特集 Disasters, Migration, and Public Policy for Relocation

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Abstract

Disasters temporarily accelerate the typical processes of human migration driven by economic and environmental factors. These effects are particularly pronounced in the 21st century due to population growth in hazard-prone areas. Society has increasingly been trying to minimize the impact of these dislocations by intentionally relocating communities found in hazardous areas. Such actions will become more necessary because of climate change. But relocation is contentious, often unpopular, and rife with questions of equity and justice. This essay briefly presents a framework that summarizes the key concerns involved in initiating and managing such relocations: natural science, risk decision-making, relationship to place, the details of the relocation process, and the historical, social, and political context. It concludes with thoughts on managing climate change in California regarding wildfires and sea level rise.

Key words: disaster migration, community relocation, climate adaptation

1. Introduction

Disasters occur within a context of migrating populations. Humans have always migrated. For thousands of years, people have developed new technologies and adapted to diverse environments worldwide. Cities begin and grow as people seek economic opportunities to access resources and work with others. Cities and nations evolve as people move due to various push and pull factors, including economic, environmental, social, political, resource opportunities in some places or depletion in others, social opportunities, and competition or strife with other groups of people. These phenomena are well-known.

2. Disasters and Migration

Disasters are short-term disruptions to human systems, and they temporarily accelerate the forces that drive migration. They create sudden economic hardships and social dislocations. Large disasters

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instantly displace thousands of people because of damage to infrastructure, services, homes, and businesses. In the days and weeks that follow, people live temporarily with friends and relatives or in officially designated shelters (Esnard, 2014). Eventually, they must decide whether to return to their homes or relocate elsewhere (Iuchi, 2010), and if so, where and how?

The ongoing phenomenon of human migration and the effect of disasters on accelerating human movement are not new stories. But these effects are particularly pronounced in the 21st century due to population growth: more people living in larger concentrations require more services, which, in turn, are susceptible to disruptions from extreme events. Additionally, in our developed and interconnected world, society collectively strives to mitigate the effects of disasters on individuals—the costs of loss, disruption of livelihoods, and social dislocation—and we also believe we can prepare for or prevent them before they happen.

3. Intentional Community Relocation

Thus, in addition to ongoing migrations, recent years have seen an increase in the intentional relocation of communities, either after a disaster or pre-emptively before an anticipated disaster. These reflect the view that, in an age of enhanced understanding of earth science and easy access to hazard information, we possess the knowledge to build communities that avoid the most hazardous areas. These efforts also highlight the growing need for such actions due to climate change. However, relocation is contentious, often unpopular (Imura and Shaw, 2009), and fraught with questions of equity and justice (Anguelovski et al., 2016). Whenever intentional relocation is proposed as a possibility, numerous issues arise in the process of deciding whether to move and, if so, how to do it.

Colleagues and I have used a framework to help planners navigate that process (Balachandran et al., 2022). As it also provides a useful framing of the key issues surrounding disaster-induced relocation, I summarize it here.

3. 1   The Natural Science

The first issue involves understanding the actual threat to the community. At one extreme, the community site no longer exists, because it has been buried by land or water or undermined by erosion. At the other extreme, a risk exists—such as seismic shaking—but there is no way to spatially delineate it at a community scale. In most cases, communities face recurring hazards that are relatively predictable, mappable, and quantifiable, but the potential for life, livelihood, property loss, and community disruption may or may not justify relocation. Science-based methods can provide objective, probabilistic evaluations, but the determination of what constitutes acceptable risk depends on the community and its political and institutional context. Furthermore, some hazard assessments are more certain than others, and some involve comparing low-probability/high-consequence events with more frequent but less catastrophic events. It matters who participates in making the interpretation, which leads to the second element in the framework.

3. 2   The Risk Decision

Because various participants—households, groups of households, communities, or various levels of government—use different values for the benefits and costs of relocation, it matters who decides and how. "Acceptable risk" is a subjective concept, and it is socially determined. In our experience, governments typically justify the risk decision using rational-technical criteria focused on hazard risk and estimated costs, but do not take into account the scientific quality of the risk assessment. Governments typically favor relocation if it is less costly than reconstruction and mitigation (Freuden-

berg et al., 2016). The decision usually says, "You are in an unsafe zone [however that may be determined], so you must move." To residents, however, the true costs of relocation also involve a variety of tangible and intangible social costs. Government agencies may consider flood hazard, for example, to be the most important risk to members of the community, but residents see their lives, and the risks they face, as being much more complex. In cases where there is no land loss and no solid scientific basis for relocation, if the process involves community engagement and local decision-making, communities tend to favor onsite reconstruction over relocation.

3. 3　Relationship to Place

Communities have good reasons for their current locations. People reside where they do due to livelihoods, social networks, costs, or access to amenities and services. At times, cultural and historical ties can outweigh these factors. Natural hazards may necessitate relocation, but every household and community also has strong reasons to stay. For all these reasons, communities are typically reluctant to move, and those advocating for relocation must present compelling arguments that the natural hazard risks are so widespread, frequent, dangerous, or disruptive that they outweigh the risks of social and economic disruption posed by relocating. If the decision is to relocate, the process must minimize disruptions and ease the reestablishment of livelihoods, social networks, and sense of place.

3. 4　The Details of the Relocation Process

In implementing the move, details are crucial, particularly those related to financing and property rights. How will property rights in the existing location convert to property rights in the new location? By what process do participants select property in the new location? What is the source of money for the move, and what is the process for site acquisition, site design, and construction? Relocation processes also can be complicated by customary land titles and cultural traditions, which often are not well-documented (Jha et al., 2010). Although governments usually require property owners to relinquish their rights to the old location, it is common practice to permit—often informally—some continued use of the old location (Displacement Solutions, 2013; Tadgell et al., 2018). Although it is challenging to obtain sufficient funding, it is easy to convince funders that post-disaster reconstruction money would be better spent on a safer location. Finally, the process of moving has many complex steps: site evaluation and selection, financing, design of the new community, design of transportation access, design of individual structures (housing, commercial, public facilities), long-term maintenance, ongoing costs to residents, governance and community engagement, and the timing and logistics of each of the steps of the moving process (Correa et al., 2011; Jha et al., 2010; UNHCR & Brookings Institution, 2015).

3. 5　Historical, Social, and Political Context

The past and present contexts are important in several ways. Relocation proposals reflect ongoing policy directions and plans led by the current power structure. The disaster may be new, but current policy debates regarding new development, the urbanization of rural areas, the need for infrastructure and housing, investments in economic development, natural resource protection, and the treatment of minority groups—all of which have historical roots—are not. Furthermore, our experience shows that relocation projects are always motivated not only by concerns about hazard risk but also by other planning or policy interests from the broader social or political context of the area. Notably, someone always benefits from providing land at the new location. Finally, the transformation and relocation

of property rights are also heavily influenced by the historical and political context. Sometimes governments use these processes to grant property rights to historically deprived communities, but conversely, vulnerable populations may lose out as properties are transferred.

Human migrations are based on the sum of thousands of individual decisions. People know their basic needs, including food, shelter, livelihood, safety, and access to various support networks. And they know these all involve difficult decisions regarding tradeoffs among these factors. We know from cases throughout the world that hazard-related relocations are most successful when residents themselves are empowered to make decisions at every step, from the initial risk evaluation to the choice of a new home. But society—in the form of governments and NGOs—can help them to make better informed decisions, and, when it is in the wider public interest, provide funds to help support those decisions.

4. Looking Ahead—Examples from California

In the coming years, climate change will bring these questions of disasters, migration, and planned relocation to the forefront. In California, we are beginning to consider these issues with respect to fires and sea level rise.

4. 1　Wildfires

The risk of wildfires is increasing in many parts of the world, and traditionally fire-prone California is experiencing larger and more destructive fires than ever before. Large, destructive fires are most common in the "wildland-urban interface" (WUI), areas where human settlements occur within or adjacent to fire-prone wildlands (Mowery et al., 2019). The WUI has expanded in recent years in the U.S. due to new housing developments in wildland areas. This "wildland sprawl" incurs various costs, including firefighting, environmental disrup-

tion, and inefficient infrastructure. Furthermore, the introduction of humans into wildland areas leads to more fires, which destroy these areas and homes while also impairing human health due to air pollution. In California, the fire problem is also closely connected to the housing crisis, both because of insufficient housing in existing urban areas, and because fires instantly add more homeless families to the housing market. Post-fire recovery presents an opportunity to rectify past mistakes and reduce wildland sprawl (Schumann et al., 2020). Colleagues and I used the cases of several recent California fires to explore ways to rebuild so as to: preserve or increase the housing supply, reduce wildfire risk, reduce greenhouse gas emissions, and optimize economic benefits (Chapple et al., 2021). Although we know from disaster research that it is difficult (and inadvisable) to prevent people from rebuilding in their pre-fire location, we identified a range of new policies and incentives that, if put into place before the next large fire, could encourage owners to adapt more successfully to fire risk. We also identified policies that could make it easier for residents to decide to move elsewhere, but only if the state can successfully build more affordable housing in existing urban areas. An important conclusion of this work is that fires are a community and regional-scale problem, integrated with a range of contemporary social, economic, and environmental challenges.

4. 2　Sea-level Rise

The San Francisco Bay Area is home to eight million people, and 28 municipalities, including the City of San Francisco, are located on the shoreline that could be affected by several feet of sea-level rise (SLR) in the coming decades. Four feet of SLR could affect 104,000 jobs, 13,000 existing housing units, and several major transportation arteries (San Francisco BCDC, 2024). In 2023, California enacted a law (SB 272) that requires local coastal

governments to create SLR adaptation plans by 2034. A regional agency, the Bay Conservation and Development Commission, has provided basic guiding principles regarding the issues that the plans must address, but local governments must decide on the actions to take and how to finance them. In many areas, the most viable near-term solution is to build seawalls or elevate buildings. But eventually many structures, including highways and railroads, will need to relocate. The implementation of such actions will involve addressing all the concerns outlined earlier in this paper, including financing, property rights, fairness, timing, and all within the existing political and policy context. These plans must also determine which actions to prioritize and which can wait until sea-level rise—or perhaps a coastal storm surge disaster—actually occurs. In the next few decades, dozens of local communities will face all the difficult relocation issues described in this paper. The same will be true in hundreds of coastal cities worldwide. But by requiring these local plans over the next decade, the hope is that the San Francisco Bay Area can establish some basic principles for the timing, costs, property actions, and governance of what will eventually be a very large relocation process.

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