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SYMPOSIUM

Introduction: Managed retreat and environmental justice in a changing climate

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Abstract

In response to global climate change, managed retreat has emerged as a controversial adaptation strategy. The purposeful movement of people and communities away from hazardous places raises numerous social and environmental justice concerns that will become even more pressing as retreat occurs more frequently and at larger scales. This special issue contributes to an emerging body of literature on managed retreat by providing a range of perspectives and approaches to considering justice in managed retreat. The assembled papers represent diverse *voices* (including perspectives from individuals whose communities are currently relocating or considering relocation), *disciplines* (including oral histories, legal analyses, and cultural heritage considerations), and *lenses* through which to consider the justice implications of managed retreat. They describe completed, in-progress, and foiled relocations. They suggest opportunities for improvement through improved evaluations and broader collaborations. While each presents a unique lens, key themes emerge around the need for transparent and equitable policies, self-determination of communities, holistic metrics for assessing individual and community well-being, the importance of culture both as something to be protected and an asset to be leveraged, and the need to address historical and systemic injustices that contribute to vulnerability and exposure to risk.

Keywords Managed retreat · Social justice · Environmental justice · Climate change · Adaptation

Global climate change threatens where and how people live. It exacerbates rising seas and floods (Nicholls et al. 2011; Neumann et al. 2015; Storlazzi et al. 2018; Oppenheimer et al. 2019), drought (Cook et al. 2018; Jehanzaib et al. 2020), heat waves (Mora et al. 2017; Raymond et al. 2020), wildfire (Abatzoglou and Williams 2016; Sharples et al. 2016), and other extreme conditions. These hazards threaten people's physical safety, livelihoods, sense of place, heritage, and overall well-being. In response, people around the world are moving (Greiving et al. 2018; Linke et al. 2018; Mach et al. 2019; Forsyth and Peiser 2021), as people have done throughout history (Huang and Su 2009; McAdam 2015; deMenocal and Stringer 2016; Timmermann and Friedrich 2016). Future projections suggest that climate change may drive 88 million to 1.4 billion people to move by 2100 (Hauer et al. 2020). This level of human movement will have significant implications for policies that govern mobility and related issues such as resource use, food security, housing, and economic development.

People may move autonomously or through managed retreat (also called planned retreat, relocation, or resettlement): the purposeful, planned, and coordinated movement of people away from hazardous areas or areas of extreme environmental degradation (Hino et al. 2017; Ajibade et al. 2020). Managed retreat has long been recognized as a potential adaptation strategy and has been used to address floods and other hazards, but it has often been considered a last resort—an option to be pursued only where *in situ* adaptation or risk reduction measures are ineffective or prohibitively costly (IPCC 2007; Siders 2019; Anderson et al. 2020). However, as the effects of climate change have become more apparent and more severe, there has been a growing recognition among scholars and practitioners that incremental

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adaptation or armoring may be insufficient in the face of future change (Kates et al. 2012). Relocation may become necessary in some locations (Jay et al. 2018; Lincke and Hinkel 2018) and managed or planned retreat may be preferable to autonomous migration or displacement (Birkmann and von Teichman 2010; Siders et al. 2019).

In practice, managed retreat raises numerous questions: Who will move? Where will people go? Who will decide when, where, and how relocation occurs? How will retreat be financed and who should pay? How does relocation affect the land, economies, and socio-cultural dynamics of the neighborhoods people leave and the ones where they resettle? Nations and communities around the world have begun to grapple with these questions as they implement managed retreat programs and plan for its future expansion. Governments have bought out flood-prone properties (Healy and Soomere 2008; Mach et al. 2019; Pinter et al. 2019; Thaler and Fuchs 2019; Doberstein et al. 2020; Elliott et al. 2020). Communities have relocated as groups, and new settlements have been developed for residents converging from multiple origin sites (Bower and Weerasinghe 2021; Forsyth and Peiser 2021; Pinter and Rees 2021). In the Pacific, bilateral agreements support current and future international migration (McAdam 2015; McNamara 2015). In the UK, towns have been "decommissioned" and will need to relocate in the coming decades (Goeldner-Gianella 2007; BBC 2019). Informal settlements in Nigeria and the Philippines have been cleared in the name of climate resilience and coastal risk reduction (Ajibade 2019; Alvarez and Cardenas 2019). The numerous ways retreat occurs add to its complexity.

Managed retreat is a highly controversial adaptation strategy in part because it has potential for abuse by governments and corporations seeking to displace disenfranchised populations (Sipe and Vella 2014; Ajibade 2019; Alvarez and Cardenas 2019) and because it may, intentionally or unintentionally, perpetuate or exacerbate colonialist power dynamics (McAdam 2015; Marino 2018) and racial discrimination (Hardy et al. 2017; Siders 2018; Loughran et al. 2019). Even when executed in ways that avoid these pitfalls, managed retreat can threaten people's sense of permanence, identity, place attachment, and community (Charan et al. 2017; Bukvic et al. 2018; Huang 2018; Binder et al. 2019; Ajibade et al. 2020; Jessee 2020; See and Wilmsen 2020). As managed retreat becomes increasingly common and occurs at larger scales, the problems of social and environmental justice that arise will become even more pressing. Key questions include the following:

- Who decides whether to relocate or not? How can communities who want to relocate be effectively supported? What are the merits and risks of bottom-up or top-down relocation planning?
- How should managed retreat address centuries of colonialism, racism, discrimination, multigenerational displacement, disinvestment, and other injustices?
- How can culture and heritage be maintained during and after relocation? How does heritage inform relocation processes?
- How does the manner of relocation affect outcomes for participants and communities?
- How can managed retreat improve well-being?

These questions are not an exhaustive list but illustrate the multiple dimensions through which managed retreat touches on social and environmental justice. The term "justice" has numerous meanings, which have changed over time and across cultural contexts, but in simple terms, social and environmental justice refer to the distribution of opportunities, benefits, and burdens in society and the processes that determine those distributions (Elster 1992; Schlosberg 2009). How benefits and burdens *should* be distributed is a question at the center of much philosophical and empirical research, and one that has been answered in a variety of ways, such as allocation by merit, preference to those who have the least, and allocation to redress inequities resulting from unjust systems (see, e.g., Duvert 2018; Chatterjee 2011; Marx 2000; Rawls 1971). Numerous concepts of justice can and should be used as lenses through which to explore managed retreat, including distributional justice (fair distribution of benefits and burdens across society), procedural justice (fair and participatory processes for decision-making), recognition justice (recognition of historic injustices that have shaped current conditions), restoration justice (actions taken to provide redress for historical wrongs), intergenerational justice (consideration of future generations), and ecological justice (consideration of the rights and needs of ecosystems and non-human species) (see Holland 2017; Meerow et al. 2019; Schlosberg 2013; Schlosberg and Collins 2014; Walker 2012; Whyte 2011; Wilmsen and Rogers 2019; Young 1990). Managed retreat touches not only on traditional environmental justice issues such as inequitable exposure to environmental hazards and access to environmental amenities (Martinich et al. 2013; Knighton et al. 2021) but also social justice issues such as affordable housing, wealth inequality, access to livelihoods, and power dynamics in the political economy (Sipe and Vella 2014; Rulleau et al. 2017; Loughran et al. 2019). For many individuals and communities, these different dimensions of justice are critical, since relocation is an embodied process that shapes and reshapes their physical, emotional, social, financial, and cultural relations with space (Kuusisto-Arponen and Gilmartin 2015). In other words, the justice of managed retreat requires engagement with a range of issues far beyond the logistics of physical movement.

This special issue contributes to an emerging body of literature on managed retreat by providing a range of perspectives and

approaches to considering justice in managed retreat. The assembled papers represent diverse *voices* (including perspectives from individuals whose communities are currently relocating or considering relocation), *disciplines* (including oral histories, legal analyses, and cultural heritage), and *lenses* through which to consider the justice implications of managed retreat. Contributions include global authors and viewpoints, although cases and perspectives from the USA and Europe are over-represented, which appears to mirror the managed retreat literature more broadly and is, notably, the inverse of the literature on environmental migration, which tends to focus on nations in the Global South (Piguet et al. 2018). The purpose of this special issue, therefore, is not to provide a comprehensive review of the justice implications of managed retreat but to call attention to the need for more research and a greater diversity of cases, perspectives, experiences, and voices in this field.

Highlighting the value of diverse voices and experiences, Maldonado et al. share the thoughts of Indigenous community leaders and collaborators from the USA and Marshall Islands on questions such as: how can government and scientific institutions support community relocations, how do people relocate with their cultures intact, and how can retreat form a part of a strategy to promote a wide range of communal benefits, including economic development and safe housing? Numerous government policies, from relocation support to housing to shipping regulations, overlook the needs, context, and traditions of Indigenous communities, further complicating adaptation and creating new vulnerabilities. Relocation policies focused on individuals, Maldonado et al. note, may destroy community ties and result in assimilation rather than maintenance of cultural practices. Conversely, policies that depend on imposed notions of Indigeneity may build on and exacerbate historical traumas. Connection with history, such as reflecting on past migrations, and culture, as through deeper understandings of language, can both facilitate healing and help to humanize the process of relocation.

Akturk and Lerski build on this last point in their expository piece, arguing that consideration of intangible heritage may serve as a catalyst for building resilient communities by incorporating explicit consideration of values in climate adaptation planning. Heritage is an important element of managed retreat both for individuals who relocate and for those who stay, as Simms et al. illustrate through a study of the ongoing managed retreat of an Indigenous community in Isle de Jean Charles, LA, USA. During the process, tensions have emerged about ownership of vacated land and the possible erasure of the lifeways connected to this land.

Historical connections to land may not only make relocation difficult for communities but also shape the ways in which retreat occurs. Grace-McCaskey et al. draw on oral histories to explore the connections of historical injustices, cultural identity, and retreat through a case study of the relocation of Princeville, NC, USA. The town was founded by formerly enslaved people in 1865 (and chartered in 1885, making it the oldest town chartered by Blacks in the USA). This historic identity initially fostered resistance to retreat, despite repeated hurricanes and flood events. Inspired by "ancestral self-determination," the local board of commissioners voted against relocation after Hurricane Floyd, but after Hurricane Matthew, some residents left, unwilling to face the economic and emotional stress of another rebuilding. Others are considering government-funded buyouts to relocate (see also Phillips et al. 2012; Martin 2019). While the town remains committed to protecting its historic municipal buildings *in situ*, efforts are underway to relocate critical services, such as the fire department. McCaskey et al. describe how this process navigates compromises between continuing a history of resistance and a need to build community resilience. Embracing historic ties and culture can be a strength, but failure to acknowledge cultural needs—particularly for Indigenous peoples and others with close ties to the land—can create additional challenges, as Perez and Tomaselli describe in their analysis of managed retreat programs in Panama and Mexico.

Additional government support for community-level relocation could address some of the challenges described, but as Bergmann illustrates in the case of Peru, such support will need to include a wide range of services from livelihoods and culture to infrastructure and transportation, and legislation governing managed retreat may be insufficient if it does not address these issues. Peru is unusual in that two of its subnational climate strategies consider climate relocation a priority action, and a 2012 law governs the process of relocation away from areas of very high, unmitigable risk. Nevertheless, through two case studies of relocation in Peru, Bergmann illustrates how government perceptions of relocations as having low benefit-cost ratios can lead to reduced levels of support, long timelines (15 years in one case), and harms for community members who remain in "detrimental limbo." High turnover rates in government, lack of political will at high levels, and lack of accountability contribute to delays. Since authorities have ceased to invest in education, health, sanitation, and water, pending the relocation, these delays resulted in significant harms to residents.

High rates of poverty and competing priorities may make government support for relocation particularly difficult in developing nations, but relocation is challenging in many contexts. In Sweden, Goransson et al. note that consideration of managed retreat is often unpopular with residents and public officials who fear short-term economic losses and undervalue long-term benefits of flood resilience. However, they find that communication tools and participation processes that help communities envision positive futures can mobilize stakeholder support for planned retreat. Smith et al. describe similar challenges in raising public support for retreat in New Zealand and the USA, although unlike Sweden, retreat has occurred in

both nations through government acquisition of hazard-prone homes. In both New Zealand and the USA, Smith et al. find that limited local government capacity and unclear federal government policies limit the use of property acquisition projects. Wealthy jurisdictions may hire consultants, often former government employees, to supplement local capacity. This introduces equity concerns, as not all jurisdictions who lack personnel or technical assistance are able to hire outside expertise. Smith et al. describe how long acquisition timelines create stress for residents, particularly if they forego home repairs while waiting for acquisitions to come through—patterns that echo the community experiences in Peru described by Bergmann. Duration and design of retreat programs, and the services provided to residents in the interim, have significant implications for residents' well-being.

Program design can also have significant justice implications. Huang notes that in Shezidao, Taiwan, the misalignment of central and local government risk reduction plans and the entrenched interests of powerful landowners led to increased concerns over displacement among informal settlers living in areas marked for restricted development. In this case study, the nebulous nature of the retreat strategy and the lack of participation rights, social housing, and conflict resolution mechanisms contributed to higher vulnerability and economic anxiety among residents. Ambiguity in managed retreat programs can cause problems in a variety of ways. For example, Thaler describes how the level of compensation provided to residents for the loss of their properties (or decrease in value) as a result of managed retreat affects well-being and raises social justice questions about who pays, who benefits, and how costs and benefits are distributed across society. In the UK, compensation for residents was determined by local rather than national policies, so some communities received compensation while others did not. Austrian retreat programs, on the other hand, compensated residents according to a national standard based on market value of the properties, with some adjustments for private costs and relocation expenses. The existence of a national scheme, however, Thaler notes, is not itself sufficient to produce improved resident outcomes. Additional measures beyond financial compensation may be necessary to support residents and reduce social inequality.

Building on this theme, Dundon and Camp note that managed retreat programs in the USA, as in much of the world, focus on homeowners to the detriment of renters. Tenants have no voice in "voluntary" property acquisition programs, as decisions about whether or not to participate in the managed retreat effort are made by the property owner. Although support systems for renters exist (such as financial assistance for relocation and other provisions of the Uniform Relocation Assistance and Real Property Acquisition Act), these supports are often insufficient. Lack of affordable housing and a failure to address climate risks in rental prices may drive many renters to live in more expensive or more hazard-prone housing, increasing their vulnerability. A long history of racial discrimination in the USA has contributed to disparities in homeownership rates between Black and White Americans, so Blacks and other minority populations are more likely to be renters. Disparate effects on renters may therefore produce disparate effects on racial minorities, exacerbating wealth and other inequalities.

Martin and Nguyen provide a further example of how historical housing patterns affect justice considerations in current managed retreat programs. Their empirical study in NC, USA, showed how property acquisition programs affected the racial composition of neighborhoods through a declining housing market, property devaluation, and white flight. Their results point to the filtering and racialized effect of such programs where non-Black residents disproportionately accept buyouts or where residents with means, typically Whites, are able to move out of flooded neighborhoods to newer housing in other areas. Through a case study of the redevelopment and proposed retreat of Pontchartrain Park in New Orleans, LA, USA, Aidoo illustrates how such racialized patterns of relocation may come about. Specifically, the case documents how histories of discrimination in home ownership, development, venture capital, and philanthropy and continuing microaggressions in planning practices foiled a community-led relocation. After Hurricane Katrina, local leaders and Black developers and planners proposed to relocate portions of Pontchartrain Park, one of the first subdivisions built for African Americans in the segregated South, to high-elevation land acquired by the city. The relocation was to be managed "'by us, for us'—by African Americans, for African Americans", but the plan was frustrated by strict requirements and rescinded grants, and its outcomes "serve as cautionary tales of self-determinism, but also a reminder of the moral and racial capitalism on which Black retreat historically and currently depends" (Aidoo). Philanthropies and charities, as well as government agencies, shape the systems and pressures that may aid communities in self-determined retreat or lead to redevelopment in at-risk locations.

The contributions to this collection illustrate a challenging paradox about planned relocation: it can be both a threat to culture and well-being—particularly culture of Black, Indigenous, and peoples of color—and an opportunity to escape from histories and geographies of risk—an opportunity often denied to or complicated in the case of low-income communities and people of color. This tension between threat and opportunity raises difficult challenges about social justice. It also raises issues about redress for historic wrongs, support for collective versus individual action, and instigating social change versus ecological change. Recognizing that the challenges posed by retreat will vary by context, Marandi and Main suggest that managed retreat programs should be developed and evaluated according to the type of community involved: the origin community from which residents retreat; recipient communities to which participants

relocate; and climate destination communities who attract residents away from hazardous places. Regional coordination and scenario planning can help communities and regional governments to better prepare for managed retreat programs that involve not only moving away from a hazard but moving towards opportunity.

Explicit consideration of multiple forms of justice—distributive, procedural, recognition, and restorative—can also aid managed retreat programs in promoting just outcomes, as argued by Kraan et al. Program evaluations could be reformed (and data collected to support multi-factor evaluations) to focus on the well-being of residents and communities after managed retreat. A range of non-government actors, including citizen advocacy groups, environmental coalitions, and private sector companies could support these efforts. As Kodis et al. note, conservation organizations could play an important role in ensuring the open spaces created by retreat are used for ecological and social benefits (a recommendation also raised by Bergmann in this volume). Moreover, conservation organizations have a wealth of experience in planning, land acquisition, restoration, and community partnerships that could improve managed retreat processes and outcomes. This last point is reinforced by Greenless and Cornelius who argue that a multi-scalar systems perspective and engagement of different stakeholders is crucial to reducing inequities and to avoiding the unintended consequences of managed retreat. At the international scale, Alverio et al. identify best practices for international organizations to influence the design, implementation, and evaluation of planned relocation efforts. Limited resources and lack of enforcement mechanisms present challenges, but international organizations have experience with advocacy, developing funding and implementation standards, and promoting international cooperation at scales that may be necessary to facilitate regional or cross-boundary retreat.

Overall, the papers collected in this special issue present different perspectives on the social and environmental justice challenges raised by managed retreat. While each presents a unique case or lens, key themes emerge around the need for transparent and equitable policies, self-determination of communities, holistic metrics for assessing individual and community well-being, the importance of culture both as something to be protected and an asset to be leveraged, and the need to address historical and systemic injustices that contribute to vulnerability and exposure to risk. The papers herein by no means represent the full range of managed retreat experiences, and although they contain suggestions for improvement, the field will require substantial research to provide answers and best practices that will be necessary to inform future relocations.

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