Yi Qiang

Assistant Professor

School of Geosciences, University of South Florida

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Education

- 2012 **Ph.D. in Geography**, Department of Geography, Ghent University, Belgium
- 2007 M.Sc. in Geographic Information Science, University of Edinburgh, United Kingdom
- 2006 **B.Sc. in Geographic Information Systems** and **B.A. in Law** (Minor), Beijing Normal University, China

Appointments

noa
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Publications

Peer-Reviewed Journal Articles (*advised student author)

......Forthcoming.....

- 1. Carlson, K.; Buttenfield, B; **Qiang, Y.**, "Wetland Classification Accuracy and Scale: Visualizing Uncertainty Metrics Across Multiple Resolutions". under review by *Transactions in GIS*
- 3. **Qiang, Y.**, Buttenfield, B., Xu, J.*, (2022) "Analyzing Multi-Scale Spatial Pattern in a Pyramid Modeling Framework". *Cartography and Geographic Information Science*. http://10.1080/15230406. 2022. 2048419
- 4. Yang, M., Zou, L., Cai, H., **Qiang, Y.**, Lin, B., Zhou, B., Abedin, J., Mandal, D. (2022). "Spatial—Temporal Land Loss Modeling and Simulation in a Vulnerable Coast: A Case Study in Coastal Louisiana". *Remote Sensing.* vol.14 (4). DOI: https://doi.org/10.3390/rs14040896
- 5. Xu. J.*, Qiang, Y. (2021). "Spatial Assessment of Community Resilience from 2012 Hurricane Sandy using Nighttime Light". *Remote Sensing*. https://doi.org/10.3390/rs13204128
- 6. Xu. J.*, **Qiang, Y.** (2021). "Analysing Information Diffusion in Natural Hazards using Retweets a Case Study of 2018 Winter Storm Diego" *Annals of GIS.* vol.28(2), pp. 213-227. DOI: 10.1080/19475683 .2021.1954086
- 7. Peng, B., Huang, Q., Vongkusolkit, J., Gao, S., Wright, D. B., Fang, Z. N., **Qiang, Y.** (2020). "Urban Flood Mapping with Bi-temporal Multispectral Imagery via a Self-supervised Learning Framework" *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. vol.8. DOI: 10.1109/JSTARS.2020.3047677

- 8. **Qiang, Y.**, Buttenfield, B. P., Joseph, M. B., (2020) "How to Measure Distance on a Digital Terrain Surface and Why it Matters in Geographical Analysis", *Geographical Analysis*. vol.53(3), pp. 588-622. DOI: 10.1111/gean.12255
- 9. **Qiang, Y.**, Huang, Q., Xu, J.*, (2020) "Observing Disaster Resilience from Space: Using Nighttime Light to Model Economic Disturbance and Recovery Pattern in Natural Disaster", *Sustainable Cities and Society*, vol.57. https://doi.org/10.1016/j.scs.2020.102115
- 10. **Qiang, Y.**, Xu. J.*, (2020) "Empirical assessment of road network resilience in natural hazards using crowdsourced traffic data", *International Journal of Geographical Information Science*, vol: 12(34) pp.2434-2450. DOI: 10.1080/13658816.2019.1694681
- 11. **Qiang, Y.**, Xu. J.*, Zhang, G., (2019) "The Shapes of US Cities: Revisiting the Classic Population Density Functions Using Crowdsourced Geospatial Data", *Urban Studies*. vol.57(10). DOI:10.1177/00420980 19871191
- 12. **Qiang, Y.** (2019) "Flood Exposure of Critical Infrastructure in the United States", *International Journal of Disaster Risk Reduction*. vol: 39, DOI:10.1016/j.ijdrr.2019.101240
- 13. **Qiang, Y.** and Van de Weghe, N. (2019) "Re-Arranging Space, Time and Scales in GIS: Alternative Models for Multi-Scale Spatio-Temporal Modeling and Analyses", *ISPRS International Journal of Geo-Information*. vol: 8(2). DOI:10.3390/ijgi8020072
- 14. **Qiang, Y.** (2019) "Disparities of Population Exposed to Flood Hazards in the United States", *Journal of Environmental Management*. vol: 232 (15). DOI:10.1016/j.jenvman.2018.11.039
- 15. **Qiang, Y.**, Shen, S., and Chen, Q. (2019) "Visibility Analysis of Oceanic Blue Space Using Digital Elevation Models", *Landscape and Urban Planning*. vol:181. DOI:10.1016/j.landurbplan.2018.09.019
- 16. Cai H., Lam NSN., **Qiang Y**., Zou L., Correll RM., Mihunov V. (2018). "A Synthesis of Disaster Resilience Measurement Methods and Indices" *International Journal of Disaster Risk Reduction*. vol: 31. DOI:10.1016/j.ijdrr.2018.07.015.
- 17. Cai H., Lam NSN., Zou L., **Qiang Y**. (2018). "Modeling the Dynamics of Community Resilience to Coastal Hazards Using a Bayesian Network." *Annals of the American Association of Geographers*. vol:108(5). DOI:10.1080/24694452.2017.1421896.
- 18. Lam, NSN., Xu, Y.J., Liu, K., Dismukes, D.E., Reams, M., Pace, R.K., Qiang, Y., Narra, S., Li, K., Bianchette, T.A., Cai, H., Zou, L., Mihunov, V. (2018). "Understanding the Mississippi River Delta as a Coupled Natural-Human System: Research Methods, Challenges, and Prospects." *Water*. vol: 10(8). DOI:10.3390/w10081054.
- 19. Zou L., Lam NSN., Cai H., **Qiang Y.** (2018). "Mining Twitter Data for Improved Understanding of Disaster Resilience." *Annals of the American Association of Geographers*. vol: 108(5). DOI:10.1080/24694452.2017.1421897.
- 20. Lam, NSN., **Qiang Y.**, Li, K., Cai H., Zou, L and Mihunov, V. (2018) "Extending Resilience Assessment to Dynamic System Modeling: Perspectives on Human Dynamics and Climate Change Research". *Journal of Coastal Research*. vol: 85, pp:1401–1405. doi.org/10.2112/SI85-281.1.
- 21. **Qiang, Y.**, Lam, N., Zou, L. and Cai, H., (2017) "Changes in Exposure to Flood Hazards in the United States", *Annals of the American Association of Geographers*. vol: 107(6). DOI:10.1080/24694452. 2017.1320214
- 22. Li, X., Lam, N., Qiang, Y., Li, K., Yin, L., Liu, S., and Zheng, W., (2016) "Measuring County Resilience after the 2008 Wenchuan Earthquake", *International Journal of Disaster Risk Science*. vol:7(4), DOI:10.1007/s13753-016-0109-2

- 23. **Qiang, Y**. and Lam, N., (2016) "The Impact of Hurricane Katrina on Urban Growth in Louisiana: An Analysis Using Data Mining and Simulation Approaches", *International Journal of Geographical Information Science*. vol:30(9). DOI:10.1080/13658816.2016.1144886
- 24. Bianchette, T., Liu, K., **Qiang, Y.**, and Lam, N., (2015) "Wetland accretion rates along coastal Louisiana: Spatial and temporal variability in light of Hurricane Isaac's impacts", *Water*. vol: 8(1). DOI:10.3390/w8010001
- 25. Cai, H., Lam, N., Zou, L., **Qiang, Y.**, Li, K., (2015) "Assessing Community Resilience to Coastal Hazards in the Lower Mississippi River Basin", *Water*. vol: 8(1). DOI:10.3390/w8020046
- 26. Zou, L., Kent, J., Lam, N., Cai, H., **Qiang Y.**, Li, K., (2015) "Evaluating Land Subsidence Rates and their Implications for Land Loss in the Lower Mississippi River Basin", *Water*. vol:8(1). DOI:10.3390/w8010010
- 27. Lam, N., Qiang, Y., Arenas, H., Brito, P. and Liu, K., (2015) "Mapping and Assessing Coastal Resilience in the Caribbean Countries", *Cartography and Geographic Information Science*. vol:42(4). DOI: 10.1080/15230406.2015.1040999
- 28. **Qiang, Y.** and Lam, N., (2015) "Modeling Land Use and Land Cover Changes in a Vulnerable Coastal Region Using Artificial Neural Networks and Cellular Automata", *Environmental Monitoring and Assessment*. vol:187(3). DOI:10.1007/s10661-015-4298-8
- 29. Li, K., Lam, N., **Qiang, Y.**, Zou, L. and Cai H., (2015) "A Cyberinfrastructure for Community Resilience Assessment and Visualization", *Cartography and Geographic Information Science*. vol:42(s1). DOI:10.1080/15230406.2015.1060113
- 30. Chavoshi, S. H., De Beats, B., Qiang, Y., De Tré, G., Neutens, T. and Van de Weghe, N., (2015) "A Qualitative Approach to the Identification, Visualisation and Interpretation of Repetitive Motion Patterns in Groups of Moving Point Objects", *International Arab Journal of Information Technology*. vol:12, no. 5, pp 415-423
- 31. Van de Weghe, N., De Roo, B., **Qiang, Y.**, Neutens, T. and De Maeyer, P., (2014) "The Continuous Spatio-Temporal Model (CSTM) as an Exhaustive Framework for Multi-Scale Spatio-Temporal Analysis", *International Journal of Geographical Information Science*. vol:28(5). DOI:10. 1080/13658816.2014.886329
- 32. **Qiang, Y**., Valcke, M., and Van de Weghe, N., (2014) "Representing Time Intervals in a Two-Dimensional Space: An Empirical Exploratory Study". *Journal of Visual Languages and Computing*. vol:25(4), pp 466-480. doi.org/10.1016/j.jvlc.2014.01.001
- 33. **Qiang, Y**., Chavoshi, S.H., Logghe, S., De Maeyer, P., and Van de Weghe, N. (2014) "Multi-scale Analysis of Linear Data in a Two-Dimensional Space", *Information Visualization*. vol:13(3), pp 248-265. DOI:10.1177/1473871612436775
- 34. **Qiang, Y.**, Delafontaine, M., Versichele, M., De Maeyer, P., and Van de Weghe, N., (2012) "Interactive Analysis of Time Intervals in a Two-Dimensional Space", *Information Visualization*. vol:11(4). DOI:10.1177/1473871612436775
- 35. **Qiang, Y.**, Delafontaine, M., Neutens, T., Stichelbaut, B., De Maeyer, P., and Van de Weghe, N., (2012) "Analysing imperfect temporal information in GIS using the Triangular Model", *The Cartographic Journal*. vol:11(4). DOI:10.1179/1743277412Y.0000000008
- 36. **Qiang, Y.**, Delafontaine, M., Asmussen, K., Stichelbaut, B., De Tré, G., De Maeyer, P. and Van de Weghe, N. (2010) "Modelling Imperfect Time Intervals in a Two-Dimensional Space", *Control and Cybernetics*, vol:39(4).

Book Chapters

- 37. **Qiang, Y**. (2021) "Geospatial Analysis and Model Building". *The Geographic Information Science & Technology Body of Knowledge (1st Quarter 2020 Edition)*, John P. Wilson (ed.). DOI:10.22224 /gistbok/2021.1.12.
- 38. Yuan, Y., **Qiang, Y.**, Bin Asad, K., and Chow, T. E. (2020). "Point Pattern Analysis". *The Geographic Information Science & Technology Body of Knowledge (1st Quarter 2020 Edition)*, John P. Wilson (ed.). DOI: 10.22224/gistbok/2020.1.13.
- 39. Lam NS-N, Xu Y.J., Pace R.K., Liu, K.B., **Qiang, Y.**, Narra, S., Bianchette, T.A., Cai, H. (2019) "Collaboration Across Boundaries: Reflections on Studying the Sustainability of the Mississippi River Delta as a Coupled Natural-Human System". In: Perz SG (ed.) *Collaboration Across Boundaries for Social-Ecological Systems Science: Experiences Around the World*. Springer International Publishing, pp. 361–393. DOI: 10.1007/978-3-030-13827-1 11.
- 40. Brodaric, B., Reitsma, F. and **Qiang, Y.** 2007, "SKIing with DOLCE: toward an e-Science Knowledge Infrastructure", in *Formal ontology in information systems*, C Eschenbach, M Gruninger (ed.), Amsterdam, The Netherlands. pp. 208-219. ISBN: 978-1-58603-923-3

Conference proceedings

- 41. **Qiang, Y**, Barbara P. Buttenfield, Nina Lam, and Nico Van de Weghe. 2018. "Novel Models for Multi-Scale Spatial and Temporal Analyses." In *Proceedings of 10th International Conference on Geographic Information Science (GIScience 2018)*, edited by Stephan Winter, Amy Griffin, and Monika Sester, 114:55:1–55:7. DOI:10.4230/LIPIcs.GISCIENCE.2018.55.
- 42. Buttenfield, B., Ghandehari, M., Leyk, S., Stanislawski, L., Brantley, M. and **Qiang, Y.**, (2016) Measuring Distance "As the Horse Runs": Cross-Scale Comparison of Terrain-Based Metrics, In *proceedings of GIScience 2016*, Montreal, Canada, pp.41-44
- 43. De Tré, G., Bronselaer, A., Billiet, C., **Qiang, Y.,** Van de Weghe, N., De Maeyer, P., Enrique Pons, J., and Pons, O. (2012) Visualising and handling uncertain time intervals in a two-dimensional triangular space, In *proceedings of the 2nd world conference on soft computing*, Baku, Azerbaijan, pp.585-592
- 44. Asmussen, K., Qiang, Y., De Maeyer, P., Van de Weghe, N. (2009). Triangular Model for Studying and Memorising Temporal Knowledge, In *proceedings of International Conference of Education, Research and Innovation*, Madrid, Spain. pp. 1849-1859.
- 45. **Qiang, Y.**, Reitsma, F. & Van de Weghe, N. (2009) Towards a General Temporal Ontology for Knowledge Integration, In *proceedings of the International Conference on Knowledge Engineering and Ontology Development*, Funchal. Portugal. pp. 275-280.
- 46. **Qiang, Y.**, Asmussen, K., Delafontaine, M., De Tré, G., Stichelbaut, B., De Maeyer, P. & Van de Weghe, N. (2009) Visualising rough time intervals in a two-dimensional space, In *proceedings of 2009 IFSA World Congress / EUSFLAT Conference*, Lisbon, Portugal. pp. 1480-1485

Presentations

- 1. "CroScalar: A Muti-Scale Modeling Framework for Spatio-Temporal Data". Abstract accepted by AutoCarto 2022, Riverside, LA, November, 2022
- 2. "CroScalar: An Integrated Framework for Cross-Scale Spatio-Temporal Modeling" in the 2022 Annual Meeting of American Association of Geographers (virtual)
- 3. "Tracing the Curves of Rebound: Data-Driven Methods for Disaster Resilience Modeling" in the 2021 Annual Meeting of American Association of Geographers (virtual)

- 4. "Data-Driven Approaches to Analyze Geographic Disparities in Flood Exposure and Community Resilience" in the 2021 Annual Workshop of Initiative on Coastal Adaptation and Resilience (iCAR) (virtual)
- 5. "Big Data Approaches for Disaster Resilience Assessment" in the Fall Colloquium of School of Geosciences, University of South Florida, virtual, November, 2020
- 6. "Scales as Additional Dimensions in Space and Time" in the Scale and Spatial Analytics Workshop, Spatial Analysis Research Center (SPARC), Arizona State University, February, 2020.
- 7. "Tracing the Curves of Bouncing Back: Data Driven Methods for Assessing Disaster Resilience" in the Natural Resources & Environmental Management Research Seminar Series, University of Hawaii, Honolulu, HI, September 2019
- 8. "Spatio-Temporal Data Mining and Analyses in a Multi-Scale Framework" in the 2019 Annual Meeting of American Association of Geographers, Washington, DC, 2019
- 9. "Novel Models for Multi-Scale Spatial and Temporal Analyses" in the 10th International Conference of Geographical Information Science, Melbourne, Australia, August, 2018
- 10. "Physical Exposure and Social Sensitivity: Sea Level Rise Impacts to Transportation through Vulnerability Assessment and Social Media Analysis" in 2018 PRiMO Conference Technology and Disaster Risk Reduction, Honolulu, Hawaii, August, 2018.
- 11. "Artificial Intelligence and Deep Learning in the Modeling of Coupled Natural and Human Dynamics" in 2018 *Annual Meeting of AAG*, New Orleans, LA, April, 2018
- 12. "A Systematic Evaluation of Surface-Adjusted Distance Measurements using a HPC-enabled Monte Carlo Simulation", in 2017 Annual Meeting of AAG, Boston, Massachusetts, April 2017.
- 13. "Modeling Long-Term Human Dynamics in Response to Natural Hazard Using Remote Sensing Data", in 2016 Annual Meeting of AAG, San Francisco, California, March 2016.
- 14. "High Performance Computing with Python for Geocomputation", in 2015 AAG CyberGIS Workshop, Chicago, Illinois, April 2015.
- 15. "Modeling the Coupled-Natural and Human Dynamics in a Vulnerable Coastal System Using CyberInfrastructure", in 2015 annual meeting of the Association of American geographers, Chicago, Illinois, April 2015.
- 16. "Modeling Land Use and Land Cover Changes in A Vulnerable Coastal Region Using Artificial Neural Network", in 2014 annual meeting of the Association of American geographers, Tampa, Florida, April 2014.
- 17. "Comparing the Land Use Land Cover Change between the South and North Louisiana Using Data Mining", in *the 29th RSGIS workshop in Louisiana*, Lafayette, Louisiana, April 2013
- 18. "Multi-Scale Analysis of Linear Data in a Two-Dimensional Space", in *workshop on space-time cube*, Enschede, the Netherlands, June 2012
- 19. "Visualising and analysing time series data in GIS", in *Workshop of Geospatial Visual Analytics: Focus on Time (GeoVa(t))*, Guimarães, Portugal, May 2010
- 20. "Triangular Model for Studying and Memorising Temporal Knowledge", in *the International Conference of Education, Research and Innovation*, Madrid, Spain, Nov. 2009
- 21. "Towards a General Temporal Ontology for Knowledge Integration", in the International Conference on Knowledge Engineering and Ontology Development, Funchal. Portugal, Oct. 2009

Research Grants

1. PI/PD: "CoPe EAGER: Collaborative Research: A GeoAI Data-Fusion Framework for Real-Time Assessment of Flood Damage and Transportation Resilience by Integrating Complex Sensor Datasets",

- funded by NSF CoPe-Coastlines and People Program, \$40,000, duration 2020-2021, collaborating with University of Wisconsin-Madison and University of Texas at Arlington.
- 2. PI/PD: "Cross-Scale Spatiotemporal Modeling Using an Integrated Data Framework", funded by *NSF Methodology, Measurement, and Statistic and Geography and Geospatial Science Program*, \$350,000, duration: 2019 2022, with University of Hawaii Manoa and University of Colorado Boulder.
- 3. Co-PI: "Putting the farmer in the driver's seat: Integrative web tool for improved soil health and carbon assessment, monitoring, and planning", funded by *US Department of Agriculture, National Institute of Food and Agriculture*, \$449,035, duration 2018 2022, with PI Susan Crow and co-PI Johnathan Deenik (UH-Manoa)
- 4. Co-investigator: "Understanding the Socio-Ecological Drivers and Consequences of Seasonal Air Pollution", funded by *NSF Cultural Anthropology Senior Research Program* (98-1390), \$276,897, duration 2018-2021, with PI Mary Mostafanezhad and co-PI Olivier Evrard (Institute of Research for Development, France).
- 5. Co-PI: "Physical Exposure and Social Sensitivity: Estimating Sea Level Rise Impacts to Transportation through Vulnerability Assessment and Social Media Analysis", funded by *University of Hawaii Pacific Southwest Region 9 University Transportation Center*, \$40,207, duration 2017-2018, with PI Suwan Shen (UH-Manoa)
- 6. PI: "Who Own the Paradise: Using Supercomputer to Analyze Oceanview Inequality in Oahu", *Support of Undergraduate Research, College of Social Sciences at UH-Manoa.* \$3,600, duration: 2017-2018.
- 7. PI: "Using Social Media Data to Analyze Spatial Zoning, Connectivity and Social Disparities in Honolulu", *Research Support Award, College of Social Sciences at UH-Manoa.* \$20,318 duration: 2017-2018.
- 8. PI: "Using CyberGIS to Model the Coupled Natural and Human Dynamics in a Vulnerable Coastal System" funded by *CyberGIS Fellow Program*, duration: 2014-2015, \$6,400, duration: 2014-2015.
- 9. Co-PI: "A Synthesis of Resilience Measurement Methods and Indices", funded by *Louisiana Sea Grant Program*, duration 2014 -2016, \$49,940, duration: 2014-2016, with PI Nina Lam (Louisiana State University)

Courses Taught

- GIS-6100: Geographic Information Systems (USF)
- GIS-6307: Spatial Data Science (USF)
- GEO-4930: Geospatial Data Analytics (USF)
- GEOG-104: Digital Earth (UHM)

- GEOG-489: Applied GIS (UHM)
- GEOG-476: Web Mapping (UHM)
- GEOG-389: Geospatial Data Analytics (UHM)
- GEOG-388: Introduction to GIS (UHM)

Graduate Student Advising

Advising

- 1. Jinwen Xu, Ph.D. in Geography and Environmental Policy, USF (2018)
- 2. Xiang Li, PhD in Geography and Environmental Policy, USF (2022)
- 3. Cong Ma, PhD in Geography and Environmental Policy, USF (2022)
- 4. Megan Grove, MA in Geography, USF (2021 now)
- 5. Linbo Han, MS in Environmental Science and Policy, USF (2022)
- 6. Silvia Sulis, MA in Geography, UH-Manoa (graduated in 2019)

Serving in the committee

- 1. Yuzhou Chen, Ph.D. in Geography and Environmental Policy, USF
- 2. Shakhawat H. Tanim, Ph.D. in Geography and Environmental Policy, USF
- 3. Lauren Carter, Ph.D. in Geography and Environmental Policy, USF

- 4. Leilani Paxton, PhD in Geography and Environmental Science and Policy, USF
- 5. Nathan Shull (graduated in 2021), MA in Geography, USF
- 6. Ross Wians, MA in Geography (graduated in 2021), UH Manoa
- 7. Derek Ford, MA in Geography (graduated in 2020), UH Manoa
- 8. Renee Setter, MA in Geography (graduated in 2020), UH Manoa
- 9. Qian Zhang, Ph.D. in Geography, UH Manoa
- 10. Mehran Ghandehari, Ph.D. in Geography (graduated in 2019), University of Colorado Boulder
- 11. Pengdong Zhang, Ph.D. in Geography (graduated in 2018), Ghent University, Belgium

Service to the College and University

2017 - 2018	Grduate Committee at the Department of Geography and Environment at UH-Manoa
2018 - 2019	Undergraduate Committee at the Department of Geography and Environment at UH-Manoa
2017 - 2019	Organizing Committee of the Geography Symposium at the Department of Geography and
	Environment at UH-Manoa
2020 - now	Grduate Committee at the School of Geosciences, USF
2020-now	GIS Committee at the School of Geosciences, USF

Service to the Community and Profession

Professional Organizations

2022-now	Member of Board of Directors in the International Association of Chinese Professionals in
	Geographic Information Sciences
2022-now	Associate Editor of Journal Urban Resilience and Sustainability
2014-now	Member of American Association of Geographers
2022	Organizor of Symposium on Scale in Spatial Analytics and Modeling in 2022 Annual Meeting
	of AAG
2019	Co-organizer of "GeoAI and Deep Learning Symposium" at the AAG Annual Meeting,
	Washington, DC, April 2019
2018	Co-organizer of "Artificial Intelligence and Deep Learning Symposium" at the AAG
	Annual Meeting, Washington, DC, April 2019

Ad-Hoc Reviewer for Grant Proposal

U.S. National Science Foundation; The Research Grant Council (RGC) of Hong Kong

Panel Reviewer for Grant Proposal

NSF Mid-scale Research Infrastructure-1; NSF CSSI Program; U.S. - Egypt Science and Technology Joint Fund

Journal and Manuscript Review

International Journal of Geographical Information Science; Annals of American Association of Geographers; Proceedings of the National Academy of Sciences (PNAS); Scientific Report; Landscape and Urban Planning; Applied Geography; Scientific Report; Journal of Spatial Science; International Journal of Disaster Risk Reduction; Journal of Location Based Services; Geocarto International; Human and Ecological Risk Assessment: An International Journal; Environment Modeling & Assessment; IEEE Transactions on Fuzzy Systems; Agricultural Systems; Sustainability; Health Informatics Journal; Journal of Visual Languages and Computation; International Journal of Urban Sustainable Development; International Journal of Disaster Risk Reduction;