

EDITORIAL

CASCADE-NET — Increasing Civil Society's Capacity to Deal with Changing Extreme Weather Risk: Negotiating Dichotomies in Theory and Practice

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1. Introduction

An increased focus on meaningful public and community participation in local governance is redefining the role of civil society in extreme weather adaptation (Challies *et al.* 2016). This shift toward greater civic engagement is occurring across nearly every realm of extreme weather management — from routine service provision to crisis response. It is accompanied by a growing recognition within the research literature that collaboration between communities and other actors is pivotal for place-based transformation to resilience (Royal Society 2014; IPCC 2022; Schreuder and Horlings 2022) in the face of increased extreme weather events and climate change (e.g., Guerreiro *et al.* 2018; Wahl *et al.* 2015). The changing contribution of civil society — its knowledge and agency in building local climate resilience throughout the disaster risk management cycle, and in the

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reduction of losses — is also a major international concern (e.g., Mazzocchi 2018; Aldrich et al. 2018; McEwen et al. 2016). It sits centrally within the key imperatives of the UNDRR's Sendai Framework for Disaster Risk Reduction (2015–2030) for increased and inclusive citizen and community involvement in local adaptation to extreme weather risks, and in delivering on the UN Sustainable Development Goals in relation to water security, reduced inequalities, climate action, good health and wellbeing and others.

Over four years, the UK Economic and Social Research Council (ESRC)-funded CASCADE-NET network critically examined the changing role of civil society in extreme weather resilience. This Special Edition of the *Journal of Extreme Events* draws on its findings, exploring dichotomies and tensions in relation to the changing roles of the citizen, changing stakeholder responsibilities and local resilience to extreme weather events, now and in the future. The network, which was funded through the UK's Economic and Social Research Council (2015–2020), sponsored a series of eight seminars and an international conference.¹ The COVID-19 pandemic, as a social shock, hit in the final year of the CASCADE-NET programme, leading to a shift from face to face to online conference delivery. This provided further opportunities for contributions from the UK, Europe, Australia and South America. CASCADE-NET's goals at its outset were to:

- Better understand the concept of participatory citizenship in the context of civil society subsuming central government roles in managing extreme weather events, and ultimately improve the functioning of civil society in this risk management context;
- Work with diverse groups to identify opportunities that might be arising from extreme weather risk, including potential commercial opportunities and possible democratic benefits for community building;
- Integrate learning (conceptual, methodological, outcomes, impacts) from past and on-going but separate international and UK research projects on civil society and extreme weather;
- Develop new social spaces for exploring horizontal and vertical interactions between academics, stakeholders from civil society, policy makers, risk management agencies and lesser-heard voices; and
- Co-produce new insights about how conceptual framing and mutual understanding of innovations for social learning can inform risk practice and governance.

¹Resources from the seminars and conference can be accessed at <https://www.cascade-net.com/>.

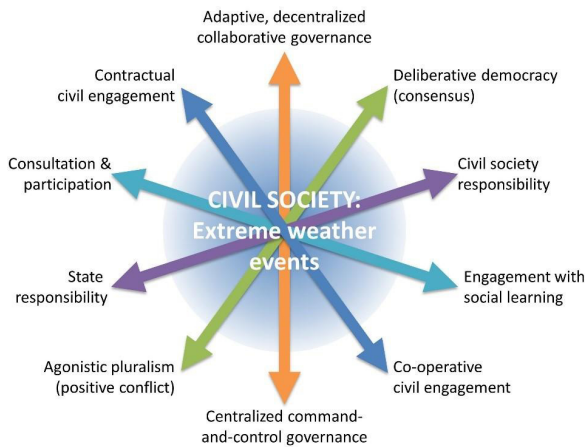


Figure 1. The Role of Civil Society in Extreme Weather Adaptation: Dichotomies in Theory and Practice

Dialogic activities developed to deliver on these goals brought together wide-ranging disciplinary, UK and international academics, risk management professionals, those working in Non-Government Organisations (NGOs) and creative practitioners. These aimed to navigate and negotiate the implications — for theory and practice — of various dichotomies in how civil society prepares for, and recovers from, both extreme weather events and associated risks (Figure 1).

These axes — or possible continua — conceptualized the responsibilities of citizen and state in risk management, including possible paradigm shifts in thinking from citizen consultation and participation to engagement in social learning (Arnstein 1969; Collins and Ison 2009). They allowed us to identify tensions in navigating different options in relations (cooperative versus contractual) between citizens and government — whether local, regional or national (Geaves and Penning-Rowsell 2015). A further axis involves the contrasting approaches from normative deliberative democracy that privileges consensus building, to agonistic pluralism (Mouffe 1999) and the need to accept and live with conflicting views (Horowitz 2013).

Within the axes, the network's interdisciplinary dialogue focused on: advancing understandings of CITIZENSHIP as active and participatory; identifying new SPACES for this participation — the new knowledges shared, whose voices are heard and their relations to social learning; and understanding of INNOVATIONS — implications of the rapidly developing role of technology and social media, and opportunities offered by the arts and humanities and socially engaged creative practice in engaging differently, with new audiences. A fourth theme — MUTUAL

LEARNING — was added to capitalize on insights that can be drawn from civil agency during the COVID-19 pandemic — as an extreme situation and social shock that impacted communities, with a reduction in functions normally undertaken by local government.

2. This Special Edition

This special edition aims to distil the interdisciplinary, inter-professional and transdisciplinary discussions within the CASCADE-NET seminars, recognizing the opportunities to capture and narrate a wide diversity of participant voices (cf. Goldstein *et al.* 2015). The objective is to share this thinking and promote wider dialogue across disciplinary and professional audiences and civil society. It distils some critical reflections from that dialogue across key themes, identifies lessons from the COVID-19 pandemic and reflects on the key implications for future research agendas.

The set of 13 papers are stimulated by CASCADE-NET's dialogue and in some cases draw directly from the workshop discussions. Over 35 network members contribute their thinking and evidence under four main headings: citizenship and participation, broadening spaces for participation, innovations in participation and mutual learning and civil agency in extreme weather and COVID-19. The papers take a variety of formats: empirical research papers, methodological reflections, a roundtable dialogue, a policy forum, a literature review and reflective commentaries. They offer ideas and guidance to promote further discussion about possible ways forward in navigating futures for the research, policy and practice of participatory citizenship in extreme weather risk management and wider climate resilience.

Citizenship and participation

Two papers explore this territory from differing perspectives. Forrest *et al.*, in their Policy Forum, reflect on the future of citizen volunteering — or unpaid work — within extreme weather risk, and the key challenges and opportunities for climate resilience. Drawing on their expertise across three national settings — UK, Czech Republic and the Netherlands — and using the example of flood risk management, they identify 10 urgent challenges and four cross-cutting themes in transforming volunteering for local climate change adaptation. These include attending to the opportunities and tensions in spontaneous volunteering, thinking systemically about citizen roles and co-benefits in volunteering to address local issues (e.g., need for improved health and well-being) for broader climate resilience, and giving strong attention to social-spatial inequalities in who volunteers to support local resilience-building. They argue the need to go beyond traditional understandings of what

volunteering might involve to more inclusive framings, and that participation in just and equitable volunteering has a key role to play in transformative climate resilience practice policy.

Cobbing *et al.* in their commentary, reflect critically on their experiences of many years in professional practice in community risk management for extreme weather events in the UK (floods) and Australia (floods, droughts, bushfires). Through case-studies and drawing on the Australian LandCare thinking, they highlight the importance of bringing community lay knowledge into decision making throughout the disaster risk management cycle, and for statutory stakeholders to know when to step back in community-led decision making about local risk management. This reflection distils seven important cross-cutting themes or principles in community-led approaches, like the required values from professional stakeholders that give or return power to communities to shape the place in which they live, alongside working with others. Importance is given to connecting different types of local knowledge and cultural practices that support community-centered social learning. This in turn supports increased community empowerment and agency in local decision making for transformed place-based risk management.

Broadening spaces for participation

Four papers explore how participatory spaces could be made more inclusive for different communities. McEwen *et al.* in '*Rebuffing the 'hard to reach' narrative: how to engage diverse groups in participation for resilience*' set the scene in exploring major issues with the 'hard to reach' motif — used frequently by organizations that hold the power in local risk management to describe groups that, for various reasons, are 'less heard' in their locale. Their interdisciplinary round table discussion draws on diverse academic and professional expertise to ask who are these 'lesser heard voices', how deeper engagement can be achieved through improved networks and relationships, why these voices are isolated and whether COVID-19 recovery is the perfect moment to transform policy and practice. They argue the critical importance of who is placed in the center of engagement activities, and that it is often those in power who make themselves 'hard to reach' and fail to listen. This discussion acknowledges how the succession of crises in the UK and other settings provide opportunities for joined-up thinking, setting the scene for other papers such as Calvillo *et al.* on cascades of vulnerability in Brazil's flood-prone areas during COVID-19.

Next Nguyen and Leichenko offer insights from a research case study in the operationalization of climate justice principles within a neighborhood development within New York City. Such initiatives in climate risk management are often promoted as having co-benefits — like improved environment and jobs — for low-

income, at-risk communities but may in reality be viewed with community scepticism due to issues like gentrification. Based on multi-method research involving stakeholder interviews, community workshop participation and planning document analysis, this study highlights the factors that strengthened community influences over the urban resiliency planning processes: the importance of community-led inputs, the role of proactive community champions and mobilizations of local people to give their views. The paper shares lessons and strategies that empower local voices in community-based adaptation and in building local climate resilience.

King explores the literature on '*Hearing Minority Voices: LGBTI experience and vulnerability in disaster and recovery*' and takes the 'less heard' heuristic into new areas of intersection around identities, place, status and the entanglement of these voices in areas more prone to hazards. What is key to King's approach is to critique normative understandings of community that are central to risk reduction and daylight the diversity of community members. LGBTI communities may be doubly excluded from the mainstream ideas of community and from the risk, resilience and adaptation measures. These measures may well be rolled out on the ground by faith-based organizations, and so King addresses these as key players in the risk reduction and recovery network of organizations.

Extending the demographic focus and understanding of citizen vulnerability and resilience, Harrington *et al.*, in their commentary, reflect on the issues and opportunities in relation to intersectionality of those identifying as female and disabled in flood recovery, and the potential to be both vulnerable and strong. This includes reflection on the potential for disabled women to input their knowledge and experiences into local resilience planning and social learning for resilience within communities. Drawing on Crip theory, the authors reimagine what capabilities could mean when living through extreme events because familiarity with chaos and working around poor service provision is a daily experience for disabled women.

Innovations in participation

Four papers focus on different innovations to how citizens might participate in disaster risk management. Focusing on another set of 'less heard' voices that are often portrayed as inherently vulnerable, Cook *et al.* working in Melbourne, Australia explore the effectiveness and systemic opportunities in engaging senior citizens in participatory processes. This involves a relationship building approach to engaging senior citizens to support flood risk reduction. In empirical research, they ask what innovations to engagement might look like and what spillover effects occur from such engagements with senior citizens, given common issues of social

isolation and loneliness. The research involved co-working with a senior citizen organization — University of the Third Age (U3A), and participant interviews were analyzed for both flood risk reduction actions and spillover effects. Their processes were found to promote relationship building, learning, skill development and intellectual risk taking — linked to risk reduction actions and successful aging. The authors suggest that assessment of spillover benefits as additional impacts should be part of the design and appraisal of participatory processes. The findings demonstrate the value of disaster risk reduction engagements with groups of citizens in which impacts can simultaneously benefit other risk issues affecting community vulnerabilities.

Turning to rapidly evolving communication technologies as another innovation, Ball and Nash-Williams, draw on their research into evidence from UK practice in flood risk management and the CASCADE-NET workshops to explore opportunities of new media technologies in sharing local risk knowledge to reduce dependency and enhance empowerment. Empirical evidence on changing communication practice was gained from the Thames Valley, UK. They found that social networks formed or enhanced through new media can help secure consensus but can also spread distrust and impact relations between communities and statutory stakeholders with flood risk management responsibilities. This is rapidly changing territory — with potential to entrench existing issues like power structures, attitudes and ideas. ‘New’ media also has potential to increase social learning and step change interactions and relationships between the producers and consumers of information as positive influences on empowerment for local resilience building.

Moving on to socially engaged arts as innovation, three papers reflect on the potential of storytelling approaches in research and practice within community risk management. [Liguori et al. \(2022\)](#) explore the opportunities of applied storytelling and the uses of arts-led community spaces to build local resilience, emphasizing the importance of such spaces for making arts-generated connections and increasing emotional resilience through successful co-creative work. The paper unpacks case study examples where artists work with communities on water-risk management — drought risk management from the UK and a digital regional arts park in Australia. The authors reflect on how the concept and process of a creative ecosystem provides a framework for exploring the disruptive role of the cultural sector in space/place resilience-building. Importantly, an arts-led approach to recovery uses story — from individual to community voices — to build local capacity.

While co-writing this paper, the authors had iterative conversations that impacted on their mutual understanding of various language systems, with meta-reflections around key terms, such as “disruption”, “empowerment”, and “creative

ecosystem". Capturing this, Liguori *et al.*'s commentary (this volume) proposes a critical reflection on the use of language to address challenges of promoting and supporting civil society in adapting to increasing extreme weather risk. They emphasise the high value of boundary-spanning explorations of language as a generative meaning-making process, arguing that such insight can contribute to more effective approaches for participatory research and practice when working with communities in addressing climate adaptation issues. Concluding, they propose that the socially engaged or participatory arts are particularly well placed to be active in such processes.

Next is a methodological reflection on how to work with citizen stories in an extended participatory research process played out in and with at-risk communities. Roberts *et al.* propose the development of a new framework for adaptive participatory storytelling methods (APSA) to capture perceptions and experiences of extreme weather events within the UK DRY (Drought Risk and You) project. Different storytelling approaches tailored to particular community settings and places, act as ways of accessing and sharing local lay knowledges about risk and adaptation — past, present and future. The APSA approach is particularly important when engaging citizens and communities with more diffuse and hidden risks that are less pervasive in the public psyche and becoming more frequent due to climate change. They present valuable opportunities to share diverse voices within and beyond affected communities for social learning.

Mutual learning: Civil agency in extreme weather and COVID-19

The occurrence of the COVID-19 pandemic brought new opportunities to research citizen and community agency. Cavillo *et al.* in '*From extreme weather events to 'cascading vulnerabilities': participatory flood research methodologies in Brazil during COVID-19*' engage with one of the key research questions of the Waterproofing Data Project: how to engage citizens to produce, circulate and embed data? The authors explore how to incorporate and build upon pre-existing flood memories and local knowledge of flood risk, to increase community resilience in a time of pandemic. In researching this question during the pandemic and national lockdowns in Brazil, they faced unanticipated methodological challenges that required an inventive and compassionate approach to collecting story data in a context with a history of extraction. In seeking to mobilize and sensitize wider communities to the intersection of place-memory of flooding data with the aim of transforming perceptions for improving community resilience, they faced communities' vulnerability in new ways, revealing cascades of vulnerability.

Finally, Landau in her critical commentary, draws on literature and case-studies of Hurricane Sandy's and COVID-19's impact on New York City to reflect on the

limitations of traditional forms of aid and their propensity to exclude those most in need. She explores the potential of mutual aid as an alternative approach to better meet the survival needs of those affected, with strongly embedded justice principles. The paper seizes an important opportunity to reflect on the implications of the mainstreaming of practices of mutual aid within communities during the pandemic and in its recovery phase.

3. Conclusion

Dichotomies in role of civil society in extreme weather adaptation inevitably lead to contested perspectives among different stakeholders, and surfacing these as a virtuous ongoing process is essential to help distil insights that can progress theory and practice. This special edition brings together a diverse set of voices from research, policy and practice in different national settings to explore the issues and opportunities for increased civil agency within extreme weather adaptation to changing risk, and their implications for wider climate resilience. However, we need to be careful in presenting the special edition as the citizen's voice. It is in part — but brokered by academics and other risk management stakeholders. The number of citizen groups or NGOs involved in authorship is limited — an important area for development in future network discussions.

The special edition highlights the importance of revisiting several precepts and concepts in redefining civil agency, at-risk communities, hard-to-reach, vulnerabilities and capabilities: the implications of language, the roles, responsibilities and ways of working with different stakeholders — communities, statutory organizations, NGOs, artists and others. It explores the needs of inclusive and just participation in dealing with systemic inequalities, the openings provided by new technologies alongside more traditional communication channels and the opportunities for developing participatory methods used in research and practice to increase mutual learning and co-benefits. Traditional 'actors', 'researchers' and 'agencies' have limitations and there is an increasing range of other ways of working. For example, the 'brokering' of civil society's role in extreme weather adaptation does not have to be done by human beings with powerful positions, it can be done by technologies, software and apps in the hands of lesser heard communities, or by working with socially engaged artists with local community embedding.

This special edition also evidences the value of targeted international network and relationship-building initiatives such as CASCADE-NET. The body of work, presented here, brings valuable insights together from a range of engaged projects and initiatives focused on different communities, risks and governance settings. It

emphasizes the importance of capitalizing on the momentum of COVID-19 recovery to rethink this space creatively to build community resilience for extreme weather and more widely. It is a critical time to make space for on-going multi-stakeholder dialogue across cultural settings, supporting learning for transformation, with the aim of increasing, and where possible transforming, civil society's capacity to deal with changing extreme weather risk and other eco-social shocks. The varied contributions evidence an important willingness to enter and promote dialogue between citizens and the diverse stakeholders — statutory, NGOs, cultural sector and others — with potential to contribute their knowledge and expertise within extreme weather risk management. They highlight the value that can come when critical attention and openness is given to thinking afresh about citizenship, new spaces for participation and potential innovations, along with the strong potential for mutual learning, drawing on shared experiences of COVID-19.

To contribute to change in the role of civil society in extreme weather adaptation, it is important to extend and develop our collective advocacy for participation and co-working between civil society and the increasingly varied stakeholders that are involved in meeting the challenges of adapting to changing weather extremes. These 13 papers do that, creating fresh space for critical reflection and innovation with the risk management sector. This acts to enable important mutual learning in working with citizens for increased place-based climate resilience and climate justice.

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References

- Aldrich, DP, Meyer MA and Page C (2018). Social capital and natural hazards governance. *Oxford Research Encyclopedia*. http://works.bepress.com/daniel_aldrich/43/.
- Arnstein, SR (1969). A ladder of citizen participation. *Journal of the American Institute of Planners*, 35(4): 216–224. doi: 10.1080/01944366908977225.
- Challies, E, Newig J, Thaler T, Kochskämper E and Levin-Keitel M (2016). Participatory and collaborative governance for sustainable flood risk management: An emerging research agenda. *Environmental Science and Policy*, 55(2): 275–280.
- Collins, K and Ison R (2009). Jumping off Arnstein's ladder: Social learning as a new policy paradigm for climate change adaptation. *Environmental Policy and Governance*, 19: 358–373.

- Geaves, LH and Penning-Rowsell EC (2015). 'Contractual' and 'cooperative' civic engagement: The emergence and roles of 'flood action groups' in England and Wales. *Ambio*, 44(5): 440–451. doi: 10.1007/s13280-014-0576-x.
- Goldstein, BE, Wessells AT, Lejano R and Butler W (2015). Narrating resilience: Transforming urban systems through collaborative storytelling. *Urban Studies*, 52(7): 1285–1303.
- Guerreiro, SB, Dawson RJ, Kilsby C, Lewis E and Ford A (2018). Future heat-waves, droughts and floods in 571 European cities. *Environmental Research Letters*, 13: 034009.
- Horowitz, LS (2013). Toward empathic agonism: Conflicting vulnerabilities in urban wetland governance. *Environment and Planning A: Economy and Space*, 45(10): 2344–2361. <https://doi.org/10.1068/a45591>.
- IPCC (2022). Summary for Policymakers [H-O Pörtner, DC Roberts, ES Poloczanska, K Mintenbeck, M Tignor, A Alegría, M Craig, S Langsdorf, S Löschke, V Möller and A Okem (eds.)]. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H-O Pörtner, DC Roberts, M Tignor, ES Poloczanska, K Mintenbeck, A Alegría, M Craig, S Langsdorf, S Löschke, V Möller, A Okem and B Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3–33. doi:10.1017/9781009325844.001.
- Liguori, A, Le Rossignol, K, Kraus, S, McEwen, L and Wilson, M (2022). Exploring the uses of arts-led community spaces to build resilience: Applied storytelling for successful co-creative work. *Journal of Extreme Events*, 9(1), 2250007. <https://doi.org/10.1142/S2345737622500075>.
- Mazzocchi, F (2018). Why “integrating” western science and indigenous knowledge is not an easy task: what lessons could be learned for the future of knowledge? *Journal of Futures Studies*, 22(3): 19–34.
- McEwen, L, Garde-Hansen J, Holmes A, Jones O and Krause F (2016). 'Sustainable flood memories, lay knowledges and the development of community resilience to future flood risk'. *Transactions of the Institute of British Geographers*, 42(1): 14–28.
- Mouffe, C (1999). Deliberative democracy or agonistic pluralism? *Prospects for Democracy*, 66(3): 745–758.
- Royal Society (2014). Resilience to extreme weather. <https://royalsociety.org/topics-policy/projects/resilience-extreme-weather/>.
- Schreuder, W and Horlings LG (2022). Transforming places together: Transformative community strategies responding to climate change and sustainability challenges. *Climate Action*, 1: 24. <https://doi.org/10.1007/s44168-022-00024-3>.
- UNDRR Sendai Framework for Disaster Risk Reduction (2015-2030). Available at <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>.
- Wahl, T, Jain S, Bender J, Meyers SD and Luther ME (2015). Increasing risk of compound flooding from storm surge and rainfall for major US cities. *Nature Climate Change*, 5: 1093–1097. doi: 10.1038/NCLIMATE2736.