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Cash and voucher assistance along humanitarian supply chains: a literature review and directions for future research

Amin Maghsoudi, Russell Harpring, Wojciech D. Piotrowicz, and Graham Heaslip[1]

This study reviews research on cash and voucher assistance (CVA) by applying a humanitarian supply chain management perspective. A systematic literature review was conducted to identify, analyse, and synthesise past academic research. The content, context, and process framework was used to structure the content analysis. The findings reveal that the outcomes of CVA programmes are dependent on critical context-specific variables that influence feasibility and operability. Humanitarian actors must consider factors that are external (the nature of disaster, politics, economy, and infrastructure) and internal (local market availability and accessibility, supplier/donor interest, supplier/vendor selection and contracting, and beneficiary preference) to the supply chain. The delivery process is influenced by them, impacting on programme responsiveness and cost-efficiency. The results provide insights that humanitarian practitioners can utilise to reconsider their supply chain strategies when deciding on the selection and implementation of CVA programmes. Potential literature gaps are identified, and recommendations for further research are provided.

Keywords: cash and voucher assistance, disasters, financial service providers, humanitarian logistics, literature review, supply chain management

Introduction

The use of cash and voucher assistance (CVA) in humanitarian contexts is expanding globally. More than USD 5.6 billion was distributed under CVA programmes in 2019, up from USD 2.8 billion in 2016, accounting for 17.9 per cent of all international humanitarian assistance (Jódar Vidal et al., 2020). The increase has attracted the attention of humanitarian actors (HAs) in terms of the applicability of CVA in different settings (Barrett et al., 2009), especially with respect to cost-efficiency and cost-effectiveness (Harvey, 2007). CVA refers to the provision of cash transfers or vouchers to targeted populations as a form of humanitarian assistance. This differs from the traditional 'in-kind' form of assistance, which entails the supply of physical goods (such as clothing, food, medicine, and shelter) to targeted populations. Logistical expenditures associated with in-kind distributions may account for nearly 80 per cent of the total costs of a disaster relief operations (Van Wassenhove, 2006). As CVA does not require the same transportation, warehousing, and distribution services as in-kind

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assistance, the potential for greater operational efficiency and effectiveness swells (Margolies and Hoddinott, 2015).

While it is important to recognise CVA as another 'humanitarian tool' in the toolbox, and not a 'one-size-fits-all' solution (Wilson et al., 2018; Brennan et al., 2019), there has been an increase in CVA over the past two decades. Despite this expansion, there is still a lack of exhaustive understanding as to when, where, and how CVA can be best delivered to beneficiaries in both development aid and humanitarian relief environments. Although overlaps exist between relief aid and development work, this review focuses on the application of CVA in relief situations. Extant literature on CVA has explored the cost-effectiveness, efficiency, and social protection outcomes of different modalities across various humanitarian sectors (see, for example, Barder et al., 2015; Bastagli et al., 2016; Tappis and Doocy, 2018). However, insufficient research has been conducted on the logistical aspects of delivering CVA and how local supply chains influence CVA operations (Lewin et al., 2018).

This study examines, therefore, the literature related to CVA programmes and its interconnection with humanitarian supply chain management (HSCM) research. A systematic literature review (SLR) was undertaken to identify, assess, and synthesise academic literature in a rigorous and repeatable manner (Tranfield, Denyer, and Smart, 2003). The content, context, and process (CCP) framework, originally developed by Pettigrew and Whipp (1993), was used to structure the evaluation and to categorise the findings. The framework was adopted to comprehend how programme outcomes are influenced by the *who and what* (content) of CVA and HSCM, *where and when* (context) interventions occur, and *how* (process) delivery is made possible (Pettigrew, 2012). Applying the CCP framework extends current HSCM theoretical frameworks, which describe the internal and external interfaces between actors along humanitarian supply chains and their direct and indirect effects (see, for example, Prakash et al., 2020). Accordingly, the following four research questions were formulated:

- **RQ1**. Who are the main supply chain actors for CVA programmes? (Content-related.)
- **RQ2**. Which context-specific factors form feasibility criteria for CVA programmes? (Context-related.)
- **RQ3**. How are CVA programmes delivered to beneficiaries? (Process-related.)
- **RQ4**. What are the outcomes of CVA delivery processes? (Outcome-related.)

Providing comprehensive answers to the above research questions contributes to theory and practice by developing a clear understanding of (i) the key actors through which CVA is coordinated, (ii) the context-specific factors that act as feasibility criteria with respect to their supply chains, (iii) the logistics of the delivery process, and, lastly, (iv) the expected outcomes of the delivery of CVA programmes in a humanitarian setting.

This paper is composed of seven sections. Section 2 explains the research methods used for the SLR; section 3 presents a descriptive and thematic analysis of the content, as well as noting gaps that remain in the literature; section 4 discusses the

findings and sets out recommendations for studies in the future; section 5 highlights the contributions of this research to CVA and HSCM; section 6 points out the limitations of the research; and section 7 contains some concluding remarks.

Methodology

An SLR follows a structured format to collect, synthesise, and analyse information related to a specific topic in a rigorous and repeatable manner (Tranfield, Denyer, and Smart, 2003). The method has proven effective in narrowing the 'knowing–doing' gap between research and practice (Rousseau, Manning, and Denyer, 2008). Furthermore, SLRs have been recommended for studies in the field of supply chain management (SCM) to describe the influence exerted by the internal and external environment (Durach, Kembro, and Wieland, 2017). Similarly, CVA programmes are impacted by socioeconomic, political, and environmental factors (Harvey, 2007).

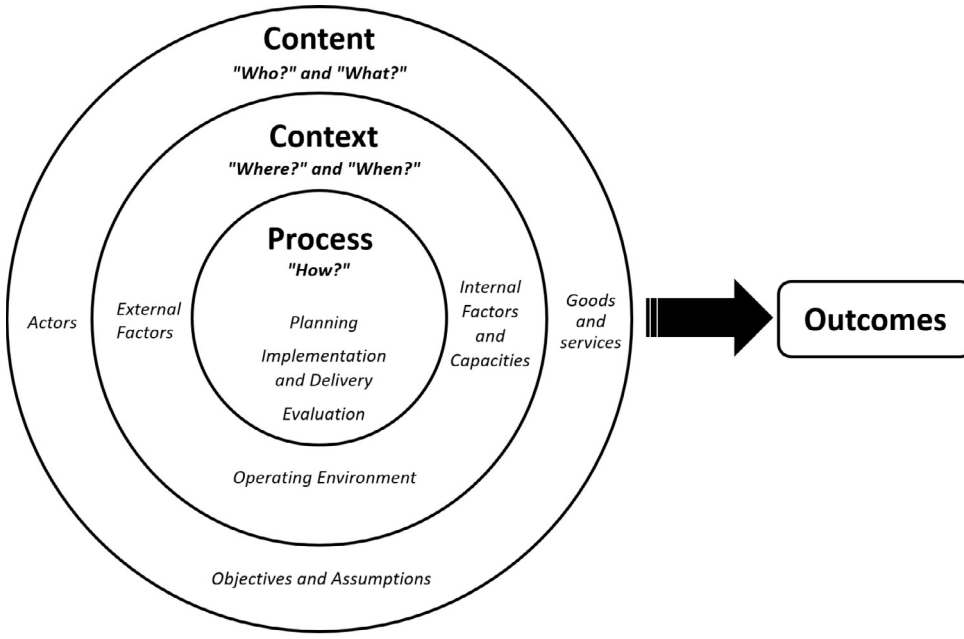
The research utilised deductive and abductive approaches to conduct the search and the analysis of content, respectively. During the searching and screening processes, a deductive approach was exercised by applying criteria to the sample of literature to decide whether or not to include it. In contrast, the analysis and synthesis phases applied an abductive approach to generalise information and to identify peculiarities within the selected studies (Kovács and Spens, 2005).

In the analysis, the CCP framework provided structure for the categorisation and coding of information to appraise the factors that influence CVA in HSCM and to understand their effects on outcomes (Pettigrew, 2012). It was adapted in previous studies to perform analyses in areas such as patient care (Stetler et al., 2007), information systems evaluation (Stockdale and Standing, 2006; Piotrowicz and Irani, 2010), supply chain performance measurement systems (Cuthbertson and Piotrowicz, 2011), and sustainable supply chains (Qorri, Mujkić, and Kraslawski, 2018). The CCP framework offers a structure for the analysis by assessing a phenomenon in its context and capturing the processual changes that occur as a response to the context. Figure 1 reveals the interrelations of 'content', 'context', 'process', and 'outcomes' across the sample literature from humanitarian CVA programmes, answering *who and what* (content), *where and when* (context), and *how* (process) questions, which influence the resulting *outcome*.

'Content' refers to *who and what* questions: what services/products, what type of actors, and what objectives and assumptions are considered within a particular setting (Pettigrew and Whipp, 1993)? In this research, 'content' is related to the basic concepts, objectives, and supply chain actors associated with CVA programmes in the humanitarian setting.

'Context' refers to *where and when* questions, namely those factors and boundaries related to the internal and external environment of the focal organisation along its supply chain. The external environment pertains to the political, the social, the cultural, the technological, and infrastructure, over which the focal organisation does not have control (Pettigrew and Whipp, 1993). For this research, it includes

Figure 1. Context, content, and process framework



Source: authors, adapted from Pettigrew and Whipp (1993).

prerequisite 'feasibility criteria' for the implementation of CVA and supply chain functionality. The internal environment manifests through the supply chains extending from the upstream (that is, dealing with donors and financial service providers) to the downstream (that is, dealing with the beneficiaries' demand).

'Process' refers to *how* questions, meaning the actions via which CVA is delivered to beneficiaries. It encompasses the capabilities required for CVA delivery, the delivery mechanisms, and supply chain factors to consider for each mechanism. Each process mechanism (that is, CVA delivery mechanism) is chosen based on the specific context and capabilities required to perform tasks, and thus it influences the outcomes of the process (Pettigrew, 2012).

An 'outcome' is a result of the process that is under investigation (Pettigrew, 1985). Pettigrew (2012) stresses the need to analyse the influence that contextual and processual changes exert on outcomes. Likewise, there is a need to specify the outcomes, as they may refer to either intermediate or final outcomes, to determine the exact effects of the processes. The challenge is to analyse and describe the relationships between context, process, and outcome (Pettigrew, 2012).

The remainder of this section describes the key steps used to identify and compile the literature sample (based on Seuring et al., 2005).

Search and material collection

The literature sample was compiled by searching major journal databases and digital libraries that are most frequently accessed by scholars in the areas of SCM, HSCM,

Table 1. Literature sources and search terms

Peer-reviewed sources	Search terms
ABI/INFORM Collection (ProQuest), Emerald Group Publishing, Google Scholar, JSTOR, ScienceDirect (Elsevier), Scopus, Springer, Taylor and Francis Group, Web of Science Core Collection, and Wiley	Cash OR e-cash OR CVA OR CBA OR CTP OR CBI OR voucher* OR coupon* OR CFW OR MPCA OR MPCGs AND Humanitarian logistics OR humanitarian supply chain* OR disaster relief supply chain* OR humanitarian operation* OR operational relief*

Source: authors.

and disaster studies. The search terms shown in Table 1 were used to find matches in the title, abstract, or keywords fields (Seuring et al., 2005; Seuring and Gold, 2012). Both CVA and HSCM utilise a variety of acronyms, including cash-based assistance (CBA), cash-based interventions (CBIs), multi-purpose cash assistance (MPCA), and cash transfer programmes (CTP) for the former, and humanitarian logistics (HL) and humanitarian operations (HO) for the latter. Although these terms have been employed interchangeably, this paper uses the term 'CVA' for consistency and inclusivity of voucher programmes, and 'HSCM', noting that logistics is an integral part of humanitarian SCM. To ensure robustness of the search, all of these terms were used with Boolean operators to create search strings of text. Subsequently, only the papers with a direct or indirect connection to SCM were selected.

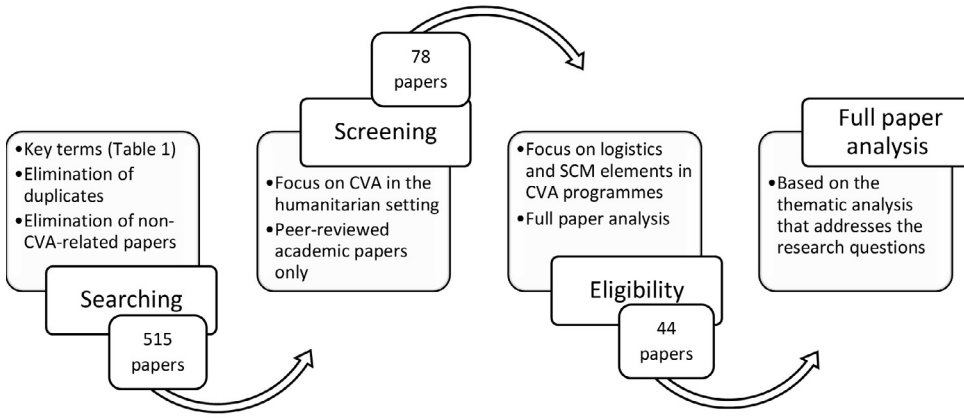
For search criteria, only articles published after the year 2000 were considered, as the interest in humanitarian CVA programmes began after the earthquake that struck Bam, Iran, on 26 December 2003 and the Indian Ocean tsunami on 26 December 2004 (Doocy et al., 2006). The snowballing technique was administered to identify additional sources by reviewing the reference list of each discovered article (Wohlin, 2014).

Screening

To ensure relevancy and research objectivity, inclusion and exclusion criteria were determined and agreed upon by the research team. Only peer-reviewed journal articles published from January 2000 to February 2021 were selected. The search and screening were completed by two authors, and then reviewed by two other authors not involved in the search to reduce potential bias during the process.

The initial search yielded 515 articles. After removing non-peer-reviewed articles, book chapters, and duplicates, articles were manually filtered by reading abstracts and removing those that did not pertain to CVA in the humanitarian setting, leaving 78. During the last stage of screening, the remaining articles were read in full, and those that addressed the supply chain aspects either implicitly or explicitly were chosen (see Figure 2), resulting in a final sample of 44. Following this step, a quality assessment was conducted based on the research questions, methodology, and contribution of each article to the research topic (Pilbeam, Akvarez, and Wilson, 2012).

Figure 2. Searching and screening methodology



Source: authors, adapted from Gimenez and Tachizawa (2012).

Extraction and synthesis

The final sample of 44 articles (see Table A1 in the Appendix) was systematically analysed using two separate coding structures to collect and compare quantitative and qualitative information across the sample. Table 2 displays the coding scheme, which includes both descriptive (Denyer and Tranfield, 2009; Colicchia and Strozzi, 2012) and thematic (Pettigrew and Whipp, 1993) analyses.

Table 2. Categories used in synthesising and analysing the SLR

Analysis type	Category	Information
Descriptive	Publication date	Year of publication
	Journal	Journal name
	Journal cluster	Discipline, research field
	Author	Name(s)
	Disaster type	Natural hazard, anthropogenic, complex emergency
	Disaster phase	Preparedness, response, recovery, mitigation
	Geographical scope	Country or region
	Methodology	Experiment, interview, case study, survey, archival/ secondary data, modelling
Thematic	Content	Concepts, objectives, actors
	Context	External and internal factors
	Process	Capabilities, delivery mechanisms
	Outcome	Outcomes

Source: authors, adapted from Pettigrew and Whipp (1993), Denyer, Tranfield, and van Aken (2008), Denyer and Tranfield (2009), and Colicchia and Strozzi (2012).

The following data were extracted to conduct the descriptive analysis: publication year; journal name; author; disaster type; disaster phase; methodology; type of organisations involved; and geographical scope. The thematic analysis was conducted using an abductive reasoning approach, which can lead to the suggesting of general rules concerning the particular phenomena (Kirkeby, 1994). This approach helps to distinguish generalisable findings from those that pertain to specific situations arising from, for example, contextual and environmental factors (Kovács and Spens, 2005). Thus, an abductive approach can lead to new contributions to existing phenomena (that is, examining CVA from an HSCM perspective). Similarly, this approach is suitable for interpreting or recontextualising individual phenomena within a specific framework (that is, the CCP framework), and aims to scrutinise the phenomena (such as CVA programmes) in a new manner or from a new standpoint (Dubois and Gadde, 2002). Consequently, subcategories were developed for further classification.

A semi-open coding procedure was used for the thematic analysis (Miles and Huberman, 1984). In this case, the unit of analysis was each identified study. During the synthesis, considerable attention was paid to combining aspects of pragmatism (that is, what is available) with rigour (that is, what is most suitable for this research) (Churchill, 2013). For further reliability, the coding of the data was conducted independently by two authors. Following the method of Churchill (2013), strings of text that related to each research question were recorded, which could be further linked to subsequent text strings within each study, and across studies. This procedure was iterative and completed for each phase of the CCP framework, which further led to the identification of 'outcomes'. Pettigrew (2012) notes that this is a critical component of the CCP framework and is necessary to compare empirically how changes in the context and process affect the outcomes that materialise.

In relation to 'content', key concepts, objectives, and actors were identified and recorded to provide structure to the problem (Pettigrew and Whipp, 1993). This step creates a depiction of CVA programmes and their supply chain counterparts in the humanitarian setting. The humanitarian supply network concept (Kovács and Spens, 2007) was adapted to reveal which actors in the supply chain contributed to which processes.

Regarding 'context', any factors that affected the feasibility of CVA programmes from a supply chain perspective were recorded and coded manually using a colour-coded system in the database. The coding system was influenced by the model proposed by Christopher and Peck (2004), in which internal and external factors are separated to distinguish between the control a network of actors has over the supply chain (internal) versus the influential factors that are outside of its control (external). A set of codes and categories was then defined and assigned to the text to identify when patterns occurred. The codes were linked to conceptual themes and served as a working template for the next sample paper.

The same procedures were applied for the 'process' step, which categorised the delivery mechanisms and respective capabilities required for each of them. Lastly, in line with the recommendation of Pettigrew (2012), the 'outcomes' provided a

connection between the three phases: the actors perform tasks throughout the process, which are embedded in multiple layers of context (that is internal and external). In this way, outcomes holistically describe what happened, who was involved, and why and how the event happened (Pettigrew, 2012). The synthesis of information from descriptive and thematic data led to several key findings on the use of CVA within and across contexts, which addressed the research questions and led to contributions of the study.

Analysis of current CVA and HSCM literature

Descriptive analysis

The database of articles included descriptors such as the type of study, author, year, journal, methodology, keywords, and abstract. In addition, the authors adapted the phases of the disaster management cycle (Tatham and Spens, 2011) along with the type of disaster for coding. Filters were used to categorise papers based on thematic information and the research environment, permitting the identification of emerging trends and critical issues (see Table A1 in the Appendix).

Several key findings were noted on metrics from the sample of literature. First, no papers were found before 2006, and one-half of the available literature was published from 2018 onwards, denoting growing research interest. While most articles were published in supply chain or disaster management related journals (n=30) (see Table A1 in the Appendix), more than one-third (n=14) were published by other disciplines, such as social sciences, development, and policy and management studies, suggesting that the field is cross-sectorial. Of the 30 articles appearing in supply chain or disaster management journals, 20 were published between 2018 and 2020, indicating that research linking HSCM and CVA is mounting and recognition of the critical role of logistics in the planning, procurement, implementation, and distribution of CVA programmes.

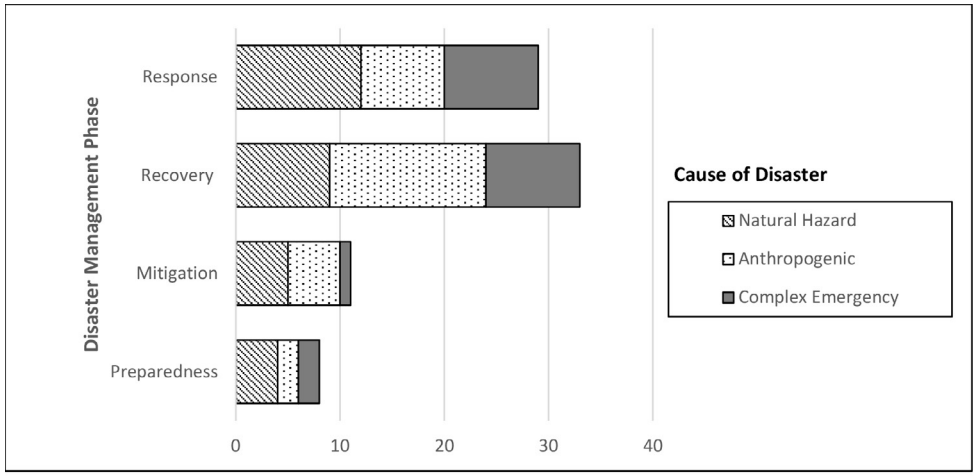
Second, the use of case studies was the most common methodology (n=19) and usually involved one or more humanitarian actors. Modelling (n=8) and archival/secondary data (n=7) were also utilised to expand on theory.

Third, geographic distribution indicates that 69 per cent of all papers cover one of three regions: Africa (28 per cent); Asia (22 per cent); and the Middle East (19 per cent).

Fourth, the disaster 'recovery' and 'response' phases were discussed most frequently (n=33 and n=29, respectively); less so, however, for the 'mitigation' and 'preparedness' phases (n=11 and n=8, respectively).

Figure 3 juxtaposes the frequency of disaster phases with disaster type as discussed in the sample of literature. Research assessing CVA programmes proceeding a disaster outweighs research on CVA leading up to a disaster. Based on the gathered data, CVA preparedness and mitigation measures in complex emergencies were the least commonly discussed themes. These trends are connected to the subsequent thematic analysis and discussed further in the 'discussion on the findings' section below.

Figure 3. Frequency of disaster types and respective management phases from the literature



Source: authors

Thematic analysis

This subsection presents the analysis and synthesis of the literature. The following subsections address the major findings that emerged from using the CCP framework.

Content

Concepts and objectives of CVA programmes

Throughout the sample of literature, the names by which CVA was referred to differed (such as CBA, CBI, and CTP), but the concept and objectives largely remained the same. Few authors explicitly defined CVA (see, for example, Wilson et al., 2018; Khoury, 2019), whereas others did so implicitly by referring to programmes where cash transfers or vouchers are provided to beneficiaries for commodities and services (see, for example, Kelaher and Dollery, 2008; Heaslip, Kovács, and Haavisto, 2018b). More frequently, authors referred to the specifics of CVA, such as various delivery mechanisms through which cash or vouchers are distributed, including via a smart card, mobile money transfer, cash in hand, and an ATM (automated teller machine)/debit card.

CVA is either conditional or unconditional to cover the procurement of a diverse range of goods and services, notably, food/non-food items (Sabates-Wheeler and Devereux, 2010), water, sanitation, and hygiene (see, for example, Enshassi et al., 2017; Heaslip, Kovács, and Haavisto, 2018a; Martin-Simpson, Parkinson, and Katsou, 2018), medical products (Nikulkov et al., 2016), and shelter and housing materials (Matopoulos, Kovács, and Hayes, 2014). Unconditional CVA provides beneficiaries and local market operators with greater flexibility (Burkart, Besiou, and Wakolbinger, 2016; Heaslip, Kovács, and Haavisto, 2018b) and can be used to cover multiple needs simultaneously (Sabates-Wheeler and Devereux, 2010; Tappis and Doocy, 2018).

Conditionality, however, may lead to more directed spending and to less misuse (Willibald, 2006), impacting on overall outcomes.

Each operation has defined and specific objectives in line with the priorities outlined by HAs, which are based on needs assessments and donor requirements (Maxwell, 2007). Doocy et al. (2011) and Kelaher and Dollery (2008), though, describe the early expansion of CVA programmes in humanitarian settings as to meet a greater variety of needs. Increasingly, rather than viewing CVA as an alternative to in-kind assistance, studies have demonstrated the value of offering multiple modalities alongside each other, such as CVA and in-kind assistance, to cover an assortment of needs across sectors and locales with increased flexibility and agility (see, for example, Lewin et al., 2018; Piotrowicz, 2018; Tappis and Doocy, 2018). Regardless of which modality is employed, Puri et al. (2017) state that the objectives of CVA programmes must be aligned with the aims of humanitarian operations to provide agile responses and reduce human suffering, which is dependent on the HAs involved in CVA programmes.

Actors in CVA supply chains

As CVA programmes involve different process modules than in-kind assistance, the type of actors and their role varies between the two modalities. CVA effectively alters the supply chain and actors engaged, reducing the need for the transportation, warehousing, and delivery of goods associated with in-kind humanitarian assistance (Heaslip, Kovács, and Haavisto, 2018b). Whereas physical distribution relies on third-party logistics service providers and customs clearance agents to facilitate the movement of goods (Heaslip, Kovács, and Haavisto, 2018b), CVA utilises financial service providers or payment service providers (FSP/PSP) to facilitate the flow of money. Funds pass from donors to HAs, who use an FSP/PSP to distribute them to the beneficiaries, who are then able to purchase goods and services from local markets. In this way, the flow of goods and finances is redirected along the supply chain (Heaslip, Kovács, and Grant, 2018). While larger NGOs and United Nations (UN) agencies may be responsible for programming, smaller NGOs provide critical ancillary support (Doocy et al., 2016), such as post-distribution monitoring, market analysis, and reporting. The host communities play a supportive role in the supply chain through economic and market activities (Jahre et al., 2018; Vogel, Tschunkert, and Schläpfer, 2022).

CVA programmes aim to be beneficiary-driven but are still influenced by local governments and donors, which might have modality preferences (Maxwell, 2007; Burkart, Besiou, and Wakolbinger, 2016). Several authors note that the inclusion of beneficiaries in the supply chain was important for equity in the decision-making process (Heaslip, Kovács, and Grant, 2018; Khoury, 2019; Rao et al., 2019). However, only moderate levels of beneficiary participation when implementing CVA were recorded (Wilson et al., 2018). Other scholars point out that suppliers and donors may ultimately remain the deciding factor in modality selection (Ülkü, Bell, and Wilson, 2015; Burkart, Besiou, and Wakolbinger, 2016), despite growing concern

about beneficiary representation. Local government jurisdiction can also affect the supply and delivery of CVA through decisions on when to declare an emergency (Maxwell and Parker, 2012), beneficiary eligibility requirements (Maxwell, 2007), and the suitability of delivery mechanisms (Sabates-Wheeler and Devereux, 2010; Piotrowicz, 2018). The actors involved, and the extent to which they are engaged, are aspects often determined by the context in which the response takes place, which is discussed in the next subsection.

Context

'Context' dictates when and where CVA programmes can be administered in humanitarian settings and whether their objectives can be fulfilled through CVA. Thus, each situation requires a unique feasibility analysis to determine how the context will influence CVA programmes. Table 3 uses the categorisation proposed by Christopher and Peck (2004) to illustrate the context-specific factors influencing supply chains. The model was extended for this study to present feasibility criteria for each factor. Internal factors incorporate the network of actors and their influence on the supply chain and the delivery of CVA. Factors external to the network of actors and the supply chain fall under the second category and were grouped by disaster type and phase, in addition to the political, economic, and infrastructure criteria.

Table 3. Context-specific factors related to the feasibility of CVA programmes

Context-specific factors		Feasibility criteria	Articles	Frequency
External factors		The nature of the disaster (type and phase)	3, 12, 13, 15, 16, 36, 42	7
		Political aspects	2, 18, 25, 26, 36	5
		Economic aspects	1, 2, 5, 6, 7, 8, 15, 30, 36, 39, 42	11
		Infrastructure (such as the banking system and logistics)	1, 2, 3, 8, 9, 10, 11, 26, 34, 36, 37, 42	12
Internal factors	Supply-side	Availability of goods at the local market	1, 5, 8, 11, 12, 14, 15, 19, 30, 33, 37, 38, 42	13
		Market accessibility	1, 5, 8, 9, 11, 13, 14, 15, 19, 28, 34	11
		Supplier and donor interest	11, 18, 25, 31, 39, 40	6
		Supplier/vendor selection and contracting	5, 8, 9, 18, 33	5
		Supplier expertise	9, 18, 26, 33	4
	Demand-side	Beneficiary safety and choice and preference	2, 5, 8, 13, 14, 15, 21, 26, 34, 36, 37, 42	12
		Beneficiary characteristics (such as age, gender, and family size)	1, 5, 34, 36	4

Source: authors.

External factors

Several key external factors that influenced the decision to implement CVA programmes appeared across multiple studies and were recorded. These included the phase and the location of disaster (see, for example, Lewin et al., 2018; Piotrowicz, 2018; Wilson et al., 2018), together with the local economic situation (see, for example, Wilson et al., 2018; Brennan et al., 2019; Khoury, 2019) and existing infrastructure in place (see, for example, Mattinen and Ogden, 2006; Doocy, Tappis, and Lyles, 2016; Rao et al., 2019). These factors affected the feasibility of CVA programmes from a supply chain standpoint. During sudden-onset disasters caused by natural hazards, CVA may not be the best initial response due to questionable market conditions and potential economic instability (Burchi, Scarlato, and d'Agostino, 2018). However, during slow-onset emergencies that have not affected supply chains, CVA may be a better option than in-kind assistance in terms of cost and speed (Margolies and Hoddinott, 2015).

For anthropogenic (or human-made) disasters, such as a conflict, CVA feasibility depends heavily on the availability of goods as well as access to markets and services (Vogel, Tschunkert, and Schläpfer, 2022). This also suggests the existence of functioning infrastructure and markets for continuity of supplies to beneficiaries (Lewin et al., 2018; Piotrowicz, 2018). The status of a conflict also plays a role in modality selection; in areas with active fighting, HAs may face supply disruptions owing to damaged infrastructure and market access restrictions (Willibald, 2006). In such situations, CVA would not be feasible until there is a de-escalation in the conflict, and markets at least partially recover. For instance, the initial response to the conflict in Ukraine in 2013–14 was primarily in-kind assistance across the border from Poland. After establishing operations in the country and building a network with local HAs and government agencies, a combination of in-kind assistance and CVA was put into effect. In later response phases, and in calm areas where markets and prices had stabilised, CVA was preferred to in-kind assistance (Piotrowicz, 2018). Jahre et al. (2018) also support the use of CVA in later phases of a response when the operation and refugee flows have stabilised, rather than in the initial phases of a response. Protracted conflicts can also be perceived as insecure or unstable situations because of a lack of government control, which can influence the decisions to use CVA (Tappis and Doocy, 2018).

Political support, although not extensively discussed in the literature, frequently has a direct bearing on CVA programmes and their functionality (Burchi, Scarlato, and d'Agostino, 2018). Ideally, this would include aligning social support programmes with humanitarian relief (Vogel, Tschunkert, and Schläpfer, 2022). For instance, after the Indian Ocean tsunami in 2004, the Government of Sri Lanka provided additional support to ease the delivery of cash by opening bank accounts for beneficiaries (Doocy et al., 2006). Conversely, sanctions against nations or inter-governmental conflict can inhibit the utilisation of CVA as a response mechanism. In such circumstances, Doocy, Tappis, and Lyles (2016) recommend evaluating delivery mechanisms

by governorate or locale individually. Other political issues related to mistrust, corruption, and issues with anti-terrorist regulations were also mentioned as factors that may reduce the likelihood of CVA being implemented (see, for example, Heaslip, Kovács, and Haavisto, 2018b).

Macroeconomic metrics such as inflation and unemployment rates may also—directly or indirectly—impact on the modality of and the mechanism for CVA delivery (Sahinyazan, Rancourt, and Verter, 2021). Price rises of basic commodities increases vulnerability and reduces the purchasing power of beneficiaries. Consequently, inflation at the macro level is a concern for HAs as it diminishes the real value of cash assistance. CVA may also cause inflation in areas of implementation by disrupting the supply and demand balance in local markets, to the disadvantage of beneficiaries (Sabates-Wheeler and Devereux, 2010; Castillo, 2021). In some situations, CVA may serve as a supply-side intervention to provide temporary assistance to the unemployed or to assist in economic development through cash-for-work programmes (Kelaher and Dollery, 2008).

Scholars also argue that infrastructure should be assessed prior to the implementation of CVA programmes (Lewin et al., 2018), centring on two primary considerations. The first is the functionality of transportation infrastructure and whether goods can be delivered to targeted locations. But this does not always lead to implementation of CVA programmes, since the delivery of cash may also require logistics capacity, such as road infrastructure in place for cash distribution or transportation to ATMs. In addition, the beneficiaries of CVA programmes may rely on transportation to reach markets and to purchase goods. The second consideration is the functionality of banking infrastructure, which influences the extent to which CVA may be used. Heaslip, Kovács, and Haavisto (2018a) highlight the importance of local banking systems and proper capacities to employ those systems. In more urbanised areas where infrastructure is developed and people have access to telecommunications and financial systems, the potential for utilising CVA increases (Wood and Frazier, 2020). During the Syrian conflict that began in 2011, for instance, this proved effective, as CVA could support refugees residing in urban areas with adequate and functioning infrastructure (Wang, Han, and Beynon-Davies, 2019).

Internal factors

The decision that the network of actors makes exerts control over supply chains and affects CVA programming. From the supply side, a precondition for CVA is that local market conditions are favourable for all actors (such as donors, suppliers, beneficiaries, and HAs), including the availability of goods (Heaslip, Kovács, and Haavisto, 2018b) and ensuring accessibility by beneficiaries (Wilson et al., 2018). The extent to which HAs conduct market assessments can determine access and availability constraints. Donors can also influence early programmes and planning stages through their preferences and interests. These may limit the possibilities via which HAs are able to deliver responses using donor funds (Kelaher and Dollery, 2008), although one

should note that some donors prefer in-kind assistance to cash, despite the overall effectiveness of the latter.

The procurement, sourcing, and contracting of suppliers must also be strategic for CVA programming. Heaslip, Kovács, and Grant (2018) emphasise that suppliers should not be viewed as HAs, since they are profit-oriented with business interests, and they are not always willing to accept forms of payment or terms that are not in their favour. If legislative procedures and taxation policies in the country of operation do not benefit suppliers, HAs may have a difficult time in establishing contract frameworks with local suppliers and FSP/PSPs (Burkart, Besiou, and Wakolbinger, 2016). This is especially important in conflict zones, because not all suppliers are willing to operate in unstable environments. In such a context, HAs need to have a sourcing strategy and flexible contract frameworks (Khoury, 2019). Suppliers without field experience of disaster relief operations may impair CVA effectiveness, as was the case with the Housing Reconstruction Programme (2000–21) in Kosovo: the supplier's lack of experience and financial capacity led to material costs increasing by 30–40 per cent (Matopoulos, Kovács, and Hayes, 2014). Thus, suppliers with more experience and a proven track-record may be preferred (Howe and Stites, 2019).

On the demand side, only 13 per cent of the reviewed articles addressed the importance of beneficiary choice among the different modes of assistance (see, for example, Maxwell, 2007; Ryckembusch et al., 2013; Doocy, Tappis, and Lyles, 2016). Preference may depend on beneficiaries' characteristics as well, such as their residential location, gender, race, culture, and age. Increasingly, beneficiaries prefer CVA to in-kind assistance when both options are feasible (see, for example, Maxwell, 2007; Doocy et al., 2011; Castillo, 2021). Women seem to be better managers of cash (Kelaher and Dollery, 2008) and sometimes opted for in-kind assistance over CVA if the source was more secure (Ryckembusch et al., 2013). Households living far from markets, especially the elderly and those without access to transport, may choose in-kind assistance (Piotrowicz, 2018), whereas those living closer to markets prefer CVA (Cunha, De Giorgi, and Jayachandran, 2018). Furthermore, the decision to distribute cash can be time-sensitive and dependent on seasonal trends and food harvesting periods (Ryckembusch et al., 2013). It is very important, therefore, that donors and HAs observe the specific needs of beneficiaries and their preferences when structuring responses (Maxwell, 2007).

Process

'Process' refers to *how* questions, meaning the actions through which CVAs are being delivered and distributed. For each type of CVA programme, there are delivery mechanisms that facilitate the implementation of a particular solution shaped by the context (Doocy, Tappis, and Lyles, 2016; Heaslip, Kovács, and Haavisto, 2018b). While several generalities can be made about all CVA delivery mechanisms, there are also important distinctions. The subsection below examines identified capabilities, considerations from an HSCM perspective, and outcomes for the implementation of each delivery mechanism.

Capabilities

The literature underlines that certain capabilities related to internal and external factors must be in place for proper CVA programmes (see Table 4). In this study, capabilities refer to the intersection of abilities and capacities required to implement and operate CVA programmes along supply chains. While capacities related to external factors, such as infrastructure, may be beyond the control of HAs, capabilities pertaining to internal factors are required for the delivery of CVA programmes. Indeed, a lack of capabilities may lead to 'last mile' delivery failure, when not all beneficiaries are able to use cash (Piotrowicz, 2018).

First, implementing CVA programmes involves activities that require additional logistical skills and capabilities (Lewin et al., 2018). Each delivery mechanism has unique features, such as transfer timing and fees, market monitoring, evaluation activities, cash reconciliation, and reporting (Margolies and Hoddinott, 2015). Logistical skills could also include conducting market assessments, tendering, and partnering with FSP/PSPs (see, for example, Maxwell and Parker, 2012; Heaslip, Kovács, and Haavisto, 2018b). Following the Indian Ocean tsunami in 2004, cash-for-work programmes were implemented to aid recovery in Banda Aceh, Indonesia, but procurement and logistical issues severely limited the expansion and use of those initiatives, which eventually led to the subsequent establishment of a specialised logistics team to handle supply chain bottlenecks (Doocy et al., 2006).

Second, CVA programmes involve coordination among actors to manage and monitor visibly the flow of cash and information among the network of actors along the supply chain, creating an audit trail (Castillo, 2021). Building trust among all members of the CVA supply network is also vital for the reception of cash donations, contracting of service providers, and the facilitation and distribution of cash to beneficiaries. Low levels of trust between NGOs and donors have led to smaller amounts of cash being received by beneficiaries (Piotrowicz, 2018). And, despite increased usage of CVA, not all supply chain actors may be familiar with its functionality, potentially raising scepticism about financial transparency (Özpolat et al., 2015).

Table 4. Capabilities required for the CVA delivery

Capabilities	Articles	Frequency
Logistical capabilities for CVA operations, such as market assessment, tendering, and cash distribution.	1, 11, 12, 14, 30, 32, 33, 35	8
Trust and supplier relations (that is, with local suppliers, FSPs, informal *hawala* brokers, and donors).	2, 3, 9, 11, 12, 19, 28	7
Flexibility to adapt the delivery process.	1, 4, 11, 30, 39, 44	6
Capable of gaining access to sufficient resources (such as data, local knowledge, security, transportation, and/or technology).	1, 3, 8, 9, 23, 26	6
Capable of managing the cash distribution network and the monitoring and reporting system.	1, 4, 13, 34, 37	5

Source: authors.

Third, HAs must be capable of accessing sufficient resources for the delivery of CVA (Enshassi et al., 2017; Khoury, 2019) and should be accountable for rational utilisation of available resources (Maxwell and Parker, 2012). Coordinating efforts with local partners may enhance CVA targeting and delivery by drawing on their expertise, which also affords an opportunity to build local capacities (Doocy et al., 2016; Wood and Frazier, 2020). During some of the early large-scale CVA programmes, it became evident that capacity and resource constraints limited the effectiveness of HAs and the speed of implementation. For instance, in relation to the response to the Indian Ocean tsunami, beneficiaries first needed to be registered with proper documentation before they could receive aid, which proved to be an access constraint as they could only do so at local post offices. Consequently, to improve access, the implementing agencies introduced mobile post offices throughout affected areas (Kelaher and Dollery, 2008). Similar strategies had been employed in other contexts when beneficiaries were required to have a bank account to receive payments. In remote locations, mobile ATMs were available to beneficiaries on specific days (Margolies and Hoddinott, 2015). The popularisation of mobile money has also enhanced access in hard-to-reach places (Tappis and Doocy, 2018). In these instances, HAs were flexible in their use of internal capabilities to adapt to the external context.

Lastly, technical design and management are also required for proper handling of financial assets (see, for example, Sabates-Wheeler and Devereux, 2010), which must be accounted for through appropriate auditing, monitoring, and reporting systems for cash distribution. This can be done via cash distribution networks, making them a complementary capability for the distribution of physical items (such as paper vouchers, physical cash, ATM and smart cards, and mobile money) to beneficiaries in the 'last mile' (Ryckembusch et al., 2013; Piotrowicz, 2018).

Delivery mechanisms

Different processes are utilised for CVA delivery, resulting in different outcomes. Context-specific factors influence the feasibility of various delivery mechanisms in humanitarian settings. 'Modality' refers to the form of assistance to be provided (that is, cash, vouchers, and/or in-kind), whereas the 'delivery mechanism' concerns the way in which CVA is distributed to the beneficiary (such as direct cash or mobile money).

In reference to cash and vouchers as modalities, 20 articles mentioned that the use of CVA does not require the same transportation, warehousing, and distribution services as in-kind assistance. Heaslip, Kovács, and Grant (2018) note that this is due to a reconfiguration of the supply chain, within which CVA enables a 'pull strategy': beneficiaries purchase only what is needed, rather than goods being 'pushed' to them through the supply chain. This reduces the risk of irrelevant goods being provided and enables beneficiaries to determine what is needed and when to make purchases (Heaslip, Kovács, and Haavisto, 2018a; Piotrowicz, 2018; Shareef et al., 2018). Even in refugee camps, a 'two-way' flow between camps and local communities is created where the local market benefits from goods and services enabled within the camp, and vice versa (Jahre et al., 2018). These 'dynamic supply chain

configurations' utilise information and material flows to forecast demand (Matopoulos, Kovács, and Hayes, 2014).

Despite the altered supply chain configuration and reduced logistics, CVA still faces a shared challenge with in-kind assistance: 'last mile delivery' (Kovács, Matopoulos, and Hayes, 2010; Piotrowicz, 2018). Ensuring the delivery of cash to the right beneficiaries at the right time requires an understanding of what options beneficiaries have for accessing and spending the money, which possibility they prefer, and which additional actors are needed to help implement and monitor the programme (Wilson et al., 2018). Hence, the selection of the appropriate delivery mechanism is important. Table 5 provides a summary of the delivery mechanisms discussed in the literature,

Table 5. Types of delivery mechanisms discussed in the sample of literature

Delivery mechanisms	Linkage to context-specific factors and capabilities	Considerations from an HSCM perspective	Outcomes	Citations	Frequency
Direct cash	Internal → Demand → Beneficiary safety, choice, and preference Capability → Flexibility to deliver physical cash	• Beneficiary safety and security	• Reduced operational costs (such as human resource) • Increased cost of transportation to reach beneficiaries • Reduced speed of operations • Time-consuming monitoring processes	13, 15, 18, 19, 20, 22, 23, 26, 27, 30, 36, 37, 39, 42	14
	Internal → Supply → Market availability and accessibility Capability → Logistical capabilities for market assessment	• Market mapping exercises • Supply chain monitoring for commodities			
	External → Economic issues Capability → Logistical capabilities for market assessment, forecasting, and monitoring	• Exchange rate monitoring and forecasting of necessary goods prices • Planning for inflation			
	External → Infrastructure Internal → Demand → Beneficiary safety, choice, and preference Capability → Logistical capabilities; access to resources; managing the cash distribution network, and the monitoring/reporting system	• Physical distribution of cash; replacing material flows with financial flows • Strategic distribution of cash in remote areas			
	Internal → Supply → Supplier and donor interest; supplier/vendor selection and contracting; Supplier's expertise Capability → Trust and supplier relations	• Alignment of supply chain strategies between HAs and suppliers/donors so that goods are available when cash is distributed			

Delivery mechanisms	Linkage to context-specific factors and capabilities	Considerations from an HSCM perspective	Outcomes	Citations	Frequency
	External → Political and security issues Capability → Access to resources, such as security and local knowledge	• The risk of terrorism financing and money laundering			
Mobile money	External → Infrastructure Capability → Flexibility; managing the cash distribution network; access to resources, such as technology	• Distribution of telephones/SIM (subscriber identity module) cards • Technical specifications defined for tendering	• Reduced operational (human resource) and logistical (cash distribution) costs	6, 11, 14, 17, 18, 24, 30, 32	8
		• Standardisation of technology • Support services for technology	• Increased speed of operation • Increased accuracy of operation • Reduced payment and overall operational costs		
	Internal → Supply → Supplier and donor interest; supplier expertise; supplier selection and contracting Capability → Trust and supplier relations	• Partnering with mobile service providers • Data storage and protection across networks			
	External → Infrastructure (such as telecommunications infrastructure) Capability → Flexibility; access to resources	• Network coverage for geographic areas • Infrastructure must be able to support the technology			
Bank account/ debit card	Internal → Demand → Beneficiary safety, choice, and preference External → Infrastructure (such as ATMs) Capability → Managing/ designing distribution network; flexibility; access to resources	• Set up beneficiary with a bank account • Distribution of debit cards to beneficiaries • ATM access • Liquidity: cash available at each point • Timing of transfers and fixed versus percentage-based fees	• Increased cost of transportation to ATM • Reduced operational cost of expanding the programme • Simplified scaling up of the programme	1, 10, 12, 18, 30, 32, 39	7
	Internal → Supply → Supplier and donor interest; supplier expertise; supplier/vendor selection and contracting Capability → Trust and supplier relations	• Cooperation with FSPs/PSPs • Tendering requirements and vendor selection • External partnerships for implementation and distribution of cards			

Delivery mechanisms	Linkage to context-specific factors and capabilities	Considerations from an HSCM perspective	Outcomes	Citations	Frequency
Paper vouchers	External → Infrastructure Internal → Supply → Market availability and accessibility Capability → Logistical capabilities; managing and monitoring the voucher distribution network	• Set up a market where vouchers are accepted • Vendor contracting and monitoring	• Increased human resource costs • Reduced costs of material used, service provided, and logistics • Reduced total operational cost of expanding the programme	18, 26, 30, 31, 33, 34, 40	7
	External → Political and security issues Capability → Managing the monitoring and reporting system; access to resources, such as technology	• Anti-fraud monitoring • Dependent on commodity supply chain			
	Internal → Supply → Market availability and accessibility; supplier/vendor selection and contacting Capability → Trust and supplier relations	• Contracting of printing vouchers • Vendor management and appraisal			
Electronic vouchers and pre-paid cards	Internal → Supply → Supplier expertise; supplier and vendor selection and contracting Capability → Access to resources; trust and supplier relations; managing/designing the voucher distribution network	• Production and procurement of smart cards • Selecting vendors for voucher programmes • Distribution of smart and pre-paid cards to beneficiaries	• Reduced logistical costs per transfer • Increased sensitisation costs (such as costs of training and public awareness) • Increased costs of redemption and travel for beneficiaries • Improved accuracy of operations • Increased response speed and agility	1, 6, 16, 18, 32, 34	6
	External → Infrastructure Capability → Flexibility; managing the cash distribution network; access to resources External → Infrastructure Internal capability → Access to resources, such as technology, data, and security	• Ability of vendors to accept electronic vouchers • Requires POS (point of sale) terminals for acceptance • Reconciliation of financial transactions • Investment in technology and high initial costs			

Source: authors.

which are further connected to context-specific factors (see Table 3), capabilities (see Table 4), and outcomes for each delivery mechanism.

In the sample of literature, the most frequently discussed mechanism was 'direct cash', which was most often used in the 'recovery' disaster phase. Direct cash refers to the distribution of physical money to beneficiaries and may be the most straightforward approach to delivering cash-based assistance. The supply chain design of direct cash and vouchers is similar to that of in-kind assistance, but the material flows are replaced by financial flows (Heaslip, Kovács, and Haavisto, 2018b). Both direct cash and vouchers share the advantage of selecting the distribution points to mitigate safety and security risks (Mattinen and Ogden, 2006; Willibald, 2006), but they also shift the burden of transportation to the beneficiary (Tappis and Doocy, 2018). However, physical distribution of cash can be problematic, especially in conflict zones and remote places (Doocy et al., 2016). Paper vouchers also face this burden and must employ additional anti-fraud mechanisms through controlled printing and reconciliation services (Maxwell, 2007).

The use of bank accounts and ATM/debit cards reduces some of the distribution activities associated with physical cash and paper vouchers, but this is possible only when the banking infrastructure is reliable and accessible in the area of implementation (Piotrowicz, 2018). As with direct cash and paper vouchers, most programmes that use ATM/debit cards rely on fixed geographic locations as points of distribution, not always accessible by the beneficiaries. This leads to the need for strategic procurement of financial services and aligning policies among organisations to ensure that all beneficiaries are covered (Martin-Simpson, Parkinson, and Katsou, 2018).

Advances in technology result in innovations such as biometrics, smart cards, mobile telephones, and blockchain (Heaslip, Kovács, and Grant, 2018; Howe and Stites, 2019). Mobile money is one of the fastest-growing delivery mechanisms as it can be used in areas with mobile network coverage, assuming beneficiaries have a telephone. Transactions can be completed instantaneously, and the distribution of cash can occur in large batches, reducing the 'cash to cash' cycle (Sodhi and Tang, 2014). Blockchain technology can further automise processes and reduce the burden of tracking and tracing since the technology uses decentralised ledgers to record all transactions (Wang, Han, and Beynon-Davies, 2019). While technology may ease the distribution process, it can also be a hindrance to beneficiaries if they cannot operate or access platforms as intended, leaving them vulnerable to exclusion. Margolies and Hoddinott (2015) describe how a CVA programme using mobile money relied on beneficiary knowledge of mobile banking services and continuous network coverage. Such conditions help to determine the degree of success of CVA programmes, which is why the delivery mechanism should suit the setting, not the other way around. Several technology-based tools and algorithms were also reported in the literature that may support the decision-making process, such as supply chain modelling (Sodhi and Tang, 2014), algorithms to compare voucher and cash packages (Khoury, 2019; Sahinyazan, Rancourt, and Verter, 2021), and mathematical modelling to evaluate the impacts of the response (Puri et al., 2017).

The strategic sourcing of FSP/PSPs can improve processes through contextual knowledge provided by local actors. As HAs have no direct influence on external factors, there is a need to adjust operations to fit the setting, which affects decisions made in the internal environment. Strategic sourcing further develops capabilities and instils trust among supply chain actors (Doocy et al., 2016). This is especially important in conflict zones, as partnerships with local FSP/PSPs and NGOs can allow for safe 'last mile delivery' of cash to remote areas (Howe and Stites, 2019).

Outcomes

Pettigrew (2012) states that, while different contextual factors and process variations influence outcomes, there must be at least one variable against which to measure. The sample of literature frequently referenced measures such as costs, speed, and accuracy of CVA programmes, which are also common indicators in HSCM. Therefore, 'outcomes' are categorised according to two performance measures shared by both CVA and HSCM: cost-efficiency (that is, costs versus outputs); and responsiveness (that is, speed and accuracy).

Cost-efficiency

Cost-efficiency focuses on the administrative costs of programmes in relation to the amounts delivered to beneficiaries (Tappis and Doocy, 2018). The subject was frequently discussed throughout the sample of literature in terms of operational (34.2 per cent) and logistics (31.6 per cent) costs. Notably, the reduction in logistical processes is an advantage in a wide range of humanitarian situations, particularly emergency responses (Doocy et al., 2011; Heaslip, Kovács, and Haavisto, 2018b). This finding was common across studies of different contexts. For instance, Lewin et al. (2018) refer to the UN World Food Programme (WFP)'s pilot project in Ethiopia, reporting that CVA cut supply chain costs by up to 25–30 per cent. In a case study of the Ukrainian conflict in 2013–14, Piotrowicz (2018) determined that cash assistance reduced logistics costs by eliminating transportation and warehousing services. Likewise, WFP's 'Building Blocks' project in Jordan and Lebanon demonstrated how HAs can significantly decrease transfer costs using blockchain technology (Wang, Han, and Beynon-Davies, 2019). Lastly, Jahre et al. (2018) describe how CVA lessened the costs of human resources and distribution in Ethiopia, Greece, Kenya, and Turkey.

Margolies and Hoddinott (2015) define modality-specific costs as the combination of logistics, material, and human resource costs. They point out that preparations for travel by humanitarian staff, the execution of payments, and post-monitoring distribution varied across modalities. For instance, vouchers are the lowest cost in terms of materials used, services provided, transportation, and other non-staff costs, but they have a larger human resource requirement as compared to cash. Switching from in-kind assistance to CVA resulted in lower operational costs in the case of the Democratic Republic of the Congo, but beneficiaries cover transportation costs to access ATMs (Tappis and Doocy, 2018).

Although CVA has been shown to improve cost-efficiency, Tappis and Doocy (2018) noted a discrepancy in the inclusion of various costs and how they are measured across CVA studies. This lack of standardisation of measuring implementation and total operational costs makes case comparison difficult. Moreover, cost calculations typically do not consider the possible diversion of funds, such as to armed groups, which may affect the total cost (Howe and Stites, 2019).

Responsiveness

In this study, responsiveness is defined by the speed (that is, timeliness) and accuracy of operations of HAs to deliver CVA. Modality type and delivery mechanism both influence responsiveness considerably. Mobile telephones in particular were said to reduce lead times and increase supply chain visibility (Sodhi and Tang, 2014; Doocy et al., 2016; Tappis and Doocy, 2018). Together with technological advancements in processing, such as blockchain technology (Wang, Han, and Beynon-Davies, 2019) and ERP (enterprise resource planning) systems (Falagara Sigala, Kettinger, and Wakolbinger, 2020), CVA processes may be further expedited by digitisation. Adopting a 'hybrid' model composed of multiple modalities can lead to a more agile response in a time emergency through the integration of local market actors (Maxwell, 2007; Wang, Han, and Beynon-Davies, 2019), while also decoupling the delivery from bureaucratic payment systems (Matopoulos, Kovács, and Hayes, 2014).

Of the articles that discussed the accuracy outcomes of CVA operations, several commented on CVA programmes and improvement in the meeting of beneficiary needs (Kovács, Matopoulos, and Hayes, 2010; Piotrowicz, 2018). Heaslip, Kovács, and Grant (2018) assert that CVA facilitates access to information about beneficiaries' purchasing records, which can help HAs to estimate future needs more accurately. This may also help to stabilise supply chains through a better understanding of beneficiary needs in relation to market supply (Matopoulos, Kovács, and Hayes, 2014). Wilson et al. (2018) affirmed this point and included CVA on a shortlist of 'emergency supply best practices' as it has a major impact on the accuracy of order fulfilment among targeted groups.

Identified gaps in the literature

Despite the advancement of CVA programmes over the past two decades and the burgeoning linkage to HSCM, several gaps remain in the published literature, providing opportunities for further study. First, referring to the findings shown in Figure 3, the scope of literature remains unbalanced along the continuum of the humanitarian operations management cycle, despite the calls for 'cash readiness' ahead of emergencies (see, for example, Barder et al., 2015). Scant research explores the roles of the network of actors in CVA preparedness and mitigation. Donors play a crucial part in the decision-making process, but despite the criticality of their character along supply chains, few articles discuss their explicit involvement in CVA planning and implementation. For instance, Heaslip, Kovács, and Haavisto (2018a)

only posit that CVA is in the interest of donors by according them flexible service opportunities to meet the changing needs of beneficiaries. Maxwell (2007) also states that donors should allocate their resources flexibly and predictably to have a maximal impact, adjusting modalities and delivery mechanisms to provide appropriate responses.

Second, in spite of being connected through the humanitarian supply chain, donor and beneficiary interests are not always aligned. While several studies mention that responses should be beneficiary-driven (see, for example, Maxwell, 2007), there is little to no information in the sample of literature on how this can be achieved during the preparedness and mitigation phases. Most papers address beneficiary needs and preferences as key feasibility criteria for CVA appropriateness (see, for example, Ryckembusch et al., 2013; Heaslip, Kovács, and Haavisto, 2018b; Lewin et al., 2018; Martin-Simpson, Parkinson, and Katsou, 2018). Yet, little is said about beneficiary equity (for instance, in terms of gender, race, or age groups) and CVA delivery mechanism selection in the literature, although it is suggested as a potential indicator to measure impact (Martin-Simpson, Parkinson, and Katsou, 2018). Indicators also do not typically include beneficiary safety and security metrics, regardless of their importance. This should all be considered during the preparedness and mitigation phases.

Third, few articles discuss the decision-making process vis-à-vis delivery mechanism selection. While contextual factors are specified in the case studies (such as the lack of banking infrastructure in Syria since 2011), most do not explain why a particular delivery mechanism was used in a specific context. Furthermore, there was no standard way of measuring modalities against one another; one of the recurrent practices was to compare relative cost-efficiency and responsiveness in particular settings.

Fourth, there is a dearth of evidence on how to coordinate actors involved in CVA programmes, particularly regarding cash preparedness. A lack of standards, despite humanitarian initiatives to implement them, limits the ability to compare studies across different locations. Information related to coordination and communication between various actors along the supply chain, including FPSs, traders, *hawala* brokers, local suppliers, beneficiaries, volunteers, and governments, could reveal how coordination affects internal capacities and capabilities.

Fifth, the sample of literature does not adequately address the hidden logistical costs associated with procurement and contracting of FSP/PSPs, especially in conflict zones where services may be restricted. Activities such as market assessments, tendering, contracting framework agreements, and negotiating with local traders on voucher programmes may incur additional costs. These costs, such as banking and transaction fees, mobile network prices, and other operational charges, need to be studied especially as they relate to the cost-efficiency of a programme.

Lastly, while climate change and environmental issues have been analysed for several years in HSCM literature, they have yet to be fully explored in relation to CVA programmes. CVA has the potential to reduce carbon dioxide emissions by cutting logistical activities (such as warehousing and transportation of goods), but further investigation is needed to understand the overall impact that CVA has on climate change, particularly from an HSCM perspective.

Discussion on the findings

From the synthesis of the descriptive and thematic analyses, several insightful findings and trends emerge relating to the four research questions. The increase in recent publications indicates that research linking HSCM and CVA is growing and recognising the critical role of logistics in the planning, procurement, implementation, and distribution of CVA programmes. However, there appears to be an imbalance in terms of studies across disaster management phases (with less attention paid to the preparedness and mitigation phases) and geographic locations (with a lack of research conducted in Latin America and the Caribbean and Oceania, even though they are increasingly vulnerable to disasters triggered by natural hazards).

Despite the identification of context-specific factors, the SLR revealed many cases in which the reason to use a selected delivery mechanism within a certain context was not indicated. The research posits that HAs should consider both internal and external factors to meet beneficiary needs, as well as guaranteeing their safety and respecting their preferences when possible. Thus, addressing RQ1, HAs must understand which actors constitute their own supply chains, as suppliers, donors, beneficiaries, FSP/PSPs, governments, and local communities all have some degree of influence on the implementation and operation of CVA programmes. In turn, HAs should align their supply chain strategies with the network of actors to ensure cost-efficiency and responsiveness. Beneficiaries should remain in the spotlight when selecting how best to deliver assistance rather than been seen as passive recipients. There is a need for more flexible inter-modal choices, but this flexibility is dependent on the donors, which must also adapt to changing methodologies.

In exploring RQ2, the results affirm the notion that the appropriateness of CVA is highly reliant on context-specific factors, but extends the evidence base to link supply chain dynamics to CVA feasibility and operability. External factors include the type and phase of the disaster, political and security aspects, infrastructure, and local economy criteria. Factors internal to supply chains need to be taken into account, including the availability of goods in local markets, market accessibility, donors' interest, suppliers' interest and expertise, and the contracting framework with respect to FSPs. Monitoring of markets, prices, and exchange rates is a step that can be taken to reduce the impacts of market disruptions. The controlled timing of cash distributions can also affect the value of the transfer and may be used to maximise cost-efficiency. Supplier selection and strategic FSP/PSP partnerships can often facilitate transfers and smooth monitoring and evaluation processes. This infers that external contexts may be influenced to a degree by decisions based on internal factors. In essence, practitioners should leverage their supply network in each context to improve the feasibility and usability of CVA. Regardless, a comprehensive needs assessment is required to target the needs, preferences, choices, and safety of beneficiaries before CVA implementation.

In addressing RQ3 and RQ4, the assessment of CVA delivery processes revealed internal capabilities, the supply chain perspective, and related outcomes for each

delivery mechanism. Utilising capabilities was found to be a countermeasure to uncontrollable external factors. Although CVA programmes reduce logistics activities, logistics capabilities are required for a rigorous market assessment, cash distribution, and the tendering of retailers and FSPs. Increasing the capacity could enhance logistics capabilities, foster trust with other actors in the supply network, and provide more resources to meet programme outcomes in a cost-efficient and timely manner. The selected modality and delivery mechanism have a bearing on the cost, speed, and accuracy of delivery; however, the contextual factors should drive the decision to employ specific delivery mechanisms. HAs need to be flexible and have access to critical resources such as local data, knowledge, security, and technology. Access to resources and technology has proven to be beneficial, especially in reducing the load of financial activities needed for payments, reconciliation, and reporting. Even with technology, 'last mile delivery' can be problematic, and, in some instances, the burden is passed to the beneficiary, who must travel to receive assistance. The results show that each delivery mechanism has its own supply chain factors to consider prior to implementation. Irrespective of the methods chosen, services must be accessible by beneficiaries, especially the most vulnerable groups, even if this entails a trade-off between cost-efficiency and responsiveness.

Recommendations for future research

Drawing on both the findings and the identified gaps in the literature, we can make several recommendations for future studies. First, more emphasis should be put on the preparedness and mitigation phases when conducting research related to CVA programmes. Second, the use of the CCP framework demonstrates how mechanisms support the intervention and drive outcomes, but it remains unclear how each delivery mechanism is influenced by the context. Hence, it is recommended that the evidence base for CVA continues to be developed across settings.

The idea that CVA programmes eliminate logistics activities, such as transportation, delivery, and warehousing, is erroneous. Although the logistics activities of HAs are reduced and responsibilities are shared with other actors in the network, local producers, suppliers, and retailers must still deliver goods to market. The delivery is 'outsourced' by HAs to local companies. This raises research questions regarding how local vendors cope during and after a disaster, what capabilities they need to perform their logistical tasks, what is required to increase their preparedness to respond better to disasters, and how coordination of CVA impacts on their operations.

Contributions of the research

By linking critical information from multiple studies across two emerging areas, HSCM and CVA programmes, this SLR has yielded additional insights, which have theoretical and practical implications for the development and usage of CVA, in addition to providing avenues for future research. The primary contribution of this SLR

is the in-depth analysis of CVA programmes from different perspectives and in different locations. The use of the CCP framework revealed the underlying contextual factors required for CVA programmes by connecting internal factors (supply and demand) and external environmental factors, identifying key actors involved along the supply chain, and highlighting the capabilities needed for the delivery process. Through this categorisation, the study demonstrates how outcomes are influenced by process modules (that is, delivery mechanisms), which are determined by the context and supply chain actors. This approach contributes to the expanding pool of knowledge of CVA programmes by identifying elements that are generalisable and other particularities that relate only to specific locales.

Furthermore, the findings obtained from the SLR can help policymakers and humanitarian practitioners with the planning, design, and implementation of CVA programmes in humanitarian contexts. The analysis of contextual factors as feasibility criteria (such as political pressure, security, local economy, and infrastructure) paints a clearer picture of the needs and risks to be assessed prior to CVA delivery.

The findings offer further evidence that practitioners must consider and prioritise the needs and preferences of the beneficiaries at the centre. Beneficiaries need to be included in the decision-making process for CVA delivery. Donor and supplier interests and expertise in CVA implementation need to be considered as well.

Lastly, the research contributes to the processes and the outcomes of CVA programmes by using a supply chain lens. With regard to the delivery mechanism, the study provides important information on the logistics capabilities required for CVA delivery, as well as on trust-building, flexibility, access to scarce resources, and managing the cash distribution and monitoring network.

Limitations of the research

While the discussed insights have been drawn from the data analysis through the SLR process, it is important to acknowledge the limitations of this study. First, given the HSCM perspective adopted by this study, only two dimensions of outcomes are emphasised (cost-efficiency and responsiveness) for the delivery of CVA programmes. Not all of the outcome-related issues are covered by this evaluation, therefore. While this was a component of the research design, further work is recommended, encompassing additional dimensions of outcomes that also influence CVA programmes, such as market impacts, accountability to donors, beneficiary's satisfaction, and coordination costs.

In addition, as secondary data were employed, a possible limitation of the study relates to the general validity and reliability of qualitative literature research. More studies in humanitarian settings will help to advance theory and provide more empirically grounded evidence connecting the success of CVA programmes to HSCM strategies. The success of CVA programmes is largely dependent on realising SCM as a core competence alongside finance, security, and information technology to form a balanced approach to research and practice.

Lastly, this study was conducted using only academic papers from peer-reviewed journals. While this was part of the research design, it does not discredit the importance of non-peer reviewed sources and grey literature. The authors recognise that several key works have helped to build the theory of CVA through the inclusion of non-peer reviewed literature: Barder et al. (2015); Bastagli et al. (2016); and Davis et al. (2016). Consequently, this paper should be viewed as complementary to the available literature, noting the distinction that it focuses on logistics insights from an HSCM perspective.

Conclusion

This study indicates the interlinkage between CVA and HSCM as well as the influence that operability and functionality have on each of them. The CCP framework allowed for analysis of CVA processes in varying humanitarian operations, revealing general aspects of CVA programmes across contexts as well as specific factors related to different settings. While CVA as a modality has the potential to reduce operational and logistical costs, results vary depending on the delivery mechanisms and external factors in the area of the operation. Supply chain actors and their capabilities influence the planning, implementation, and delivery of CVA processes, affecting overall outcomes. As interventions strive to become more beneficiary-driven, a blending of delivery mechanisms and modalities may lead to responding to needs with greater cost-efficiency and responsiveness. This requires strengthening relationships along the supply chain and incorporating beneficiaries into the decision-making process. CVA can thus effectively realign humanitarian supply chains to create more agile responses and meet beneficiary needs more accurately based on both their prioritised requirements and personal preferences.

Appendix

Table A1. The reference list of included studies

No.	Author(s)	Year	Journal	Research method	Main organisation(s) involved	Cause of disaster	Disaster management phase	Country/ region
1	J.G. Castillo	2021	*Journal of Humanitarian Logistics and Supply Chain Management*	Modelling	Danish Refugee Council (DRC)	Natural hazard	Response and preparedness	Colombia
2	B. Vogel, K. Tschunkert, and I. Schläpfer	2022	*Disasters*	Case study	World Food Programme (WFP) and local market operators	Anthropogenic	Response, recovery, and mitigation	Lebanon

No.	Author(s)	Year	Journal	Research method	Main organisation(s) involved	Cause of disaster	Disaster management phase	Country/ region
3	E.X. Wood and T. Frazier	2020	*Journal of Humanitarian Logistics and Supply Chain Management*	Archival/ secondary data	Not applicable (N/A)	Complex emergency	Response, recovery, and preparedness	Global
4	I. Falagara Sigala, W.J. Kettinger, and T. Wakolbinger	2020	*Journal of Humanitarian Logistics and Supply Chain Management*	Case study	Médecins Sans Frontières (MSF)	Complex emergency	Response	Global
5	F.G. Sahinyazan, M-E. Rancourt, and V. Verter	2021	*Production and Operations Management*	Modelling	WFP	Natural hazard	Response	Kenya
6	Y. Wang, J.H. Han, and P. Beynon-Davies	2019	*Supply Chain Management: An International Journal*	Archival/ secondary data	WFP	Anthropogenic	Recovery	Kenya, Syria
7	M. Brennan, P. Sundar, J. Goentzel, D. Frey, and J. Mathias	2019	*Food Policy*	Experiment	United States Agency for International Development (USAID) and the United States Department of Agriculture	Complex emergency	Response and recovery	United States
8	B.J. Khoury	2019	*Journal of Humanitarian Logistics and Supply Chain Management*	Modelling	Local NGOs, WFP, European Civil Protection and Humanitarian Aid Operations (ECHO)	Complex emergency	Response	Syria
9	K. Howe and E. Stites	2019	*Disasters*	Case study	Local NGOs, international NGOs, UN agencies	Anthropogenic	Response and recovery	Syria, Turkey
10	S. Rao, R. Nilakantan, D. Iyengar, and K.B. Lee	2019	*Journal of Business Logistics*	Archival/ secondary data	Commercial banks and organisations	Complex emergency	Recovery	India
11	G. Heaslip, G. Kovács, and I. Haavisto	2018	*Journal of Humanitarian Logistics and Supply Chain Management*	Interview	World Bank, European Union, Palestine Ministry of Social Affairs, UN agencies, international NGOs, commercial organisations	Anthropogenic	Response and preparedness	Palestine

No.	Author(s)	Year	Journal	Research method	Main organisation(s) involved	Cause of disaster	Disaster management phase	Country/ region
12	R. Lewin, M. Besiou, J.B. Lamarche, S. Cahill, and S. Guerrero-Garcia	2018	*Journal of Humanitarian Logistics and Supply Chain Management*	Interview	WFP, local private sector, civil society organisations	Natural hazard	Response, recovery, and preparedness	Philippines
13	W.D. Piotrowicz	2018	*Journal of Humanitarian Logistics and Supply Chain Management*	Case study	Caritas Poland, Polish Humanitarian Action, Polish Center for International Aid	Complex emergency	Response and recovery	Ukraine
14	G. Heaslip, G. Kovács, and D.B. Grant	2018	*Journal of Humanitarian Logistics and Supply Chain Management*	Archival/ secondary data	International humanitarian organisations	Complex emergency	Response, recovery, and mitigation	Global
15	M.M. Wilson, P. Tatham, J. Payne, C. L'Hermitte, and M. Shapland	2018	*Journal of Humanitarian Logistics and Supply Chain Management*	Interview	New South Wales Rural Fire Service, NSW State Emergency Service, local NGOs, government	Natural hazard	Response	Australia
16	M. Jahre, J. Kembro, A. Adjahossou, and N. Altay	2018	*Journal of Humanitarian Logistics and Supply Chain Management*	Case study	United Nations Refugee Agency (UNHCR)	Anthropogenic	Recovery	Ethiopia, Greece, Kenya, Turkey
17	M.A. Shareef et al.	2018	*Annals of Operations Research*	Survey	Local NGOs, government, donor agencies	Natural hazard	Response, recovery, and mitigation	Bangladesh
18	H. Tappis and S. Doocy	2018	*Journal of Development Effectiveness*	Archival/ secondary data	N/A	Anthropogenic	Response and recovery	Global
19	G. Heaslip, G. Kovács, and I. Haavisto	2018	*Production Planning & Control*	Interview	UN agencies, international NGOs, commercial organisations	Anthropogenic	Recovery	Palestine
20	J.M. Cunha, G. De Giorgi, and S. Jayachandran	2018	*The Review of Economic Studies*	Case study	Government	Complex emergency	Recovery	Mexico
21	S. Martin-Simpson, J. Parkinson, and E. Katsou	2018	*Journal of environmental management*	Archival/ secondary data	WFP, Oxfam	Natural hazard	Response, recovery, and preparedness	Global

No.	Author(s)	Year	Journal	Research method	Main organisation(s) involved	Cause of disaster	Disaster management phase	Country/ region
22	F. Burchi, M. Scarlato, and G. d'Agostino	2018	*Poverty and Public Policy*	Case study	Government, World Bank	Natural hazard	Recovery and mitigation	Sub-Saharan Africa
23	A. Enshassi, T. Chatat, J. von Meding, and G. Forino	2017	*International Journal of Disaster Risk Science*	Survey	Government, local and international NGOs, donor agencies	Anthropogenic	Recovery and mitigation	Gaza Strip
24	J. Puri, A. Aladysheva, V. Iversen, Y. Ghorpade, and T. Brück	2017	*Journal of Development Effectiveness*	Modelling	Government, NGOs, UN agencies, commercial organisations	Complex emergency	Response and recovery	Global
25	C. Burkart, M. Besiou, and T. Wakolbinger	2016	*Surveys in Operations Research and Management Science*	Modelling	HAs, donors	Complex emergency	Response and recovery	Global
26	S. Doocy, H. Tappis, and E. Lyles	2016	*Journal of International Humanitarian Action*	Case study	Donors, local and international NGOs, local councils, community members, commercial money traders	Anthropogenic	Response	Syria
27	A. Nikulkov, C.B. Barrett, A.G. Mude, and L.M. Wein	2016	*PloS One*	Modelling	USAID	Natural hazard	Response	Kenya
28	K. Özpolat, J. Rilling, N. Altay, and E. Chavez	2015	*Journal of Humanitarian Logistics and Supply Chain Management*	Case study	USAID	Natural hazard	Response	Global
29	M.A. Ülkü, K.M. Bell, and S.G. Wilson	2015	*Annals of Operations Research*	Modelling	Not-for-profits and coordinated help organisations	Complex emergency	Response	United States
30	A. Margolies and J. Hoddinott	2015	*Journal of Development Effectiveness*	Case study	WFP	Anthropogenic	Recovery	Ecuador, Niger, Uganda, Yemen
31	M. Besiou and L.N. Van Wassenhove	2015	*Production and Operations Management*	Archival/ secondary data	WFP	Complex emergency	Recovery	Global

No.	Author(s)	Year	Journal	Research method	Main organisation(s) involved	Cause of disaster	Disaster management phase	Country/ region
32	M.S. Sodhi and C.S. Tang	2014	*Production and Operations Management*	Modelling	Government, NGOs, humanitarian organisations	Natural hazard	Response, recovery, mitigation, and preparedness	Asia
33	A. Matopoulos, G. Kovács, and O. Hayes	2014	*Decision Sciences*	Case study	NGOs, suppliers, contractors, housing reconstruction committee, European Agency for Reconstruction	Anthropogenic	Recovery	Kosovo
34	D. Ryckembusch et al.	2013	*World Development*	Experiment	WFP	Complex emergency	Preparedness	Global
35	D. Maxwell and J. Parker	2012	*Food Security*	Case study	Food and Agriculture Organization of the United Nations, WFP	Natural hazard	Response, recovery, and mitigation	Côte d'Ivoire, Haiti, Pakistan
36	S. Doocy et al.	2011	*Social Science & Medicine*	Survey	UNHCR	Anthropogenic	Response, recovery, and mitigation	Iraq, Jordan, Syria
37	R. Sabates-Wheeler and S. Devereux	2010	*Food Policy*	Survey	Government	Natural hazard	Response, recovery, and mitigation	Ethiopia
38	G. Kovács, A. Matopoulos, and O. Hayes	2010	*International Journal of Logistics: Research and Applications*	Case study	Local NGOs, private traders, suppliers, European Agency for Reconstruction	Anthropogenic	Recovery	Kosovo
39	D. Kelaher and B. Dollery	2008	*International Review of Public Administration*	Case study	WFP	Natural hazard	Response and recovery	Indonesia
40	D. Maxwell	2007	*Disasters*	Case study	WFP	Anthropogenic	Response, recovery, mitigation, and preparedness	Sudan
41	B. Sharp	2007	*Disasters*	Case study	WFP	Anthropogenic	Recovery and mitigation	Sudan
42	H. Mattinen and K. Ogden	2006	*Disasters*	Case study	Action contre la Faim	Anthropogenic	Recovery	Southern Somalia
43	S. Willibald	2006	*Disasters*	Case study	UN agencies, World Bank	Anthropogenic	Response and recovery	Sierra Leone
44	S. Doocy, M. Gabriel, S. Collins, C. Robinson, and P. Stevenson	2006	*Disasters*	Case study	Mercy Corps	Natural hazard	Recovery	Indonesia

Source: authors.

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Correspondence

Amin Maghsoudi, Postdoctoral Researcher, HUMLOG Institute, Hanken School of Economics, Arkadiankatu 22, 00100 Helsinki, Finland.
E-mail: amin.maghsoudi@hanken.fi

Endnotes

[1] Amin Maghsoudi is a Postdoctoral Researcher at the HUMLOG Institute, Hanken School of Economics, Finland; Russell Harpring is a PhD Candidate at the HUMLOG Institute, Hanken School of Economics, Finland; Wojciech D. Piotrowicz is an Associate Professor at the HUMLOG Institute, Hanken School of Economics, Finland; and Graham Heaslip is a Professor and Head of School of Engineering at the Galway–Mayo Institute of Technology, Ireland, and Professor of Supply Chain and Social Responsibility at the HUMLOG Institute, Hanken School of Economics, Finland.

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