doi:10.1111/disa.12232

From disaster to development: a systematic review of community-driven humanitarian logistics

Jennifer Bealt Research Associate, Alliance Manchester Business School, University of Manchester, United Kingdom, and **S. Afshin Mansouri** Professor of Operations and Supply Chain Management, Brunel Business School, Brunel University London, United Kingdom

A plethora of untapped resources exist within disaster-affected communities that can be used to address relief and development concerns. A systematic review of the literature relating to community participation in humanitarian logistics activities revealed that communities are able to form ad hoc networks that have the ability to meet a wide range of disaster management needs. These structures, characterised as Collaborative Aid Networks (CANs), have demonstrated efficient logistical capabilities exclusive of humanitarian organisations. This study proposes that CANs, as a result of their unique characteristics, present alternatives to established humanitarian approaches to logistics, while also mitigating the challenges commonly faced by traditional humanitarian organisations. Furthermore, CANs offer a more holistic, long-term approach to disaster management, owing to their impact on development through their involvement in humanitarian logistics. This research provides the foundation for further theoretical analysis of effective and efficient disaster management, and details opportunities for policy and practice.

Keywords: community, development, disaster, disaster management, humanitarian logistics, resilience, vulnerability

Introduction

Efficient and effective humanitarian logistics (HL) practices, including numerous activities centred on enhancing resilience and reducing vulnerability, are able to pave the way for successful relief and development processes (Takasaki, 2011). As the economic and social impacts of disasters continue to intensify, and humanitarian contexts become more complex, the improvement of HL has become an objective of mounting concern. In addition, increasing effort has been made to understand the barriers and challenges to implementing successful HL operations. Studies have addressed myriad complications, such as: coordination and collaboration between stakeholders; communication problems and impediments to information sharing (Maiers, Reynolds, and Haselkorn, 2005; Comfort, 2007; Bharosa, Lee, and Janssen, 2009; Takasaki, 2011; Day et al., 2012); the intricacies and uncertainties of disaster settings; and the difficulties in bridging cultural gaps during humanitarian operations (Pettit and Beresford, 2009; Balcik et al., 2010; Stumpenhorst, Stumpenhorst,

Published by John Wiley & Sons Ltd, 9600 Garsington Road, Oxford, OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA

and Razum, 2011; Coles, Zhuang, and Yates, 2012). Consequently, there have been calls for greater transparency in and cost effectiveness of humanitarian operations and a closer examination of whether or not the needs of disaster-affected communities are being met (Saab, Maitland, and Tapia, 2008; Howden, 2009, Rodon, Maria Serrano, and Giménez, 2012). One item still missing from this debate, though, is the way in which communities participate and engage in HL activities to improve their efficiency and effectiveness (Sheppard et al., 2013).

It has been argued that real progress for beneficiaries in relation to long-term development can only be made through the decentralisation of traditional top-down approaches and greater community participation (Das Gupta, Grandvoinnet, and Romani, 2004; Lyons, 2009). Furthermore, the demand for efficient and equitable distribution of goods and services, and the need to address threats to livelihoods, are factors conducive to effective community action through self-organisation (Jones, Aryal, and Collins, 2013). Also, as Takasaki (2011, p. 1281) emphasises, 'augmenting the capacity for effective disaster management is critically important'. Nevertheless, limited research assesses the ways in which social networks are able to adapt and respond to such external variables, including their implications for community and household vulnerability reduction, development, and risk management (Baird and Gray, 2014).

The overarching paradigm is still humanitarian organisation (HO)-centric; that is, the focus remains on the ways in which external, foreign aid structures enter a disaster-affected community and actively organise them. Yet, slowly the paradigm has shifted to an approach that refutes that the international humanitarian community has exclusive expertise and capacity for disaster response (Sheppard et al., 2013). It has been asserted that community participation has become nothing more than rhetoric, 'with many disaster management initiatives paying little more than lip service to participatory ideals and failing to change the substance of their approach' (Méheux, Dominey-Howes, and Lloyd, 2010, p. 1110).

Although such inclusions marks some progress in moving from a victim to a beneficiary perspective (Slim, 2002; Kovács, Matopoulos, and Hayes, 2010), academics and practitioners are still failing to consider existing networks and organisations that have the capacity to run independent disaster management programmes within the community, for the community. To date, HL research 'has focused to a large extent on humanitarian organisations and their supply chains without considering beneficiaries as playing any active role in these' (Kovács, Matopoulos, and Hayes, 2010, p. 412).

This study aims to explore, therefore, a small and emerging body of disparate literature that has begun to document community-driven efforts in humanitarian operations. The most notable example is the ad hoc networks of churches and community groups in Haiti, which ran highly successful relief operations following the earthquake on 12 January 2010. These so-called Collaborative Aid Networks (CANs) vastly outperformed many experienced HOs (Holguin-Veras, Jaller, and Wachtendorf, 2012b). Their success prompted this exploration of the logistical capabilities of CANs in all disaster phases and the effects of their involvement in disaster operations. This

is an important issue as it facilitates recognition of socially embedded networks already present within a society. What is more, an examination of the capabilities of such networks, as well as their social composition and structure, may help to mitigate some of the HL and societal challenges associated with humanitarian operations.

The paper begins by introducing the challenges to humanitarian operations and appraising community-led HL as an alternative. The next section contains the results of a systematic literature review and outlines key themes for discussion. This is followed by an assessment of the range of logistical capabilities of communities, implemented independent of external humanitarian bodies, and their subsequent impacts on development. The final section presents the conclusions and suggests directions for future research.

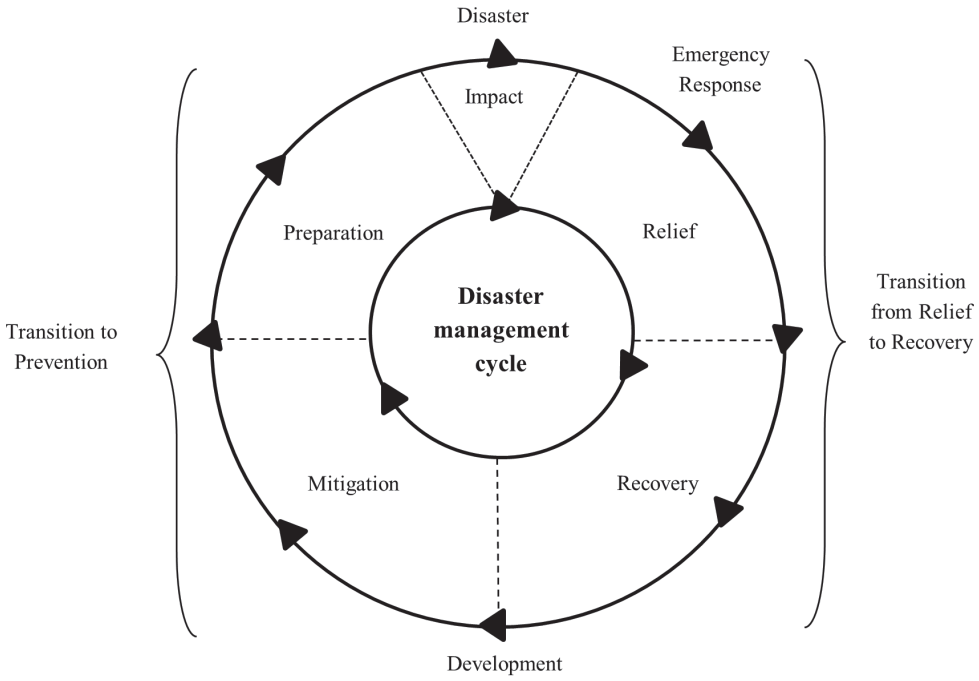
Challenges to humanitarian operations

This study categorises HOs, such as non-governmental organisations (NGOs) and United Nations (UN) agencies, as entities that are 'foreign' with a 'traditional HL' structure. It uses the definition of foreign groups provided by Holguin-Veras, Jaller, and Wachtendorf (2012b, p. 1626): 'any group (which may be from the impacted country or another), but are not incorporated into the local social fabric of the impacted area'. This is supported by Long and Wood (1995, p. 213) who describe relief as a 'foreign intervention into a society with the intention of helping local citizens' (see also Kovács and Spens, 2007). In addition, the affected community may not comprehend the practices of, and the actors involved in, traditional HL as analogous with the context (Fritz Institute, 2005; Régnier et al, 2008; Stumpenhorst, Stumpenhorst, and Razum, 2011).

To contextualise the changing dynamics of a disaster setting, a disaster management cycle was conceptualised (see Figure 1). This is commonly assumed to be composed of four stages: relief; recovery; mitigation; and preparation (Tatham and Spens, 2011).

Given the vast number of actors engaged in HL, communication frequently is poor, damaging, in turn, scope for collaborative relationships (Wild and Zhou, 2011). Poor coordination among HOs, and their lack of commitment to it, have been cited as the main causes of gaps in performance (Cozzolino, 2012). Alongside this, recurring failures to bridge the lacunae between relief and development have also been noted as reasons for inefficacies (Bharosa, Lee, and Janssen, 2009; Kovács and Spens, 2009; Balcik et al., 2010; Sandwell, 2011). Competition for funding, media attention, and scarce resources also results in breakdowns in collaboration, coordination, and communication (Stephenson and Schnitzer, 2006; Sheppard et al., 2013; Wee et al., 2014). Furthermore, increased pressure on HOs to be transparent tends to push them towards upward accountability to the donor rather than towards fulfilling the needs of a population (Hedlund and Knox-Clarke, 2011; Sandwell, 2011; Stumpenhorst, Stumpenhorst, and Razum, 2011).

Figure 1. The disaster management cycle



Source: authors, based on Tatham and Spens (2011).

Community-driven logistics structures

Traditionally, research has concentrated on the ways in which large NGOs, militaries, and third-party logistics providers have addressed HL challenges. However, the role of community and religious networks in affecting social change has emerged in recent literature, owing to recognition that they act as channels through which accurate information on needs and priorities can be disseminated, and that greater efficiency can be ensured by utilising local material and intellectual resources (Méheux, Dominey-Howes, and Lloyd, 2010; Matopoulos, Kovács, and Hayes, 2014). The use of external actors can also reduce costs and relax time restraints (Sheppard et al., 2013), as well as lessen the pressure (Méheux, Dominey-Howes, and Lloyd, 2010). Subsequently this also allows communities to participate more actively in their own relief and development.

These voluntary organisations are also been recognised because of the increasing distrust of populations of governmental sectors, and their perceived lack of services (Cnaan et al., 2002; Cnaan and Curtis, 2012; Guo et al., 2013; Fois and Forino, 2014). In addition, the notion of collective action, defined broadly as cooperation among individuals, has begun to encompass issues of communication, equity, reciprocity, and trust (White and Runge, 1995; Lyons, 2009; Beitl, 2014). However, very little research has looked at these structures as an alternative to traditional HL. To define clearly what is meant by 'traditional HL' or an HO-centric approach, a distinction must be made between the organic, grassroots activities detailed in this

paper and the ambiguous world of implementing partners (IPs) and local chapters. IPs have been defined as 'the institutional entity entrusted with, and fully responsible and accountable for successfully managing and delivering project outputs' (Pedraza Martinez, Stapleton, and Van Wassenhove, 2011 p. 405). Such organisations have been used increasingly by HOs because of the inefficiencies of traditional hierarchical, centralised approaches (Kapcu and Garayev, 2011). Often these partners are local NGOs or local chapters; the latter are most commonly associated with organisations such as the International Federation of Red Cross and Red Crescent Societies (Matopoulos, Kovács, and Hayes, 2014). These decentralised bodies support locally-run branches in numerous districts across a country.

While these partners may be organised locally and within the disaster-affected region and have a better understanding of and connection with local people (McLachlin, Larson, and Kahn, 2009; Matopoulos, Kovács, and Hayes, 2014), they are not considered here to reflect wholly community participation. The justification for this lies in the definition of a foreign group, which, despite potentially coming from an impacted country, may not have arisen autonomously or organically. IPs, for instance, are still subcontracted by HOs (Pedraza Martinez, Stapleton, and Van Wassenhove, 2011), thereby internalising the outcomes of an external institution. Similarly, local chapters exist under the mandate of larger, foreign organisations with potentially varying perceptions and priorities and a different ethos.

Examples of this are community-based disaster preparedness (CBDP) programmes, which deliver projects aimed at empowering communities so that they can manage their own disaster risks (Catholic Relief Service, 2010). In addition, Sodhi and Tang (2014) suggest using the poor within a society to distribute goods or even to act as suppliers. Such approaches aim to reduce vulnerability and to mobilise existing capacity, yet often they remain managed by organisations from unfamiliar environments, with unfamiliar politics and paradigms guiding the initiatives.

The idea of framing these indigenous networks as alternative logistics structures originated in the aforementioned research by Holguin-Veras, Jaller, and Wachtendorf (2012b) on CANs and the earthquake in Haiti in 2010. CANs have seven unique features: (i) they are large, composed of hundreds or even tens of thousands of individuals; (ii) they have vast geographical coverage, spanning an entire country; (iii) they have a horizontal structure without pronounced hierarchies and chains of command; (iv) they are part of and are embedded in the local population; (v) they are trusted by locals; (vi) they are motivated volunteers; and (vii) they possess detailed knowledge of local conditions (Holguin-Veras et al., 2012a). CANs are also defined as a completely local initiative that typically exists for another purpose and cannot be replicated by agencies with foreign components (Holguin-Veras et al, 2012a).

Importantly, unlike faith-based organisations (FBOs) and community-based organisations (CBOs), CANs are not non-profit organisations or NGOs. Yet, there is a slight overlap between FBOs and CANs, owing to the sweeping definition of FBOs. FBOs include organisations that may operate at the national or international level with particular mandates and established projects and programmes, as well as simply religious congregations and their places of worship (Castelli and McCarthy, 1997).

The former does not constitute a CAN because of the lack of social embeddedness and a set of predetermined objectives, but the latter does, as it is inclusive of societies that may mobilise within their communities, and for their communities—regularly to meet a particular development- or disaster-related need.

As a result of these characteristics, CANs proved to be more efficient at delivering critical supplies and in setting up points of distribution as compared to external organisations after the earthquake in Haiti in 2010. Many of the problems faced by external organisations related to the 'lack of connectivity with the local logistic networks that possess the knowhow, manpower, and assets to deliver supplies to the disaster area' (Holguin-Veras, Jaller, and Wachtendorf, 2012b, p. 1637).

Similarly, in the wake of the Great East Japanese Earthquake on 11 March 2011, social networks in local communities promoted recovery of the regional population (Yasuyuki, Nakajima, and Matous, 2014). Although this research recognises that large-scale disasters or catastrophes inhibit a community's capacity to respond, or their capacity to contribute to disaster management (United Nations Office for Disaster Risk Reduction, 2009; Holguin-Veras et al, 2012a), it highlights too that community capacity is not entirely destroyed and is a valuable asset.

Moving away from the focus on HOs and traditional HL also helps to shift the paradigm towards collective solutions, intersectoral contacts, trust, democratic space, and social diversity (Uvin, Jain, and Brown, 2000), and to question the notions surrounding the influence of humanitarian operations. It has been suggested that the size of an organisation, or even the number of beneficiaries reached, does not necessarily determine the actual impact of a humanitarian operation on a society (Handy et al., 2006). Hence, this paper shifts the focus from the 'beneficiary' to the role of communities as competent actors in their own relief and development and addresses the following research questions:

RQ1: what evidence is there of the involvement of CANs in humanitarian operations?
RQ2: what activities do CANs undertake during humanitarian operations?
RQ3: what is the effect of the involvement of CANs on humanitarian operations?

Methodology

A systematic literature review was deemed appropriate to achieve the aim of the study, involving a scientific approach that permits researchers to conduct a detailed article search while mitigating bias, promoting transparency, and ensuring relevance (Leseure et al., 2004; Denyer and Tranfield, 2009). Systematic reviews can also facilitate the expansion of the knowledge base and help to inform policy and practice (Tranfield, Denyer, and Smart, 2003). To extract relevant papers, the process encompassed planning, searching, screening, and reporting (Tranfield, Denyer, and Smart, 2003).

An extensive scoping exercise was initiated to identify key themes, trends, and gaps in the HL literature. This process guided the selection of the primary search

terms to be used in the systematic review. The exercise illuminated a substantial lack of integration of beneficiary or community perspectives in disaster management and that inclusion of grassroots data was greatest when driven by NGO-centric programmes.

The literature associated with community involvement or participation in HL or disaster management activities was explored extensively during 2014 and 2015. Table 1 contains a comprehensive list of keyword searches, while Table 2 depicts the databases searched and the results retrieved.

To ensure the relevance of the papers and the reliability of the results, inclusion and exclusion criteria were developed (for a full list see Appendix 1). In addition to guiding the research, these criteria also support rigorous and defensible data (Meline, 2006).

A total of 881 articles matched the keyword searches. The number is relatively small, but this was expected owing to the novelty of the issue and its relative lack of maturity as a topic.

The exclusion criteria detailed for this research were adhered to strictly. Although some papers flagged by the keyword searches may have concentrated on community involvement in disaster operations, the authors were acutely aware of the need only to highlight internally orchestrated community action. If papers detailed externally

Table 1. Keyword searches

	AND		
	Humanitarian logistics	OR	
		A. Humanitarian disaster	B. Collaborative aid network
OR	Humanitarian supply chain*; humanit* supply*; humanit* logistic*	Disaster*; humanitarian crisis; humanitarian operation; respon* relief*; recov*; prep*; mitigat*; communit* resilience; communit* vulnerabilit*	Communit*; community based; community based organi?ation*; civil societ*

Notes: *: any string of characters. ?: any single character.

Source: authors.

Table 2. Databases searched, 12 December 2014–12 January 2015

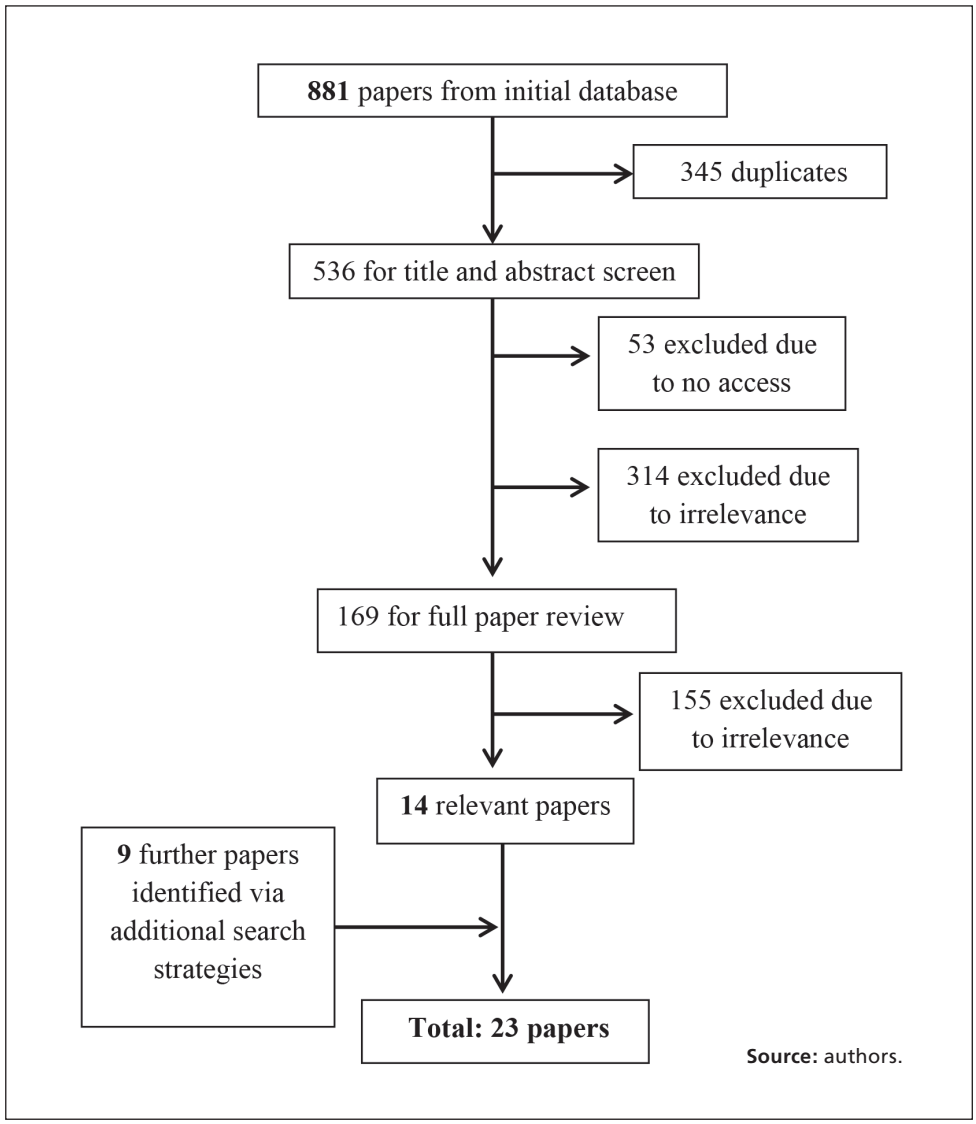
Database	Website	Number of publications
ABI/Inform Collection	http://www.proquest.com/products-services/abi_inform_complete.html	227
Science Direct	http://www.sciencedirect.com/	191
Emerald Insight	http://www.emeraldinsight.com/	294
EBSCO Host	https://www.ebscohost.com/	37
Google Scholar	https://scholar.google.com/	132
Total		**881**

Notes: * Scope: title, abstract and keywords.

Source: authors.

managed processes or initiatives run by HOs, they were excluded from the study. This may help to account for the high exclusion rate and the small body of literature. At this juncture it is important also to note that 53 of the papers returned by the search could not be analysed because of access constraints. Given the sensitive nature of this endeavour and the relative infancy of the subject area, some of these articles were composed of grey literature, despite the inclusion criteria stating that only peer-reviewed works would be considered. In addition, despite having access to three university libraries and the British Library, some of the articles were still not available for review. While this is recognised as a limitation of this study, the number of inaccessible papers arguably poses no threat to the robustness of the outcomes.

Figure 2. A PRISMA flow diagram



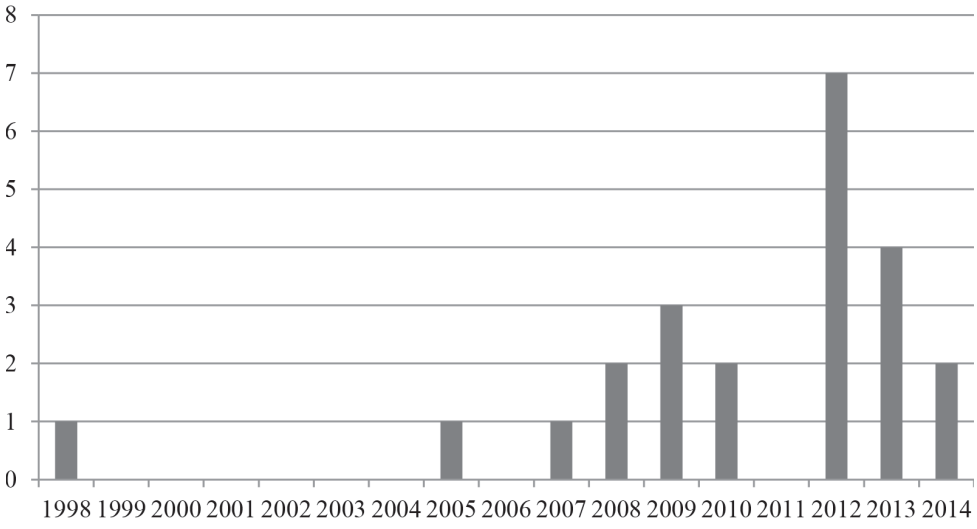
Additional strategies were employed owing to the range of keywords that often denote similar concepts. Overarching themes relating to this research are, therefore, lacking; a trait synonymous with novel investigation. The additional strategies employed to address this issue included manual searches of reference lists incorporated in the study, and consultation at various international conferences with experts in the field. In some cases authors of key papers were also contacted to gain additional insights.

Figure 2 depicts a preferred reporting items for systematic reviews and meta-analyses (PRISMA) flow diagram in which one can observe the systematic process. This enabled an exploration of a developing literature in order to identify practical demonstrations of CAN involvement in HL.

Systematic review findings

Seven reviews of literature on HL have been published since 2006. While Altay and Green (2006) evaluate disaster operations, it is only in the field of operational research, limiting their scope (Kunz and Reiner, 2012). Kovács and Spens (2007) made tracks in trying to classify HL, whereas Natarajarathinam, Capar, and Narayanan (2009) focused on supply chain management during crises. Similarly, Petit and Beresford (2009) discussed critical success factors in commercial logistics and applied this to a humanitarian setting. Overstreet et al. (2011) also examined HL, but excluded slow-onset disasters from their research. Kunz and Reiner (2012) conducted a quantitative analysis of papers, noting a lack of research on reconstruction. Lastly, Leiras et al. (2014) created a theoretical framework to analyse the factors affecting HL. Although some of the principal works uncovered by this paper are identified in these articles (Perry, 2007; McLachlin, Larson, and Kahn, 2009; Kovács, Matopoulos, and Hayes,

Figure 3. Number of published papers concerning community-driven HL



Source: authors.

2010; Holguin-Veras et al., 2012a), none of them pinpointed a need to address independent community capacity in all disaster phases.

Figure 3 shows the number of articles discovered during the systematic review that relate to community-driven HL, and the years in which they were published. The gradual rise after 2004 may be because of the Indian Ocean tsunami on 26 December 2004, as the importance of HL was acknowledged in the wake of this catastrophe (Thomas and Kopczak, 2005; van Wassenhove, 2006). The lull in papers in 2011 and the subsequent sharp rise in 2012 may be the result of the earthquake in Haiti in 2010.

This research revealed that community-driven HL has enabled disaster-affected populations to undertake proficiently specific logistical activities. Interestingly, it also ascertained that the involvement of CANs in humanitarian operations later impacted social issues. Table 3 summarises the findings from the literature review and categorises each paper according to the activities that communities undertook, and in which disaster phases.

The literature on community-driven supply chains had two key themes. The first is logistical activities, pertaining to distribution, information sharing, local responders, procurement, reconstruction, and transportation. The second is the effects of CAN involvement on development, including community empowerment, economic growth, environmental rehabilitation, livelihood recovery, resilience, and trust. The disaster phases in which these occurred were also made known. These recurrent themes clearly demonstrate that CANs are capable of handling post-disaster logistical activities efficiently and effectively, and that they present opportunities to tackle cross-cutting issues.

Community-driven humanitarian logistics

Local responders

Disaster response frequently begins within affected communities, which, despite experiencing an extreme situation, are in the best position to act immediately (Perry, 2007). In addition, they are increasingly being recognised as able to provide the first wave of aid after such an event (Holguin-Veras et al., 2012a). This study defines local responders as the drivers of first phase relief efforts undertaken within the disaster-affected community, by the disaster-affected community.

According to previous research there is a lack of local capacity in catastrophic settings (United Nations Office for Disaster Risk Reduction, 2009; Holguin-Veras et al., 2012a), yet rapid local responses manifested after the Great East Japanese Earthquake of 2011 in spite of the absence of the huge external aid flow usually available after a disaster of this magnitude (Holguin-Veras et al., 2014). Many Buddhist temples became refugee centres with people arriving within 20 minutes of the earthquake (McLaughlin, 2013), while numerous religious groups collaborated to clear debris, deliver supplies, and organise community gatherings (Kubo et al., 2013; McLaughlin, 2013). Christian organisations also housed refugees and one church served as the

Table 3. Literature on community-driven disaster operations

Articles	Community-driven logistics activities*					Development activities**					Disaster phase			
	LR	REC	PRO	T&D	IS	LR	EG	T	CER	ER	Relief	Recovery	Mitigation	Preparation
Allen (2013)		x							x	x		x		
Birkmann et al. (2008)						x			x	x		x	x	x
Bolin and Stanford (1998)		x			x			x	x		x	x		
Chang et al. (2010)		x	x						x			x		
Chang et al. (2012)		x	x						x			x		
Coles, Zhuang, and Yates (2012)		x		x								x		
Costa, Gouvêa Campos, and de Mello Bandeira (2012)				x	x						x			
Fois and Forino (2014)		x	x		x		x	x	x	x		x	x	
Holguin-Veras et al. (2012a)			x	x					x		x	x		
Holguin-Veras, Jaller, and Wachtendorf (2012b)				x	x			x			x			
Holguin-Veras et al. (2012c)			x	x	x			x	x		x			
Holguin-Veras et al. (2012d)				x					x		x	x		
Holguin-Veras et al. (2014)	x			x	x				x		x			
Kovács, Matopoulos, and Hayes (2010)		x					x					x		
Kubo et al. (2013)	x	x		x	x			x	x		x	x		x
McLachlin, Larson, and Kahn (2009)			x	x	x			x			x	x		x
McLaughlin (2013)	x	x	x	x	x		x	x	x		x	x		x
Montgomery (2013)				x					x	x		x		
Nigel (2009)						x								
Oloruntoba (2005)	x				x				x		x			x
Perry (2007)	x				x			x	x		x	x		x
Régnier et al. (2008)		x				x	x			x		x	x	x
Stewart, Kolluru, and Smith (2009)				x	x		x		x		x	x		

Notes:
* LR = livelihood recovery; REC = reconstruction; PRO = procurement; T&D = transportation and distribution; IS = information sharing (IS).
** LR = livelihood recovery; EG = economic growth; T = trust; CER = community empowerment and resilience; ER = environmental rehabilitation.

Source: authors.

'launching point for volunteer projects organized by other Japan Baptist Union churches from across the country' (McLaughlin, 2013, p. 300). McLaughlin (2013, p. 300) also reports 'large-scale Christian initiatives that coordinate multiple churches in comprehensive aid efforts'.

Nevertheless, there are still tensions between communities and external providers of aid. After Tropical Cyclone Ami hit Fiji in January 2003, the government was severely criticised for the way in which it handled the affected population and the aid dependency that ensued subsequently. In a bid to mitigate this outcome, the government endeavoured to engage the public in disaster management (Méheux, Dominey-Howes, and Lloyd, 2010). One activity undertaken by people was an initial needs assessment, but 'community participants were concerned that their independent assessment of damage would not be accepted and government decision-makers would not listen to the community' (Méheux, Dominey-Howes, and Lloyd, 2010, p. 1106).

While there are clear examples that validate the collaborative and coordinative power of CANs, there is also evidence of poor cohesion between traditional providers of humanitarian assistance and the community—due to nominal appreciation of local capabilities and capacities, or a perceived lack of appreciation. Conversely, this research underlines that disaster-affected communities are able to provide instantaneous, locally driven responses to relief, and are valuable stakeholders, with valuable resources (Oloruntoba, 2005; Perry, 2007).

Reconstruction and procurement

The literature review revealed that the processes of reconstruction and procurement were frequently interlinked when discussing community involvement in these activities; often CANs are able to mobilise resources and volunteers (Holguin-Veras, Jaller, and Wachtendorf, 2012b; McLaughlin, 2013). Issues of trust, environmental rehabilitation, and community resilience and empowerment are also connected with these processes.

Reconstruction is identified as activities related to demolition, construction, and the recycling and removal of debris from disaster sites (Coles, Zhuang, and Yates, 2012; Montgomery, 2013). These actions also are synonymous with community-driven town planning (Allen, 2013; Kubo et al., 2013; Fois and Forino, 2014) and with direct involvement in the procurement and design of housing (Kovács, Matopoulos, and Hayes, 2010; Chang et al., 2012).

The literature also touches on matters of equity and trust (Bolin and Stanford, 1998; Allen, 2013; Fois and Forino, 2014). CANs have assumed ownership of disaster responses owing to poor relationships with municipal bodies.

Following the Northridge earthquake in California, United States, on 17 January 1994, trust between the population and HOs was absent (Bolin and Stanford, 1998). Examples of community members refusing to seek assistance from HOs regardless of need, and eligibility, were documented (Bolin and Stanford, 1998), demonstrating the negative impacts of poor relationships. Strained relations in Broadmoor, a neighbourhood of New Orleans, Louisiana, US, after Hurricane Katrina in August

2005 led to CANs guiding recovery (Allen, 2013). The community was facing demolition of homes, with the government intending to turn the area into parkland. Through the Broadmoor Improvement Association, the community designed and implemented its own town plan; in turn this leads to a reduction in power imbalances between the state and the community (Das Gupta, Grandvoinnet, and Romans, 2004). Similarly, after the Great East Japanese Earthquake, local residents and specialists, such as architects, were relied on to create new neighbourhood plans, and they even assisted in the reconstruction of districts (Kubo et al., 2013).

Europe also provides interesting examples. Notably, the residents of L'Aquila in central Italy self-built an ecovillage after refusing to accept the housing and recovery solutions proposed by the government after an earthquake on 6 April 2009 (Fois and Forino, 2014). The community developed an autonomous housing project that met its needs, maintained its identity, and distanced it from the plans of the government, whose motivations met with a high degree of scepticism (Fois and Forino, 2014).

CANs are an important force in this regard as they help to keep organisations connected to the communities that they serve. Régnier et al. (2008, p. 420) stated that disconnection from local communities can lead to well-funded projects being embroiled in 'various malpractices, including client-patron relationships and corruption'. Similarly, Kovács, Matopoulos, and Hayes (2010) argued that the needs of beneficiaries demand that the reconstruction supply chain is also related directly to the reconstruction of livelihoods, and to the resources that enable their restoration. In addition, they contended that, owing to the long-term nature of reconstruction, there is no real need for HOs to act as proxies, as the communities are more than able to articulate their needs. Lastly, a community-based approach to reconstruction ensures access to local suppliers and capacities, supporting, in turn, economic growth (Kovács, Matopoulos, and Hayes, 2010).

Demonstrating further the relationship between reconstruction and procurement, Chang et al. (2010, p. 251) proposed an 'owner-driven approach' in which 'house owners are responsible for rebuilding their own houses through self-maintenance with limited external financial, technical, and material assistance'. This also supports an empowering and participatory approach to disaster reconstruction, indicating that communities are capable of undertaking reconstruction activities. Procurement is also greatly affected by community influence and participation. Chang et al. (2012) asserted that a lack of community involvement in reconstruction often leads to a lack of understanding of their needs by professionals. Lyons (2009, p. 396) also underscored the importance of owner-driven reconstruction, highlighting that such programmes allow 'beneficiaries to become independent of gate keepers at an earlier stage' and help them to 'avoid being victims of corrupt procurement processes during construction'.

The adoption of local partnerships by FBOs and NGOs has also proved incredibly successful in some key areas of disaster relief and recovery. Coles, Zhuang, and Yates (2012) found that, although partnerships between local and international agencies were less stable than those between international agencies, these relationships facilitated significant relief activities: 50 per cent of food distribution and 30 per cent

of construction/demolition activities were enabled by international FBOs and NGOs engaging in local agency partnerships. Interestingly, partnerships between international agencies were most common in the field of construction/demolition, facilitating 25 per cent of activities—surprisingly, a proportion similar to that of partnerships between local and international agencies (30 per cent) (Coles, Zhuang, and Yates, 2012).

Alongside reconstruction, post-disaster sites have also undergone environmental rehabilitation. A 'Greening the Rubble' programme was implemented after the earthquake in Christchurch, New Zealand, on 22 February 2011. This initiative involved volunteers responsible for construction materials, maintenance, and transportation removing debris and creating spaces for the community, demonstrating logistical capabilities, resource mobilisation, and community empowerment and ownership (Montgomery, 2013). Although some spaces were only temporary, they reflected the needs and wishes of the community.

Transportation and distribution

The unique characteristics of CANs mean that they have the knowledge and the abilities to address challenges to post-disaster transportation and distribution. In Haiti, for instance, it was estimated that, before the earthquake of 2010, between 16,000 and 20,000 metric tons of cargo, containing items that would satisfy the needs of both the population and industry, were transported to Port au Prince per day by 'a network of distribution centres, warehouses, truckers, restaurants, grocery stores, and street vendors; tens of thousands of individuals strong' (Holguin-Veras et al., 2012c, p. 7). Although the disaster greatly affected this capacity, the potential expertise, capabilities, and proficiencies existent in a population is there to be seen. Similarly, after the Great East Japanese Earthquake, local truckers engaged in effective distribution owing to their fast access to local assets, and their knowledge of where these items were needed most (Holguin-Veras et al., 2012c, 2014). Local residents were also responsible for distributing food and water among affected communities (Kubo et al., 2013).

Given these vast networks, Holguin-Veras et al. (2012a) and Holguin-Veras, Jaller, and Wachtendorf (2012b) concluded that creating points of distribution networks from scratch would simply take too long to be effective. This suggests that tapping into pre-existing CANs and their vast connections after a disaster is a much more practical solution than relying on NGOs to establish them from nothing (Holguin-Veras et al., 2012a, 2012c). Careful planning for points of distribution is also vital in minimising the negative impacts on members of the community, such as the distance that they may need to travel to receive assistance (Costa, Gouvêa Campos, and de Mello Bandeira, 2012). Costa, Gouvêa Campos, and de Mello Bandeira (2012) contended that, by utilising CAN resources such as established community centres, clubs, and churches, one can achieve improved performance in distribution.

Finally, some FBOs have extensive collaborative partnerships with various CANs that enable them to enhance their performance (McLachlin, Larson, and Kahn, 2009).

McLachlin, Larson, and Kahn (2009) identified transportation partnerships between CANs and FBOs, with these relationships predominantly supporting distribution. They stated that in such a case, FBOs 'have many partners and collaborators, including in-country church groups, government agencies, the UN and similar agencies, local organisations, and other NGOs' (McLachlin, Larson, and Kahn, 2009, p. 1056). They concluded that this case highlights the importance of collaborative partnerships as disaster scenarios require the coordination of a disparate number of actors. Local partners who know the 'lay of the land' are integral to achieving humanitarian missions in disaster contexts.

Information sharing

CANs have also effectively undertaken information sharing and knowledge exchange, utilising community groups with specific and unique understanding of the disaster setting. Bolin and Stanford (1998, p. 22) noted that community-based programmes 'have generally used local knowledge and capabilities and been more flexible and sensitive to local conditions than standard technocratic federal disaster-assistance programmes are able to be'.

The need to share information between local partners and other actors for the purpose of a relevant and reliable needs assessments after a disaster is vital (Perry, 2007; Stewart, Kolluru, and Smith, 2009). McLachlin, Larson, and Kahn (2009) revealed that the FBO at the centre of their study actively waits for a local organisation such as a church or a community group to conduct an initial needs assessment before beginning its humanitarian operation.

CANs also have detailed knowledge of needs and resources, due in part to the fact that they are embedded within and trusted by their society (Das Gupta, Grandvoinnet, and Romans, 2004; Holguin-Veras, Jaller, and Wachtendorf, 2012b; Holguin-Veras et al., 2012c). For instance, the leadership of the Dialogue in the Dominican Republic met 2.5 hours after the earthquake in Haiti to see how it could assist. On connecting with other churches in Port-au-Prince and receiving information on needs on the ground, it determined that tents, medicine, and water were the most urgent requirements (Holguin-Veras, Jaller, and Wachtendorf, 2012b). Not only does this demonstrate the rapidity of the response by CANs, but also it makes evident efficient information sharing based on identified needs, as well as collaboration and coordination with relevant partners. Furthermore, Haitian community groups joined forces to establish the Plataforma de Ayuda a Haití (Platform to Help Haiti) (Holguin-Veras, Jaller, and Wachtendorf, 2012b). This information platform 'created a number of work groups, including: coordination (with local organisations in Haiti), bi-national advocacy, donations management, volunteer management, health, information and communications, fund raising, and infrastructure' (Holguin-Veras, Jaller, and Wachtendorf, 2012b, p. 1633).

The research also unearthed some examples of CANs not being involved in disaster operations because of poor planning, impacting negatively on information and knowledge exchanges. After the Great East Japanese Earthquake, no plans were made

to address how to organise the local population or to determine who would lead local distribution of relief (Holguin-Veras et al., 2014). Kubo et al. (2013, p. 16) stated that this was due to a lack of communication 'between national and local governments and citizens in Japan'.

Some research suggests that the absence of CANs from the response to the Great East Japanese Earthquake was down to the overwhelming scale of the disaster (Holguin-Veras et al., 2012c), yet Kubo et al. (2013) and McLaughlin (2013) have pointed up a variety of initiatives run by local people and various religious organisations in Japan. Some of these occurred incredibly swiftly, with community members organising neighbourhood patrols 25 minutes after the earthquake and a local disaster headquarters in a community centre within 45 minutes (Kubo et al., 2013). Oloruntoba (2005) and Perry (2007) argued that collaboration in humanitarian operations should always involve parties from the local community, as insufficient information on local capabilities can lead to inefficiencies. In the case of the Indian Ocean tsunami of 2004, it was local people who undertook initial rescue and relief tasks and their work was vital (Perry, 2007). Nonetheless, Perry (2007, p. 419) noted a 'paternalistic attitude' among some of the respondents involved in her study, who viewed local culture as a hindrance to relief.

Regardless of negative attitudes towards the involvement of CANs in humanitarian operations, it is clear that local knowledge and information sharing can facilitate timeliness, and coordination and collaboration between countless actors. Not only do CANs have access to the population, but also they possess vital information on the culture, needs, resources, and traditions within a community. Furthermore, they have a horizontal structure and a collaborative nature that facilitates effective sharing of information and resources.

Development activities

The impact of the participation of CANs in humanitarian operations on development concerns is important to evaluate as it aids understanding of the wider effects of community involvement in disaster contexts. Birkmann et al. (2008) suggested that communities and nations may in fact become more resilient as a consequence. In addition, they asserted that such ramifications can pave the way for the adoption of strategic policymaking and adaptive livelihoods, mitigating the outcomes of future disasters.

Livelihood recovery and economic growth

The research by Holguin-Veras, Jaller, and Wachtendorf (2012b) and Holguin-Veras et al. (2012c, 2012d, 2014) in Haiti demonstrated that communities are able to mobilise life and livelihood saving networks quickly, which may be extensive in size and scope and are already established in the area. Literature also suggests that communities can become more resilient if local knowledge and capacitates are utilised in

humanitarian operations, tailoring their needs to the demands of the setting (Holguin-Veras et al., 2012a; Oloruntoba, 2005; Perry, 2007). Moreover, a more resilient community will enable faster regeneration of the private logistics sector, supporting, in turn, more efficient and effective disaster responses (Holguin-Veras et al., 2012a).

Drawing on local procurement and capacities will have a positive bearing on the regional economy while ensuring 'cultural and regional applicability of solutions and the potential to maintain local lifestyles' (Kovács, Matopoulos, and Hayes, 2010, p. 419). Furthermore, hiring local staff and using local materials and services will also contribute positively to the local economy (Kovács, Matopoulos, and Hayes, 2010). Use of local resources by CANs also extends to capitalising on local culture and practices. In Japan, local religious festivals were held to boost morale and to attract visitors and vital tourist revenue (McLaughlin, 2013). What is more, some of the performances toured nationally to raise funds for the region (McLaughlin, 2013).

CANs have not only registered successes during the relief phase, but also they have been proficient in enabling sustainable development initiatives that focus on long-term economic growth, livelihood stabilisation, and social development (Régnier et al., 2008). The involvement of the local population is advantageous owing to its 'direct knowledge of the situation and . . . direct stake in the outcome' (Das Gupta, Grandvoinnet, and Romans, 2004, p. 28).

Community empowerment, resilience, and trust

CAN engagement leads to a more holistic approach to HL and disaster management in general. Community empowerment, facilitated by this involvement, furthers the ability of disaster-affected populations to forge resilience, which may even help to mitigate disasters in the future. Establishing meaningful relationships between communities and HOs will lead to external forces having a better understanding of the local culture, and the systems that underpin them (Perry, 2007; McLachlin, 2009). Institutions frequently neglect the potential benefits of holistic long-term visions, local empowerment, participation, sustainability, and transparency (Fois and Forino, 2014). The early development of respectful relationships built on trust is an important cultural factor that may result in long-term, reliable, collaborative partnerships between communities and HOs (Perry, 2007).

Such relationships may support the empowerment of societies. In Banda Aceh, Indonesia, after the Indian Ocean tsunami of 2004, for instance, community influence made possible the redevelopment of homes aligned with the needs and preferences of the community. Modernised Western-style homes were requested as they were seen to symbolise solidity and social status (Chang et al., 2012).

In the US, the Broadmoor Improvement Association became a grassroots powerhouse in the wake of Hurricane Katrina, leveraging more than USD 48 million in outside investment (Allen, 2013). In addition, those affected by the Northridge earthquake of 1994 were able to assist those in the community who were reluctant to receive relief or were unable to access it, utilising trust and vital connections within

the society (Bolin and Stanford, 1998). Even in communities perceived to have low levels of cooperation, as identified in Indonesia (Régnier et al., 2008), cooperative society can still be found at a religious level; in this case through Islam. Public interests are expressed through mosques, empowering the voice of the community and supporting coordination and communication (Régnier et al., 2008). The Great East Japanese Earthquake even facilitated new instances of cooperation between religious institutions and Japanese citizens who had no previous religious affiliation (McLaughlin, 2013). These networks may in turn form the backbone of community resilience and enable evaluation of, and adaptation to, post-disaster consequences (Stewart, Kolluru, and Smith, 2009).

Disaster phases

Relief and recovery efforts highlighted in the literature have been documented throughout this paper owing to the bulk of articles focusing on these phases. During relief, communities have distributed food and water, have played a vital role in effective information sharing, and have even supported evacuation and refugees (Holguin-Veras, Jaller, and Wachtendorf, 2012b; Holguin-Veras et al., 2012c; Kubo et al., 2013; McLaughlin, 2013). During recovery and reconstruction, CANs have supported procurement strategies for building projects, and have aided town planning (Kovács, Matopoulos, and Hayes, 2010; Chang et al., 2012; Kubo et al., 2013). While mitigation seeks to lessen substantially the effects of disasters using various strategies, preparedness aims to allow those involved to 'effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions' (United Nations Office for Disaster Risk Reduction, 2009). CANs have been recognised as important entities that support mitigation practices; membership of clubs and social action groups is seen as a 'significant predictor of adaptation to hazard consequences' (Paton, 2006, p. 313). In addition, communities assume 'an active role in identifying vulnerabilities to natural disasters, mitigating them and responding to them' (Takasaki, 2014, p. 1097).

Birkmann et al. (2008) documented mitigation practices in the form of reduction of vulnerability, and the adoption of adaptive measures after the tsunami in 2004. Although some members of fishing communities based in Indonesia returned to environmentally hazardous areas, others established, and maintained, informal groups to address financial risk sharing (Birkmann et al., 2008). Régnier et al. (2008) reported on livelihood diversification in the fishery sector—no easy task—by a CAN called People Action for Development in India, to protect vulnerable fishing communities hit by the tsunami. Communities have also become active in raising awareness within their localities and have prepared evacuation plans (Birkmann et al., 2008). In Japan, various CANs with religious affiliations have mobilised an extensive disaster relief campaign, and constructed 'escape measures' along the shore in anticipation of a future disaster (McLaughlin, 2013, p. 302), demonstrating efficient preparation

and mitigation strategies. Preparation activities have included, most commonly, the prepositioning of supplies. McLachlin, Larson, and Kahn (2009) emphasised how collaborative partnerships between HOs and CANs can facilitate effective preparation techniques as goods can be sourced from church groups, farmers, and grain banks. Linkages with local school groups would enable these items to be assembled efficiently into relief supplies (McLachlin, Larson, and Kahn, 2009).

Conclusion

This research highlights two principal benefits of community-driven post-disaster operations. First, the capacity, local knowledge, and resources possessed by CANs can support relief and recovery efforts significantly. The collaborative nature of local networks allows for improved dissemination of resources and information on needs. Furthermore, their ability to share information leads to more efficient and effective humanitarian operations, tailored specifically to the disaster-affected community. Local knowledge and expertise also has ensured proficient distribution of goods and competent navigation of the terrain.

Second, CANs support a more inclusive approach to long-term recovery, a process with which HOs often struggle. CAN involvement in humanitarian operations may increase the resilience of disaster-affected societies and decrease their vulnerability to hazard events in the future. By recognising the power and influence of community-driven supply chains, and the positive effects of community-led engagement in humanitarian operations, the effective communication of needs to a variety of stakeholders is facilitated in the face of adversity (Stewart, Kolluru, and Smith, 2009).

The findings of this research support the theory that the unique characteristics of community networks can empower CANs to tackle some of the most complex issues related to disaster settings. It is clear too that even if a community has limited resources or has not been formally recognised by official institutions, independent, collective action that seeks to utilise the resources available can support communities in withstanding the impacts of disasters (Fois and Forino, 2014). This research also reveals that HL does not need to exist within a silo, and is capable of tackling cross-cutting issues in a more holistic fashion, taking into account both the importance of operational capacity after a disaster, and the wider development context needed to empower communities in the long term.

Highlighting these collaborative partnerships draws attention to the wealth of knowledge and the vast pool of skills already in existence within communities, and the breadth of resources that could be harnessed through collaborative partnerships between CANs and the humanitarian community. This has the potential to influence policy and practice as CANs are well placed to provide fast, efficient, and effective aid in a variety of disaster phases. The findings of this literature review could be bolstered by empirical data collection and analysis, in order to support theory building in this nascent area.

A theoretical model that details the various factors relating to the interactions of CANs within the community and with HOs should be developed. CANs and traditional HL would benefit from a mutual exchange of best practices, allowing them to optimise disaster response techniques and procedures. More partnerships may also help to mitigate the negative impacts of the cultural challenges associated with humanitarian operations. Traditional HL operations may also be viewed with increased trust and as having more legitimacy, further improving performance.

The findings also reveal that CAN solutions are self-reliant, participatory, and inclusive. The horizontal nature of CAN operations has enabled communities to address unmet needs and has permitted the identification of appropriate logistical and collective solutions based on realities at the local level. Fundamentally, local ownership of the process, and the inclusion of local expertise, increases the legitimacy of operations within the community.

Appendix 1. Inclusion and exclusion criteria

Criterion	Rationale	Included	Excluded
Publication type	Screening for publication type will ensure the credibility and reliability of sources.	• Scholarly journals • Conference proceedings with paper review • Books	• Editorials and opinions • Reports • Conference proceedings; unless a full-paper peer review had taken place and was available • Inaccessible papers
Peer review	Peer-reviewed documents examined for quality and credibility are more likely to be used by academics and practitioners.	• Peer reviewed	• Non-peer reviewed • Theses • Practitioner documents
Quality of journal	There is a paucity of information on this topic which is why lower impacting/ABS (Association of Business Schools) list ranked journals will be considered. Any journals with a high impact factor/ABS list ranking or above have been considered as they represent credible and peer-reviewed papers.	• Journals addressing community involvement or participation in HL or supply chain activities after a disaster	• Non-journal articles • Non-scholarly journals • Non-peer reviewed journals
Language	Papers written in English are only reviewed owing to the language limitations of the authors.	• Papers written or translated into English	• All other languages
Time frame	No time frame was specified as there is a paucity of HL literature and we wanted to capture as much data as possible in the searches.	N/A	N/A
Content	Community involvement or participation in HL or supply chain activities after a disaster.	• Examples of community participation in all disaster phases, CBOs, ad hoc network formation by communities	• Articles beyond the scope of this research: commercial logistics and supply chains; HO-centric research—that is, performance, optimisation, external training; programme or project delivery; war and conflict settings; healthcare; mathematical modelling

Correspondence

S. Afshin Mansouri, Brunel Business School, Brunel University London, Kingston Lane, Uxbridge, Middlesex, UB8 3PH, United Kingdom.
Telephone: +44 (0)1895 265361; e-mail: Afshin.Mansouri@brunel.ac.uk

References

Allen, B. (2013) 'Justice as measure of non-governmental organisation success in post-disaster community assistance'. *Science, Technology and Human Values*. 38(2). pp. 224–249.

Altay, N. and W.G. Green (2006) 'OR/MS research in disaster operations management'. *European Journal of Operational Research*. 175(1). pp. 475–493.

Baird, T. and C.L. Gray (2014) 'Livelihood diversification and shifting social networks of exchange: a social network transition?'. *World Development*. 60. pp. 14–30.

Balcik, B., B.M. Beamon, C.C. Krejci, K.M. Muramatsu, and M. Ramirez (2010) 'Coordination in humanitarian relief chains: practices, challenges and opportunities'. *International Journal of Production Economics*. 126(1). pp. 22–34.

Beitl, C. (2014) 'Adding environment to the collective action problem: individuals, civil society, and the mangrove-fishery commons in Ecuador'. *World Development*. 56. pp. 93–107.

Bharosa, N., J. Lee, and M. Janssen (2009) 'Challenges and obstacles in sharing and coordinating information during multi-agency disaster response: propositions from field exercises'. *Information Systems Frontiers*. 12(1). pp. 49–65.

Birkmann, J. et al. (2008) 'Extreme events and disasters: a window of opportunity for change? Analysis of organisational, institutional and political changes, formal and informal responses after mega-disasters'. *Natural Hazards*. 55(3). pp. 637–655.

Bolin, R. and L. Stanford (1998) 'The Northridge earthquake: community-based approaches to unmet recovery needs'. *Disasters*. 22(1). pp. 21–38.

Castelli, J. and J. McCarthy (1997) *Religion-sponsored Social Service Providers: The Not-So-Independent Sector.* Working Paper. Nonprofit Sector Research Fund, Aspen Institute, Washington, DC.

Catholic Relief Service (2010) *Community Based Disaster Preparedness Project in India*. http://www.alnap.org/pool/files/community-based-disaster-preparedness-low-res.pdf (last accessed on 15 March 2017).

Chang, Y., S. Wilkinson, R. Potangaroa, and E. Seville (2010) 'Resourcing challenges for post-disaster housing reconstruction: a comparative analysis'. *Building Research and Information*. 38(3). pp. 247–264.

Chang, Y., S. Wilkinson, R. Potangaroa, and E. Seville (2012) 'Managing resources in disaster recovery projects'. *Engineering, Construction and Architectural Management*. 19(5). pp. 557–580.

Cnaan, R.A., S.C. Boddie, F. Hnady, G. Yancey, and R. Schneider (2002) *The Invisible Caring Hand: American Congregations and the Provision of Welfare*. New York University Press, New York, NY.

Cnaan, R.A and D.W. Curtis (2012) 'Religious congregations as voluntary associations: an overview'. *Non-profit and Voluntary Sector Quarterly*. 42(1). pp. 7–33.

Coles, J.B., J. Zhuang, and J. Yates (2012) 'Case study in disaster relief: a descriptive analysis of agency partnerships in the aftermath of the January 12th, 2010 Haitian earthquake'. *Socio-economic Planning Sciences*. 46(1). pp. 67–77.

Comfort, L.K. (2007) 'Crisis management in hindsight: cognition, communication, coordination, and control'. *Public Administration Review*. 67(S1). pp. 189–197.

Costa, S.R.A, V.B. Gouvêa Campos, and R.A. de Mello Bandeira (2012) 'Supply chains in humanitarian operations: cases and analysis'. *Social and Behavioral Sciences*. 54. pp. 598–607.

Cozzolino, A. (2012) *Humanitarian Logistics: Cross-sector Cooperation in Disaster Relief Management*. Springer, London.

Das Gupta, M., H. Grandvoinnet, and M. Romans (2004) 'State–community synergies in community-driven development'. *Journal of Development Studies*. 40(3). pp. 27–58.

Day, J.M., S.A. Melnyk, P.D. Larson, E.W. Davis, and D.C. Whybark (2012) 'Humanitarian and disaster relief supply chains: a matter of life and death'. *Journal of Supply Chain Management*. 48 (April). pp. 21–36.

Denyer, D. and D. Tranfield (2009) 'Producing a systematic review'. In D. Buchanan and A. Bryman (eds.) *The Sage Handbook of Organisational Research Methods*. Sage, London. pp. 671–689.

Fois, F. and G. Forino (2014) 'The self-built ecovillage in L'Aquila, Italy: community resilience as a grassroots response to environmental shock'. *Disasters*. 38(4). pp. 719–739.

Fritz Institute (2005) *Recipient Perception of Aid Effectiveness: Rescue, Relief and Rehabilitation in Tsunami Affected Indonesia, India and Sri Lanka*. Fritz Institute, San Francisco, CA.

Guo, C., N.J. Webb, R. Abzug, and L.R. Peck (2013) 'Religious affiliation, religious attendance, and participation in social change organisations'. *Non-profit and Voluntary Sector Quarterly*. 42(1). pp. 34–58.

Handy, F., M. Kassam, S. Feeney, and B. Ranade (2006) *Grass-Roots NGOs by Women for Women: The Driving Force of Development in India*. Sage, New Delhi.

Hedlund, K. and P. Knox Clarke (2011) *ALNAP Lessons Paper: Humanitarian Action in Drought-related Emergencies*. October. Active Learning Network for Accountability and Performance in Humanitarian Action, London.

Holguín-Veras, J., M. Jaller, L.N. van Wassenhove, N. Pérez, and T. Wachtendorf (2012a) 'On the unique features of post-disaster humanitarian logistics'. *Journal of Operations Management*. 30(7–8). pp. 494–506.

Holguin-Veras, J., M. Jaller, and T. Wachtendorf (2012b) 'Comparative performance of alternative humanitarian logistic structures after the Port-Au-Prince earthquake: ACEs, PIEs, and CANs'. *Transportation Research Part A: Policy and Practice*. 46(10). pp. 1623–1640.

Holguín-Veras, J., M. Jaller, E. Taniguchi, and F. Aros-vera (2012c) 'The lessons from catastrophic events for post-disaster humanitarian logistic efforts: the Port au Prince earthquake and the Tohoku disasters'. Paper presented at the 92nd Annual Meeting of the Transportation Research Board, Washington, DC, US, 13–17 January 2013.

Holguín-Veras, J. et al. (2012d) 'The Tohoku disasters: preliminary findings concerning the post disaster humanitarian logistics response'. Paper presented at the 91st Annual Meeting of the Transportation Research Board, Washington, DC, US, 22–26 January 2012.

Holguín-Veras, J. et al. (2014) 'The Tohoku disasters: chief lessons concerning the post disaster humanitarian logistics response and policy implications'. *Transportation Research Part A: Policy and Practice*. 69(C). pp. 86–104.

Howden, M. (2009) 'How humanitarian logistics information systems can improve humanitarian supply chains: a view from the field'. In J. Landgren and S. Jul (eds.) *Proceeding of the 6th International ISCRAM Conference – Gothenburg, Sweden, May 2009*. http://www.iscramlive.org/ISCRAM2009/papers/Contributions/241_How%20Information%20Systems%20Can%20Improve_Howden2009.pdf (last accessed on 15 March 2017).

Jones, S., K. Aryal, and A. Collins (2013) 'Local-level governance of risk and resilience in Nepal'. *Disasters*. 37(3). pp. 442–467.

Kapucu, N. and V. Garayev (2011) 'Collaborative decision-making in emergency and disaster management'. *International Journal of Public Administration*. 34(6). pp. 366–375.

Kovács, G. and K.M. Spens (2007) 'Humanitarian logistics in disaster relief operations'. *International Journal of Physical Distribution and Logistics Management*. 37(2). pp. 99–114.

Kovács, G. and K.M. Spens (2009) 'Identifying challenges in humanitarian logistics'. *International Journal of Physical Distribution and Logistics Management*. 39(6). pp. 506–528.

Kovács, G., A. Matopoulos, and O. Hayes (2010) 'A community-based approach to supply chain design'. *International Journal of Logistics: Research and Applications*. 13(5). pp. 411–422.

Kubo, T. et al. (2013) 'The relationship between community support and resident behavior after the Tohoku Pacific earthquake: the case of Hitachi City in Ibaraki Prefecture'. In A. Neef and R. Shaw (eds.) *Community, Environment and Disaster Risk Management*. Volume 14. pp. 11–42. Emerald Group Publishing, Bingley.

Kunz, N. and G. Reiner (2012) 'A meta-analysis of humanitarian logistics research'. *Journal of Humanitarian Logistics and Supply Chain Management*. 2(2). pp. 116–147.

Leiras, A. et al. (2014) 'Literature review of humanitarian logistics research: trends and challenges'. *Journal of Humanitarian Logistics and Supply Chain Management*. 4(1). pp. 95–130.

Leseure, M., K. Birdi, J. Bauer, A. Neely, and D. Denyer (2004) 'Adoption of promising practices: a systematic review of the evidence'. *International Journal of Management Reviews*. 5–6(3–4). pp. 169–190.

Long, D.C. and D.F. Wood (1995) 'The logistics of famine relief'. *Journal of Business Logistics*. 16(1). pp. 213–229.

Lyons, M. (2009) 'Building back better: the large-scale impact of small-scale approaches to reconstruction'. *World Development*. 37(2). pp. 385–398.

Maiers, C., M. Reynolds, and M. Haselkorn (2005) 'Challenges to effective information and communication systems in humanitarian relief organisations'. *IEEE International Professional Communication Conference*. Limerick, Ireland, 10–13 July 2005. pp. 82–91.

Matopoulos, A., G. Kovács, and O. Hayes (2014) 'Local resources and procurement practices in humanitarian supply chains: an empirical examination of large-scale house reconstruction projects'. *Decision Sciences*. 45(4). pp. 621–646.

McLachlin, R., P.D. Larson, and S. Kahn (2009) 'Not-for-profit supply chains in interrupted environments: the case of a faith-based humanitarian relief organisation'. *Management Research News*. 32(11). pp. 1050–1064.

McLaughlin, L. (2013) 'What have religious groups done after 3.11? Part 1: a brief survey of religious mobilization after the Great East Japan Earthquake disasters'. *Religion Compass*. 7(8). pp. 294–308.

Méheux, K., D. Dominey-Howes, and K. Lloyd (2010) 'Operational challenges to community participation in post-disaster damage assessments: observations from Fiji'. *Disasters*. 34(4). pp. 1102–1122.

Meline, T. (2006) 'Selecting studies for systematic review: inclusion and exclusion criteria'. *Contemporary Issues in Communication Science and Disorders*. 33 (spring). pp. 21–27.

Montgomery, R. (2013) 'Filling in the gaps from the Christchurch earthquakes 2010–2013: Greening the Rubble and the Mt Pleasant community response plan as two local initiatives'. In A. Neef and R. Shaw (eds.) *Risks and Conflicts: Local Responses to Natural Disasters, Community, Environment and Disaster risk Management*. Volume 14. pp. 43–78. Emerald Group Publishing, Bingley.

Natarajarathinam, M., I. Capar, and A. Narayanan (2009) 'Managing supply chains in times of crisis: a review of literature and insights'. *International Journal of Physical Distribution and Logistics Management*. 39(7). pp. 535–573.

Nigel, J. (2009) 'Livelihoods in a conflict setting'. *Norsk Geografisk Tidsskrift – Norwegian Journal of Geography*. 63(1). pp. 23–34.

Oloruntoba, R. (2005) 'A wave of destruction and the waves of relief: issues, challenges and strategies'. *Disaster Prevention and Management: An International Journal*. 14(4). pp. 506–521.

Overstreet, R.E., D. Hall, J.B. Hanna, and R.K. Rainer (2011) 'Research in humanitarian logistics'. *Journal of Humanitarian Logistics and Supply Chain Management*. 1(2). pp. 114–131.

Paton, D. (2006) 'Disaster resilience: integrating individual, community, institutional and environmental perspectives'. In D. Paton and D. Moore Johnston (eds.) *Disaster Resilience: An Integrated Approach*. Charles C. Thomas Publisher, Springfield, IL. pp. 303–318.

Pedraza Martinez, A., O. Stapleton, and L. Van Wassenhove (2011) 'Field vehicle fleet management in humanitarian operations: a case-based approach'. *Journal of Operations Management*. 29(5). pp. 404–421.

Perry, M. (2007) 'Natural disaster management planning'. *International Journal of Physical Distribution and Logistics Management*. 37(5). pp. 409–433.

Pettit, S. and A. Beresford (2009) 'Critical success factors in the context of humanitarian aid supply chains'. *International Journal of Physical Distribution and Logistics Management*. 39(6). pp. 450–468.

Régnier, P., B. Neri, S. Scuteri, and S. Miniati (2008) 'From emergency relief to livelihood recovery: lessons learned from post-tsunami experiences in Indonesia and India'. *Disaster Prevention and Management*. 17(3). pp. 410–430.

Rodon, J., J.F. Maria Serrano, and C. Giménez (2012) 'Managing cultural conflicts for effective humanitarian aid'. *International Journal of Production Economics*. 139(2). pp. 366–376.

Saab, D.J., C. Maitland, and A.H. Tapia (2008) 'Building global bridges: coordination bodies for improved information sharing among humanitarian relief agencies'. In F. Fiedrich and B. Van de Walle (eds.) *Proceeding of the 5th International ISCRAM Conference – Washington, DC, May 2008*. pp. 471–483. http://www.iscram.org/legacy/dmdocuments/ISCRAM2008/papers/ISCRAM2008_Saab_etal.pdf (last accessed on 15 March 2017).

Sandwell, C. (2011) 'A qualitative study exploring the challenges of humanitarian organisations'. *Journal of Humanitarian Logistics and Supply Chain Management*. 1(2). pp. 132–150.

Sheppard, A., P. Tatham, R. Fisher, and R. Gapp (2013) 'Humanitarian logistics: enhancing the engagement of local populations'. *Journal of Humanitarian Logistics and Supply Chain Management*. 3(1). pp. 22–36.

Slim, H. (2002) 'Not philanthropy but rights: the proper politicisation of humanitarian philosophy'. *International Journal of Human Rights*. 6(2). pp. 1–22.

Sodhi, M.S. and C.S. Tang (2014) 'Supply-chain research opportunities with the poor as suppliers or distributors in developing countries'. *Production and Operations Management*. 23(9). pp. 1483–1494.

Stephenson, M. and M.H. Schnitzer (2006) 'Interorganisational trust, boundary spanning, and humanitarian relief coordination'. *Non-Profit Management and Leadership*. 17(2). pp. 211–233.

Stewart, G.T., R. Kolluru, and M. Smith (2009) 'Leveraging public–private partnerships to improve community resilience in times of disaster'. *International Journal of Physical Distribution and Logistics Management*'. 39(5). pp. 343–364.

Stumpenhorst, M., R. Stumpenhorst, and O. Razum (2011) 'The UN OCHA cluster approach: gaps between theory and practice'. *Journal of Public Health*. 19(6). pp. 587–592.

Takasaki, Y. (2011) 'Do local elites capture natural disaster reconstruction funds?'. *Journal of Development Studies*. 47(9). pp. 1281–1298.

Takasaki, Y. (2014) 'How is disaster aid allocated within poor communities? Risk sharing and social hierarchy'. *Journal of International Development*. 26(8). pp. 1097–1114.

Tatham, P.H. and K.M. Spens (2011) 'Towards a humanitarian logistics knowledge management system'. *Disaster Prevention and Management*. 20(1). pp. 6–26.

Thomas, A. and L. Kopczak (2005) *From Logistics to Supply Chain Management: The Path Forward in the Humanitarian Sector*. Fritz Institute, San Francisco, CA.

Tranfield, D., D. Denyer, and P. Smart (2003) 'Towards a methodology for developing evidence-informed management knowledge by means of systematic review'. *British Journal of Management*. 14(3). pp. 207–222.

United Nations Office for Disaster Risk Reduction (2009) 'Terminology'. http://www.unisdr.org/we/inform/terminology#letter-d (last accessed on 15 March 2017).

Uvin, P., P.S. Jain, and L.D. Brown (2000) 'Think large and act small: toward a new paradigm for NGO scaling up'. *World Development*. 28(8). pp. 1409–1419.

Van Wassenhove, L. (2006) 'Humanitarian aid logistics: supply chain management in high gear'. *Journal of the Operational Research Society*. 56(5). pp. 475–489.

Wee, C., R. de Souza, M. Goh, and J. Stumpf (2014) 'Mitigating inefficiencies in humanitarian supply chains'. *Proceedings of the 2014 International Conference on Industrial Engineering and Operations Management, Bali, Indonesia, 7–9 January 2014*. pp. 2567–2576. http://ieomsociety.org/ieom2014/pdfs/548.pdf (last accessed on 15 March 2017).

White, T.A. and C.F. Runge (1995) 'The emergence and evolution of collective action: lessons from watershed management in Haiti'. *World Development*. 23(10). pp. 1683–1698.

Wild, N. and L. Zhou (2011) 'Ethical procurement strategies for international aid non-government organisations'. *Supply Chain Management*. 16(2). pp. 110–127.

Yasuyuki, T., K. Nakajima, and P. Matous (2014) 'How do supply chain networks affect the resilience of firms to natural disasters? Evidence from the Great East Japan Earthquake'. *Journal of Regional Science*. 55(2). pp. 209–229.