Seeking an interoperability of disaster resilience and transformative adaptation in humanitarian design

Jesse M. Keenan
Department of Architecture Graduate School of Design, Harvard University, Cambridge, Massachusetts, USA

Abstract
Purpose – This paper aims to explore the conceptual, tactical and institutional tensions between short-term and long-term engagement of humanitarian actors in the built environment, as framed through disaster resilience and transformative adaptation, respectively. The paper seeks to synthesize a more resolute understanding of the limits and challenges associated with each concept in the advancement of analytical and practical clarity.

Design/methodology/approach – This commentary paper is based, in part, on a literature review in disaster resilience, humanitarian design and planning and climate change adaptation scholarship.

Findings – This commentary paper highlights some of the critical weaknesses associated with a disaster resilience framing of humanitarian design and planning in the built environment.

Originality/value – The value of this viewpoint paper is to challenge the short-term, single equilibrium applications of disaster resilience in favor of longer-term perspectives associated with transformative adaptation. The intent is not to highlight a conceptual inferiority but to position these concepts as point and counter-point with the potential for complimentary and conflicting applications.

Keywords Resilience, Climate change, Transformation, Institutional design, Adaptation, Humanitarian assistance

Paper type Viewpoint

Introduction
Across the fields of humanitarianism, disaster risk management, climate change adaptation and the built environment, there is a great deal of diversity in the conceptualization of the socioeconomic, design and engineering challenges associated with physical and material recovery. The ecological, socioecological, engineering, community, urban and disaster categorical variants of resilience have offered both insight and conflict in their application to addressing both extreme events and chronic stresses (Meerow et al., 2016; Hosseini et al., 2016). Humanitarian and disaster risk management actors have primarily advanced the concept of “disaster” resilience, which speaks the elastic characteristics of a community (i.e. social and physical infrastructure) to revert to a single equilibrium steady state following a disaster or episodic disruption (Davidson et al., 2016). By contrast, climate change actors and scholars have looked beyond the static implications of disaster resilience to conceptualize multi-equilibrium dynamics by and between social and ecological systems through the lens of adaptation, which can be defined as both the intervention and capacity to transition or transform to an alternative domain of operation (Adger et al., 2005; Pelling et al., 2014).
It is the political and economic implications of the transformative capacity of adaptation that represent a significant challenge to humanitarian actors who have sought to remain free of politics in the perpetuation of the fiction that they are neutral parties singularly concerned with the human condition (Yamashita, 2017). This paper seeks to identify those processes of institutionalized humanitarianism that are caught at the intersection of short-term interventions advanced in the name of disaster resilience and those mid-to-long-term structural forces that are steering transformation through environmental change, resource markets, cultural preservation and state autonomy. This paper seeks to synthesize a more resolute understanding of the limits and challenges associated with each concept in the advancement of a normative range of analytical sensitivities. The intent is not to highlight a conceptual inferiority but to position these concepts as point and counter-point with the potential for complimentary and conflicting applications. The practical implication of this paper is to impose a reflexive sensitivity among practitioners who challenge the application of these concepts as absolute goods that operate independent of trade-offs and competing sociopolitical agendas.

**Limits to resilience**

Beyond physical exposure, one consistent precept among these fields of humanitarianism and the built environment is that physical rebuilding must be understood within the parameters of social, cultural and environmental vulnerability (Cutter et al., 2008). Adaptive capacity is often understood as a critical counterpoint for mitigating the negative implications of one’s outcome vulnerability (O’Brien et al., 2007). However, little research has theorized or evaluated the extent to which the adaptive capacity of actors, including external humanitarian actors, within a post-disaster context shapes the ability of such actors to design, plan and deliver sustainable material and social reconstruction (Ismail et al., 2017). Instead, the top-down policy agenda of the humanitarian community has been primarily oriented toward advancing the general short-term quality of life of communities under the rubric of “build back better” (BBB) memorialized in the 2015 Sendai Framework for Disaster Risk Reduction (Maly, 2017; Ong et al., 2016). This has been problematic for two reasons. First, empirical research has shown that the material intent of disaster resilience is not well understood by beneficiaries who are often asked to change their ways of living in a manner that is often disconnected from their understanding of their respective exposure and vulnerability (Rahmayati and Rahmayati, 2016; Tweed and Walker, 2011). Second, in this context, disaster resilience is conceptualized as returning communities to a single equilibrium steady state that does not adequately challenge the institutions that are often central to defining a population’s vulnerability in the first place (Klein et al., 2003).

As disaster and community categorical variants of resilience have been increasingly conflated, there is little agreement on the core meanings inherent in the concepts beyond localized capacity and preference (Patel et al., 2017) – both of which reinforce status quo bias in decision making (Oloo and Omondi, 2017). Therefore, the “back” in BBB is arguably the central focus of disaster resilience. This provides a certain practical dissonance in the progressive intent for achieving a “better” future state when that future state is dependent on contextual vulnerability defined by pre-event institutions, inequities and resource allocations (Lee, 2016). Although recovery may dictate incremental advances of engineering resilience in the built environment or community resilience in social networks, there are many circumstances where resilience is inadequate in the face of necessary transformative adaptation required for mid-to-long-term sustainability of the core elements of the social systems comprising the “community.” For example, capital expenditures may be neither efficient nor effective if they lead to recovery, where the useful life of coastal housing
structures is beyond the threshold for the probability occurrence of inundation from sea level rise and/or subsidence. While the short stabilizing effects may yield social benefits and economic productivity, long-term household wealth creation and economic production is compromised. This example highlights the trade-offs between short-term public health and long-term economic mobility, as well as the potentially conflicting agendas between labor and capital stakeholders.

Institutional limits
While humanitarian actors are sensitive to project that they are politically neutral actors in the advancement of the immediate health and safety of beneficiaries, one can argue that their non-discretionary operations protocol and discretionary recovery decisions create path dependencies that have the capacity to shape both resilience and adaptation trajectories (Pelling and Dill, 2010). When those recovery decisions are prefaced with a deterministic conceptualization of disaster resilience, the resulting allocations of social, political, financial and environmental capital frame resource trade-offs that shape institutions whose “lock-in” are arguably the ultimate pathway of resistance to transformative adaptation (Pendall et al., 2009). Of course, both resilience and adaptation are processes with the potential for positive, negative and neutral implications across scales of time, space and system hierarchy (e.g. between local, national and trans-national organizations). As such, actions taken in the name of transformative adaptation may over time prove to be either maladaptive or of no consequence. As such, one must ask who is responsible for determining whether recovery interventions should be taken in the name of resilience and/or adaptation. This comes with the acknowledgement that, in time, those who made such decisions are ethically responsible for the implications of their decisions and representative agency. Therefore, the construction of agency and the process of determination are centrally grounded in matters of equity and justice (Bulkeley et al., 2014). Specifically, it is the implications for procedural justice that shape the humanitarian’s responsibility to simultaneously engage local preferences and also serve as neutral technocratic benefactors who are confronted with long-term positive outcomes that may be in direct contradiction to local preferences (Holland, 2017).

In practice, many humanitarians cite that resilience and adaptation are only marginal considerations in light of the immediacy of shelter, food, water, sanitation and medicine. Many humanitarians will confide that resilience is a metaphor for self-determination and self-organization that is inclusive of a broad agenda for human development that has gained traction with international donors and philanthropies. Some practitioners have argued that implicit in resilience is the prospect of building an adaptive city that reduces vulnerability and hence serves the dual function of reducing long-term stewardship and promoting socially progressive human development. To this end, some scholars have challenged both resilience and adaptation as being covers for an unsustainable development agenda that does not fundamentally challenge institutions that often work to perpetuate vulnerability and inequality (Brown, 2011). However, the design of the built environment offers the potential for an adaptive capacity that offers a range of optionality that reflects not just evolving vulnerability and exposure. Designed adaptive capacity also allows for both internal and external inputs that reflect evolving institutional allocations of resources and rights. For instance, designing housing so that there is the structural capacity for future accretive additions to accommodate additional residents allows for an adaptive capacity that advances the self-determination of households, and it may also reduce the future burden of producing more housing by humanitarians.

Like many applications of resilience, humanitarian actors are less concerned with descriptive resilience as they are with the normative and metaphorical applications of the
concept. If resilience is more or less a boundary object that is removed from every day practice, then how would one expect formal analytical processes to arise and mature in a manner that can inform not only decision making but also matters of governance and due process that are central to equity and justice? Do we endanger the mission of humanitarians by imposing upon them processes of transformative adaptation that are politically and culturally fractious? Have practices associated with disaster resilience always been a part of the humanitarian practice without the interference of formal constructs and modes of engagement? Ultimately, future empirical research is challenged to understand not only the actual heuristics of these concepts but also the identification of trade-offs and conflicts that reciprocally shape those heuristics and associated decision-making. For now, the immediate challenge is to impose a greater reflexive sensitivity by and between the concepts, trade-offs and conflicts.

**Diversifying resilience and adaptation**

From a normative point of view, one could argue that the most impactful place for such deliberations of resilience and adaptation is internal to the humanitarian organization through mainstreaming (Keenan, 2016; Uittenbroek, 2016). Both strategic and tactical decisions and processes could be tempered by a reflexive evaluation of the object of intervention, as well as the cross-scale implications for efficacy, efficiency, implementability, sustainability and equity (Smit and Wandel, 2006). For instance, does promoting the specific engineering resilience of newly constructed houses in a highly exposed floodplain correspond to general community resilience wherein such a community may be asked to expend collective resources for more regularized events in the future? If the answer is objectively clear in terms of a probabilistic risk assessment, then temporary housing measures may be located to an alternative location and reinforced with transitional assistance (e.g. mobility and social groups) that may help ease what will be a transformational adaptation. However, it is rare that substitute locations are so clear cut, as one is often substituting one hazard for another hazard (Tweed and Walker, 2011). Adaptation will result in winners and losers, and the long-perspective is to result in net advances. Short-term spatial dislocation may result in a deterioration of support systems whose costs may resonate for several generations. If the answer is not so clear, then what are the processes for engaging and informing relevant actors of the trade-offs between alternative settlement patterns? In the case of an immediate transformation for settling in a new location, the costs may be measured by the collapse of social networks, the loss of income and the occurrence of a broader set of social disruptions. Relevant stakeholders must decide whether these immediate incremental costs have some parity with the potential for avoided catastrophic costs (or outright failure) in the future (Kates et al., 2012).

Intra-organizational mainstreaming could also advance initial pre-deployment strategic decisions concerning the prioritization of geographies and objects that are most ripe for resilience interventions and those that are the in the need for more structural adaptations. The challenge is to add an additional metric to the existing calculations for deploying resources that maximize the speed and quantity of recovery – quality. Very often, in practice, these assessments are made on the ground based on less than perfect information. As a result, immediate responses for prioritizing the security and service support of privileged landscapes often dictate the course of future options. Emerging resilience practices in advance jurisdictions are often based on just enough data to support some degree of inference based on indicators of existing capacity (Cutter, 2015). However, across the globe, very little data are in place to support these types of analysis.
Pre-planning would require not only geospatial analytics but also rapid response teams of anthropologists, engineers, public health professionals and built environment professionals to document, survey and evaluate existing and future capacities. Existing models of practice do not support such a mobilization based on limitations to support field work based on accessibility and time. While pre-mobilization planning is significantly constrained, it does provide a powerful impetus for governments to understand the value of pre-disaster data collection and surveying to support post-event evaluation. Any such exchange will require regular monitoring and some degree of transparency. Given that exposure and vulnerability is often deeply connected to political realities, the process is not without natural frictions.

Humanitarian actors are charged with more precisely identifying the objects of resilience and adaptation, as well as developing an intra-organizational strategic capacity for pre-planning such interventions. While these ambitions may be clearly articulated, there are several practical barriers thwarting implementation. One major challenge is that resilience and adaptation may be happening simultaneously at different scales. In carrying forward the prior example, engineering resilience may proceed at an architectural or infrastructural scale, while social service delivery may be preparing for incremental adaptations in an agriculture-based labor economy that may have a reciprocal effect on household investment. In this same example, resilience in existing infrastructure subject to greater probability occurrence of extreme events (e.g. less extreme and more regular events) may also be maladaptive to broad regional economic transformations that are dependent on some minimal level of investment to promote economic mobility among the region’s labor force.

These conflicts may be practically resolved by virtue of the conventions of the asymmetrical distribution of power and agency. The conventional experience in many jurisdictions is to rely on a central command and control model for everything from environmental resource management to housing relocation. Again, the equitable implications of such a reliance raise significant ethical questions for humanitarians. Therefore, it can be argued that the singular act of selecting those populations and geographies that are the respective beneficiaries and objects of resilience and adaptation is in itself an inherently subjective decision that could be more fully supported by objective intelligence and analysis during pre-event organizational planning. As such, a secondary barrier to mainstreaming and intelligence gathering may be drawn from the proposition that such activities are deeply imbedded in other national security interests and institutions that may be reluctant to provide transparency to extra-state actors (Hewitt, 2017).

Conclusions

Humanitarian actors are stuck at the intersection of short-term and long-term interests. This is within the context of a perpetual mismatch of funding pressures and waning political capital. They are tasked with not only the collection of data but also the registration of value systems that often defy external engagement. They must balance the short-term needs of suffering with the mid-term ambitions of resilience and the long-term trends of adaptation. They must bring ordered processes to a landscape of chaotic interactions. They must identify deterministic variables of effect to leverage their limited resources, and they bear the ethical and economic consequences of getting it wrong.

Currently, in practice, resilience and adaptation offer salient concepts for analysis but not for action. The struggle to separate descriptive concepts from normative ambitions results in the increasing pressure to impose decision-making on local populations that are often unwilling or
ill prepared to make tough decisions. As a consequence, humanitarian actors are challenged to be more precise in identifying the objects of resilience and adaptation across scales and to develop strategic pre-planning to support those efforts. However, one could argue that these activities have long been the purview and operation of humanitarian actors. The only new ingredient is the recognition of the potential – if not trajectory – of rapid dynamic change.

For now, resilience and adaptation force a reflexive recognition of cross-scale interactions and matters of equity and justice that position these actors not only as agents of good will for rebuilding but also mediators of past vulnerabilities and future capacities. In light of these collective influences, central questions remain:

Q1. Is what we are rebuilding today, to advance the resilience of one group of beneficiaries, going to be a barrier to the positive adaptation of a collective body of future generations?

Q2. Are the processes of transformation adaptation that we have set in place going to critically undermine systematic general resilience of a socio-ecological system whose identity and performance are the objects of our rebuilding interventions? While future empirical research may seek to understand influences shaping practices advanced in the name of resilience and/or adaptation, the immediate impetus for humanitarians and professionals in the built environment is to be able to articulate responses to these fundamental questions?

References


Further reading


Corresponding author
Jesse M. Keenan can be contacted at: jkeenan@gsd.harvard.edu