zoning Policies: A Review of Current Practice." Wiley Interdisciplinary Reviews: Water 6 (6): e1387.

20. Hudson, Paul, WJ Wouter Botzen, and Jeroen CJH Aerts. (2019). "Flood Insurance Arrangements in the European Union for Future Flood Risk under Climate and Socioeconomic Change." Global Environmental Change 58: 101966.

21. Irwin, Nicholas B, H Allen Klaiber, and Elena G Irwin. (2017). "Do Stormwater Basins Generate Co-Benefits? Evidence from Baltimore County, Maryland." Ecological Economics 141: 202-12.

22. James, D. and C. Predo (2015). Principles and practice of cost–benefit analysis. Cost-Benefit studies of natural resource management in Southeast Asia, Springer: 11-46.

23. Junod, A. N., C. Martín, R. Marx and A. Rogin (2021). Equitable Investments in Resilience: A Review of Benefit-Cost Analysis in Federal Flood Mitigation Infrastructure, Urban Institute.

24. Johnson, Kris A, Oliver EJ Wing, Paul D Bates, Joseph Fargione, Timm Kroeger, William D Larson, Christopher C Sampson, and Andrew M Smith. (2020). "A Benefit-Cost Analysis of Floodplain Land Acquisition for Us Flood Damage Reduction." Nature Sustainability 3 (1): 56-62.

25. Kalman, Orit, Jay R Lund, Daniel K Lew, and Douglas M Larson. (2000). "Benefit-Cost Analysis of Stormwaterquality Improvements." Environmental Management 26 (6): 615-28.

26. Keenan, N. and S. Oldfield (2012). "The Urban Impacts Toolbox: An initial assessment of climate change flood adaptation options for Westport." Weather and Climate 32(2): 40-61.

27. Kourtis, I. M., V. A. Tsihrintzis and E. Baltas (2020). "A robust approach for comparing conventional and sustainable flood mitigation measures in urban basins." Journal of Environmental Management 269: 110822.

28. Kousky, Carolyn. (2014). "The Economics and Politics of 'Green Flood” Control: A Historical Examination of Natural Valley Storage Protection by the Corps of Engineers." Resources for the Future (14-07).

29. Kumar, Satish, Ravi Kumar Guntu, Ankit Agarwal, Vasant Govind Kumar Villuri, Srinivas Pasupuleti, Deo Raj Kaushal, Ashwin Kumar Gosian, and Axel Bronstert. (2022). "Multi-Objective Optimization for Stormwater Management by Green-Roofs and Infiltration Trenches to Reduce Urban Flooding in Central Delhi." Journal of Hydrology 606: 127455.

30. Li, Huiqin, Cuimei Lv, Minhua Ling, Changkuan Gu, Yang Li, Zening Wu, and Denghua Yan. (2021). "Emergy Analysis and Ecological Spillover as Tools to Quantify Ecological Compensation in Xuchang City, Qingyi River Basin, China." Water 13 (4): 414.

31. Li, Jia, Michael Mullan, and Jennifer Helgeson. (2014). "Improving the Practice of Economic Analysis of Climate Change Adaptation." Journal of Benefit-Cost Analysis 5 (3): 445-67.

32. Li, Jiada, Tao Tao, Mason Kreidler, Steven Burian, and Hexiang Yan. (2019). "Construction Cost-Based Effectiveness Analysis of Green and Grey Infrastructure in Controlling Flood Inundation: A Case Study." Journal of Water Management Modeling 27: C466.

33. Loomis, John B. (2010). "Importance of Incorporating Distributional Issues in Benefit-Cost Analysis." paper commissioned by the Benefit-Cost Analysis Center, University of Washington.

34. Mandarano, Lynn. (2010). "Sustainable Land-Use Planning: Revitalising a Flood Prone Office Park." Journal of Environmental Planning and Management 53 (2): 183-96.

35. Mazzorana, Bruno, Laura Levaggi, Omar Formaggioni, and Claudio Volcan. (2012). "Physical Vulnerability Assessment Based on Fluid and Classical Mechanics to Support Cost-Benefit Analysis of Flood Risk Mitigation Strategies." Water 4 (1): 196-218.

36. Mazzotta, Marisa, Justin Bousquin, Walter Berry, Claudette Ojo, Rick McKinney, Kristen Hyckha, and Caroline Gottschalk Druschke. (2019). "Evaluating the Ecosystem Services and Benefits of Wetland Restoration by Use of the Rapid Benefit Indicators Approach." Integrated Environmental Assessment and Management 15 (1): 148-59.

37. McClymont, Kerri, David Morrison, Lindsay Beevers, and Esther Carmen. (2020). "Flood Resilience: A Systematic Review." Journal of Environmental Planning and Management 63 (7): 1151-76.

38. Mechler, Reinhard. (2016). "Reviewing Estimates of the Economic Efficiency of Disaster Risk Management: Opportunities and Limitations of Using Risk-Based Cost–Benefit Analysis." Natural Hazards 81 (3): 2121-47.

39. Miguez, Marcelo G, Igor P Raupp, and Aline P Veról. (2019). "An Integrated Quantitative Framework to Support Design of Resilient Alternatives to Manage Urban Flood Risks." Journal of Flood Risk Management 12 (S2): e12514.

40. Mobley, William, Kayode O Atoba, and Wesley E Highfield. (2020). "Uncertainty in Flood Mitigation Practices: Assessing the Economic Benefits of Property Acquisition and Elevation in Flood-Prone Communities." Sustainability 12 (5): 2098.

41. Nelson, KS, and M Molloy. (2021). "Differential Disadvantages in the Distribution of Federal Aid across Three Decades of Voluntary Buyouts in the United States." Global Environmental Change 68: 102278.

42. NOAA. (2015). A guide to assessing green infrastructure costs and benefits for flood reduction. NOAA Office for Coastal Management.

43. Nurmi, Väinö, and Heini Ahtiainen. (2018). "Distributional Weights in Environmental Valuation and Cost-Benefit Analysis: Theory and Practice." Ecological Economics 150: 217-28.

44. Ocio, David, Christian Stocker, Ángel Eraso, Arantza Martínez, and José María Sanz de Galdeano. (2016). "Towards a Reliable and Cost-Efficient Flood Risk Management: The Case of the Basque Country (Spain)." Natural Hazards 81 (1): 617-39.

45. Patault, Edouard, Jérôme Ledun, Valentin Landemaine, Arnaud Soulignac, Jean-Baptiste Richet, Matthieu Fournier, Jean-François Ouvry, Olivier Cerdan, and Benoit Laignel. (2021). "Analysis of Off-Site Economic Costs Induced by Runoff and Soil Erosion: Example of Two Areas in the Northwestern European Loess Belt for the Last Two Decades (Normandy, France)." Land Use Policy 108: 105541.

46. Patterson, G. (2018). "Case Studies in Floodplain Buyouts: Looking to best practices to drive the conversation in Harris County."

47. Pattison-Williams, John K, John W Pomeroy, Pascal Badiou, and Shane Gabor. (2018). "Wetlands, Flood Control and Ecosystem Services in the Smith Creek Drainage Basin: A Case Study in Saskatchewan, Canada." Ecological Economics 147: 36-47.

48. Reddy, Sheila MW, Gregory Guannel, Robert Griffin, Joe Faries, Timothy Boucher, Michael Thompson, Jorge Brenner, Joey Bernhardt, Gregory Verutes, and Spencer A Wood. (2016). "Evaluating the Role of Coastal Habitats and Sea‐Level Rise in Hurricane Risk Mitigation: An Ecological Economic Assessment Method and Application to a Business Decision." Integrated Environmental Assessment and Management 12 (2): 328-44.

49. Rose, Adam, Keith Porter, Nicole Dash, Jawhar Bouabid, Charles Huyck, John Whitehead, Douglass Shaw, Ronald Eguchi, Craig Taylor, and Thomas McLane. (2007). "Benefit-Cost Analysis of Fema Hazard Mitigation Grants." Natural Hazards Review 8 (4): 97-111.

50. Saint‐Geours, Nathalie, Frédéric Grelot, J‐S Bailly, and Christian Lavergne. (2015). "Ranking Sources of Uncertainty in Flood Damage Modelling: A Case Study on the Cost‐Benefit Analysis of a Flood Mitigation Project in the O Rb D Elta, F Rance." Journal of Flood Risk Management 8 (2): 161-76.

51. Shi, Linda. (2020). "Beyond Flood Risk Reduction: How Can Green Infrastructure Advance Both Social Justice and Regional Impact?" Socio-Ecological Practice Research 2 (4): 311-20.

52. Shi, Linda, and Susanne Moser. (2021). "Transformative Climate Adaptation in the United States: Trends and Prospects." Science 372 (6549): eabc8054.

53. Sims, Charles, and Sarah E Null. (2019). "Climate Forecasts and Flood Mitigation." Southern Economic Journal 85 (4): 1083-107.

54. Sunstein, Cass R. (2005). "Cost-Benefit Analysis and the Environment." Ethics 115 (2): 351-85.

55. Sussman, F., A. Grambsch, J. Li and C. P. Weaver (2014). "Introduction to a special issue entitled perspectives on implementing benefit-cost analysis in climate assessment." Journal of Benefit-Cost Analysis 5(3): 333-346.

56. Taghinezhad, Arash, Carol J Friedland, Robert V Rohli, and Brian D Marx. (2020). "An Imputation of First-Floor Elevation Data for the Avoided Loss Analysis of Flood-Mitigated Single-Family Homes in Louisiana, United States." Frontiers in Built Environment 6: 138.

57. Taghinezhad, Arash, Carol J Friedland, Robert V Rohli, Brian D Marx, Jeffrey Giering, and Isabelina Nahmens. (2021). "Predictive Statistical Cost Estimation Model for Existing Single Family Home Elevation Projects." Frontiers in Built Environment: 80.

58. Talbot, Ceara J, Elena M Bennett, Kelsie Cassell, Daniel M Hanes, Elizabeth C Minor, Hans Paerl, Peter A Raymond, Rodrigo Vargas, Philippe G Vidon, and Wilfred Wollheim. (2018). "The Impact of Flooding on Aquatic Ecosystem Services." Biogeochemistry 141 (3): 439-61.

59. Trumbull, William N. (1990). "Who Has Standing in Cost‐Benefit Analysis?" Journal of Policy Analysis and Management 9 (2): 201-18.

60. Villegas Ortiz, Laura. (2018). "Integrating Econometric Models of Land Use Change with Models of Ecosystem Services and Landscape Simulations to Guide Coastal Management and Planning for Flood Control."

61. Vogl, Adrian L, Joshua H Goldstein, Gretchen C Daily, Bhaskar Vira, Leah Bremer, Robert I McDonald, Daniel Shemie, Beth Tellman, and Jan Cassin. (2017). "Mainstreaming Investments in Watershed Services to Enhance Water Security: Barriers and Opportunities." Environmental Science & Policy 75: 19-27.

62. Wang, H. (2021). Flood Your Neighbors: Spillover Effects of Levee Building.

63. Ward, Thomas, Ruben E Mujica-Mota, Anne E Spencer, and Antonieta Medina-Lara. (2021). "Incorporating Equity Concerns in Cost-Effectiveness Analyses: A Systematic Literature Review." PharmacoEconomics: 1-20.

64. Wenger, Caroline. (2015). "Better Use and Management of Levees: Reducing Flood Risk in a Changing Climate." Environmental Reviews 23 (2): 240-55.

65. Whitehead, John C, and Adam Z Rose. (2009). "Estimating Environmental Benefits of Natural Hazard Mitigation with Data Transfer: Results from a Benefit-Cost Analysis of Federal Emergency Management Agency Hazard Mitigation Grants." Mitigation and Adaptation Strategies for Global Change 14 (7): 655-76.

66. Wiener, John D. (1996). "Research Opportunities in Search of Federal Flood Policy." Policy Sciences 29 (4): 321-44.

67. Wu, Jiansheng, Ying Chen, Rui Yang, and Yuhao Zhao. (2020). "Exploring the Optimal Cost-Benefit Solution for a Low Impact Development Layout by Zoning, as Well as Considering the Inundation Duration and Inundation Depth." Sustainability 12 (12): 4990.

68. Zarekarizi, Mahkameh, Vivek Srikrishnan, and Klaus Keller. (2020). "Neglecting Uncertainties Biases House-Elevation Decisions to Manage Riverine Flood Risks." Nature Communications 11 (1): 1-11.

69. Zhang, Ning, and Alice Alipour. (2021). "A Multi-Step Assessment Framework for Optimization of Flood Mitigation Strategies in Transportation Networks." International Journal of Disaster Risk Reduction 63: 102439.