

Characteristics of Humanitarian Assistance Coordination among Non-Governmental Organizations in Natural Hazards: A Systematic Review

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Abstract

Introduction: Coordination is one of the highest recommended factors by many studies, which intensifies successful humanitarian assistance in disasters. In spite of the fundamental role, coordination is almost difficult to achieve by all players especially NGOs who have significant role in both developed and developing countries in disasters in recent years. The aim of this paper is to review the main characteristics of coordination among NGOs based on the online and available sources. **Method:** PubMed, Web of Science, ProQuest Research library and Scopus, were searched in December 2016. Original articles that provided characteristics for NGOs coordination in humanitarian assistance settings in natural hazards were included. Non-English documents as well as articles, which were irrelevant to the NGOs coordination of humanitarian assistance were excluded. Analysis of selected studies was done separately by descriptive and thematic analyses. **Results:** By reviewing eight articles from total of 110 documents, which met the study's criteria, the two main categories including organizational and managerial factors and five subcategories consisting of structural, strategic, program, leadership and information factors, were extracted. **Discussion:** Most studies have indicated that the coordination could be considered as a turning point to disaster response, facilitating successful humanitarian assistance. However, more research is needed to expand the characteristics and utilize indices which harmonize and coordinate all humanitarian efforts to promote coordination among all the players. The proposed combination of factors could be helpful for managers of NGOs to provide coordinated assistance in disaster.

Keywords: Characteristics, Coordination, NGO, Disaster.

Introduction

Following a disaster, a large number of non-governmental organizations (NGOs) become involved in humanitarian aids in the stricken regions. For instance, following the Asian Tsunami in 2004 more than 700 international NGOs from 40 countries including Sri Lanka, India, Thailand, Indonesia, the Maldives and Malaysia were present in the affected area (Chia, 2007). More than 3000 NGOs were involved in the provision of aid to survivors of the 2010 Haiti earthquake (Moshtari, 2016).

Given the high number of humanitarian performers, "coordination has continued to be the fundamental weaknesses of the humanitarian action" (Balcik et al., 2010), which causes the ineffective delivery of the aid and overcrowding the local airports and the roads, yielding less productive humanitarian aid delivery (Murray, 2005). It can also lead to injury or death of those struggling to obtain services (Moore et al., 2003) and can bring competition among humanitarian organizations over restricted resources (e.g., building materials and labor), thereby increasing expenses and suspending services (Chang et al., 2011). On the other hand, improving the level of coordination among NGOs, resource allocation and accountability will promote and bring effectiveness to humanitarian operations (Moore et al., 2003).

Coordination, along with the other substantial issues such as fundraising, financial and managerial problems, institutional capability, self-sustainability, and inter-organizational communication, is one of the most commonly identified challenges that NGOs currently face (Bromideh, 2011).

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Academics, as well as aid professionals, funders, and United Nations representatives, have recognized harmonization as a persistent issue. All agree that more successful inter-organizational cooperation will yield improved outcomes for those being served. However, there are internal and external aid delivery factors adding to the complexities and challenges that coincide with the accomplishment of successful coordination (Strengthening the public health system for a healthier future, 2003).

Taking these facts into account, coordination, as one of the fundamental components for disaster response, has over the years proved to be critical for the effectiveness of relief. The experts on the disaster preparedness and management are working on synthesizing theories focusing on characterizing the effective coordination (Nabi, 2014). Although many studies (Powers, 2009; Amin, 2008; Donini, 1996; Natsios, 1995) have brought up issues of coordination in the literature, so far the debate on the importance of coordination in general—and coordination of the NGO sector in particular—continues.

In fact, a large amount of information was obtained about coordination as demonstrated through the plethora of gray literature. Despite the benefits of coordination, we know very little about the characteristics that make NGOs' coordination more efficient (Murdie, 2014).

This study provides a critical overview of the major characteristics and factors that lead to effective coordination among NGOs to deliver humanitarian assistance amidst disasters.

Method

Databases and Search Strategy

This research is a systematic review through the available original electronic articles that was carried out in December 2016. The searched databases were PubMed, Web of Science, ProQuest Research library and Scopus.

These databases were scrutinized for factors that are necessary for effective coordination of humanitarian assistance among NGOs in disasters which were triggered by natural hazards.

By adjusting the search terms applied to the databases, the controlled vocabulary of the Medical Subject Headings (MeSH) from PubMed was assessed. It ensured a controlled vocabulary, even in databases not using MeSH to index articles. In addition, the search strategy of the PubMed database was used as a model to search the other databases. The search strategies of all databases were checked and revised by the health information specialist and according to his revision, the final search strategies were modified. In all databases, only the original English articles were selected as document type and did not have a publication year limitation. The keywords that were used to search the databases are the following:

Coordination OR cooperation OR collaboration OR interorganiz* AND assistance OR relief OR aid OR help* OR support* AND humanitarian OR Philanthropic* AND NGO*OR organi*OR association*OR charit* AND indicat* OR factor* OR ind* OR element* OR component* OR aspect* OR measure* OR Characteristic* OR Determin* disaster*OR hazard* OR emergency* OR crisis* OR earthquake* OR flood* OR tsunami

Study eligibility

- *Inclusion criteria:*

Academic English language journals containing original articles introducing the characteristics or factors of coordination among humanitarian NGOs in disasters were searched. Both quantitative and qualitative studies with no limitation of time were considered to get the most relevant studies according to the subject. Furthermore, papers in which coordination among disaster NGOs was mentioned indirectly were extracted from the body of articles. This study only includes natural hazards.

- *Exclusion criteria:*

Non-English studies that were irrelevant to the coordination of humanitarian assistance and articles with similar keywords covering unrelated topics were excluded. In the case of limited access to abstracts or full texts, if the response from correspondents were not delivered, articles were excluded by a consultant of the research team.

Furthermore, studies generally focusing on coordination in organization, business, management, etc. were omitted. Organizational reports, gray literature, documents, and articles about man-made hazards were disregarded in the study.

Studies selection

After the principal author scanned the titles of all selections and investigated the inclusion and exclusion criteria of the studies in the screening stage, two reviewers read the abstracts and full texts of all the literature. To reach consensus in the event of disagreements, a third member of the team was asked for his opinion. According to an agreed-upon, predefined checklist, the non-relevant data were extracted from the identified studies.

Data analysis

The following data were extracted from each study report: first author, year of issue, title, type of study, name of journal, country, which are illustrated in a flow diagram (Fig. 1) and descriptive table (Table 1). Furthermore, main categorizations and characteristics that influence NGOs' coordination are explained in the thematic section (Figure 2 & Table 2) of this paper. Data extraction forms were designed using Microsoft Excel (2013). This review is reported according to the PRISMA guidelines.

Results

Selection of studies

A total of 110 potentially relevant articles were identified during the search. After removing duplicates, 96 references were identified for scanning the titles of all selections. Upon further review, 23 references that met the exclusion criteria were eliminated. Subsequently, after a review of abstracts and full texts, 73 references were investigated and 65 studies were removed because they did not meet the inclusion criteria as they are either not dealing with the NGO coordination ($n = 44$) or they included different settings such as humanitarian conflicts, complex or man-made disasters ($n = 21$). Finally, 8 key studies were included in the review. The study selection flow diagram is shown in Figure 1.

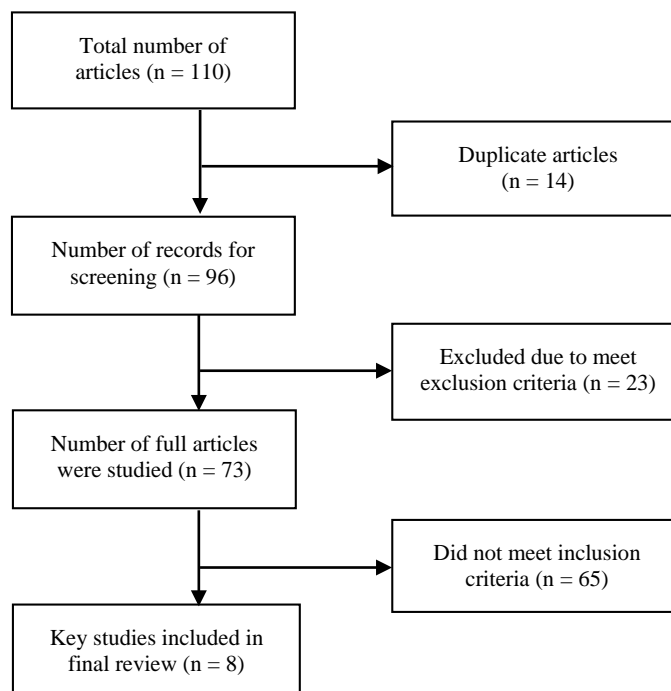


Figure 1: The PRISMA flow diagram for the identification of studies for this review

Descriptive analysis of the included studies is summarized in Table 1, which shows the resulting characteristics such as the first author name, year of issue, title, type, journal, and country of all the selected studies. According to the information in Table 1, all selected papers were published within the period 2006-2016, with the highest number of publications in the years 2006 and 2014. Additionally, many studies came from the United States.

Table 1- Description of articles were reviewed

Number	1thAuthor	Year of issue	Title	Type	Journal	Country
1	Richard M. Zoraster	2006	Barriers to Disaster Coordination: Health Sector Coordination in Banda Aceh following the South	Journal Article	Prehospital and Disaster Medicine	USA

			Asia Tsunami			
2	Peer Ghulam Nabi	2014	Coordinating post-disaster humanitarian response: lessons from the 2005 Kashmir earthquake, India	Journal Article	Development in Practice	China
3	Shivani Parmar	2007	Enhancing collaboration during humanitarian response: an interim report from stakeholders survey	Journal Article	Prehospital and Disaster Medicine	USA
4	Hilary Pateman	2013	Humanizing Humanitarian Supply Chains: A Synthesis of Key Challenges	Journal Article	Asian Journal of Shipping and Logistics	Australia
5	Max Stephenson Jr	2006	Interorganizational Trust, Boundary Spanning, and Humanitarian Relief	Journal Article	Nonprofit Management & Leadership	USA
6	Amanda Murdie	2014	Scrambling for contact: The determinants of inter-NGO cooperation in non-Western countries	Journal Article	Review of International Organizations	USA
7	Max Stephenson Jr	2006	Toward a Descriptive Model of Humanitarian Assistance Coordination	Journal Article	International Journal of Voluntary and Nonprofit Organizations	USA
8	Mohammad Moshtari	2016	Inter-Organizational Fit, Relationship Management Capability, and Collaborative Performance within a Humanitarian Setting	Journal Article	Production and Operations Management	Finland

Thematic analysis

The main aim of this systematic review was to highlight the key characteristics of NGO coordination during the disasters. At first, full-text articles were read and all factors that implicated NGO coordination as an important element of disaster were captured and recorded in an Excel sheet (2013) by the first author (NR). After consulting and reviewing with the research team, an initial draft consisting of thirty characteristics was provided (Table 2). With regard to the type of all found characteristics, these factors were categorized into five subgroups including: Structure, Strategy, Program, Leadership, and Information factors. Consequently, based on the features and relevancy of these five categories, they were sorted out to two main groups: Organizational and Managerial factors (Figure 2).

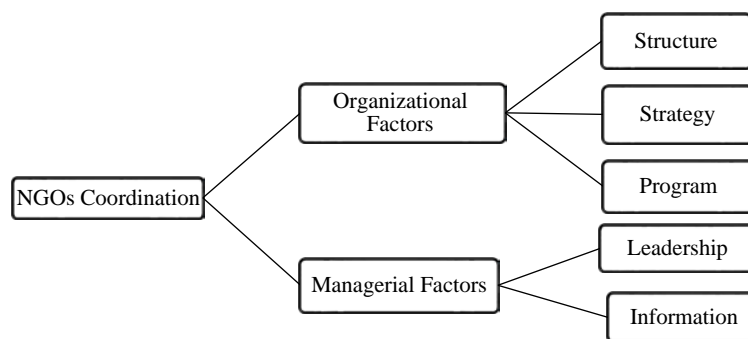


Figure 2: Diagram of NGOs' Coordination Factors in Natural Hazards

A comprehensive perspective of the main categories, along with detailed related characteristics of the coordination among NGOs during disasters, is summarized in Table 2.

Table 2- Mapping of coordination characteristics among NGOs in natural hazards

Group	subgroup	characteristics	Reference
Organizational Factors	Structure	-Cross-sector coordination based on local and state governments -Structural change in the NGOs system	Nabi(2014)
		-Actively support an agency or structure already in existence -Structural, systematic, and cultural forces -Build local capacity	Parmar(2007)
		-Polycentricity Network form of organization	Stephenson(2006)
		-Humanitarian military interventions	Amanda Murdie(2014)
		-Strategic and operating factors -Cross boundary organizational cooperation	Stephenson(2006)
		-Interorganizational social network	Moshtari(2016)
		Joint capacities	Zoraster (2006)
	Strategy		

		Fraternity approaches	Nabi(2014)
		Collaboration	Patman(2013)
		Trust among organizations	Amanda Murdie(2013)
	Program	-Programme convergence or integration Pre-planned disaster relief programme with a clear coordination strategy	Nabi(2014)
		Evidence-based humanitarian assistance programs	Parmar(2007)
Managerial Factors	Leadership	-Skilled and committed disaster managers -Authority	Zoraster(2006)
		-Multi-national agencies with field-based coordination -New partnerships	Parmar(2007)
		Stakeholder learning dialogues	Stephenson(2006)
		Resource complementarity and relationship management	Moshtari(2016)
	Information	Active tracking of information, and reliable dissemination	Zoraster(2006)
		-Information sharing - Building a network of NGOs - Sole spokesperson	Nabi(2014)
		Timely data collection, analysis, and dissemination	Parmar(2007)
		-Value creation - Knowledge sharing	Patman(2013)
		Patterns of communication	Stephenson(2006)

Discussion

The dates of issue of the selected studies indicate that humanitarian assistance coordination during disasters has been a permanent issue, especially in the recent years. Developed countries, including European and American countries, pioneered by the United States of America, have more publications related to the subject than developing countries. Furthermore, in development of theoretical concepts of the humanitarian assistance coordination, more related literature has been issued in these countries. One possible reason is that the developed countries, compared to the developing countries, are more active in publishing their research in this area on databases using an international electronic platform.

In order to conduct a comprehensive discussion, three categories of NGOs' coordination in natural hazards can be discussed as follows: (i) National and International Coordination Mechanism in Disasters, by using additional resources in order to have some implications to the existing Coordination Mechanism; (ii) Theoretical Implications towards NGOs Coordination in Disasters and (iii) NGO Coordination Characteristics in Disasters.

- *National and International Coordination Mechanism in Disasters*

In this section, some implications about several national and international approaches highlighted in the coordination mechanism in disasters are explained, including: The Cluster Approach, the Sphere Project, the World Health Organization (WHO) Emergency Medical Teams, and National Disaster Management Authority.

- *The Cluster Approach*

In recent years, the humanitarian system has had a significant role in addressing disasters and complex emergencies of increasing severity. In 2005, the United Nations created a coordination mechanism called the Cluster Approach. The aim of this mechanism is to find a way how to organize the coordination and cooperation among humanitarian actors. More specifically, it matches the efforts of national authorities in critical zones of preparedness as well as response within a framework of agreed upon objectives. In other words, it prevents gaps and/or overlap in the resources and international humanitarian response (Lotfi et al., 2016).

- *The Sphere Project*

In 1997, the Sphere Project was developed by a group of NGOs and the International Red Cross and Red Crescent Movement (ICRC) following the 1994 Rwandan genocide. The goal of the project was to provide guidance for humanitarian responders in all sectors (Lotfi et al., 2016). The Sphere project comprises a set of minimum standards written for four technical areas: (i) water, sanitation, and hygiene (WASH), (ii) health, (iii) shelter and (iv) food, based on the humanitarian charter. It is used to plan, manage or implement a response (Griekspoor, Collins, 2001).

As mentioned by Nabi (2014), most international NGOs¹ have also accepted the Sphere Project Guidelines of disaster response. According to these Guidelines, the disaster response agencies should make sure "there is effective coordination and exchange of information among those affected by or involved in the disaster response"(Nabi, 2014).

¹ Non-Governmental Development Organizations

- *The WHO Emergency Medical Teams*

As an important part of the global health workforce, Emergency Medical Teams (EMT) were established to be prepared to provide health care in emergencies. They are classified and listed according to the WHO EMT minimum standards to increase clinical capacity for people who are affected by an emergency. Indeed, it provides coordination mechanism that aims to deploy services for all partners in different kinds of disasters. The policy of EMTs has focused on equipping and strengthening the capacity of countries to have their own EMTs, as the first level of service, to respond to urgent situations in the shortest possible time (Camacho et al., 2016).

- *National Disaster Management Authority*

National Disaster Management Authority (NDMA) is a disaster management mechanism established by the national governments in order to develop policy, plan, and guideline legislation at the national level. In India, for example, this approach via multi-stakeholder collaboration in the preparedness phase is used to address disaster risk and vulnerability to coordinate NGO activities at different levels (Khan et al., 2008).

Another example is the situation after the 2005 earthquake in Kashmir of Pakistan. The government established the NDMA in order to manage upcoming disasters by setting up the Provincial Disaster Management Authorities in all the provinces in order to improve preparedness and coordination at national and province level agencies (Ahmed, 2013).

According to Richard M. Zoraster (2006), incredible efforts are being made on the national levels to facilitate a coordinated disaster response. Although there are guidelines and the best practices from various UN agencies, NGOs, donors, and other organizations, the consensus is that there is no up-to-date, evidence-based guidance. Participants during the WHO Conference in Phuket (04–06 May, 2005) made suggestions and plans, including the establishing current appropriate and trackable best practices, along with an international agency to regulate those who do not act according to the accepted standards (Zoraster, 2006).

Theoretical Implications towards NGOs Coordination in Disasters

In this section, some implications of different viewpoints of humanitarian NGO coordination are mentioned. Due to the fact that humanitarian assistance is often delivered in difficult, complicated, and changing circumstances, any kind of coordination is troublesome. Therefore, using traditional mechanisms of coordination does not seem to be a proper solution.

Stephenson (2006) emphasized the fact that humanitarian assistance is full of competition and provided in confusing conditions that cannot easily be controlled by a top-down coordination. He proposed to establish a network form of actors that are connected by a set of preexisting relations that are brought together by an emergency. Therefore, the coordination would occur in a roughly relational independent network of organizations with no normal lines of authority between them. In other words, polycentricity seems to be more applicable to coordinating humanitarian affairs among different actors (Stephenson, Schnitzer, 2006).

In another study, Stephenson developed a “descriptive model of humanitarian assistance coordination”. He argued that to better understand the humanitarian network, coordination should answer the questions of how and why network organizations expand patterns of communication. Therefore, he explained that such a network is a strategic contingency descriptive model that includes both strategic and operational factors to create opportunities for promoting cooperation through reciprocal positive materials and unified demands (Stephenson, 2006).

Moshtari (2016) emphasized that resource complementarity and relationship management capability through increased mutual commitment and trust enhance collaborative performance. Thus, the degree of mutual trust and commitments that are fundamental elements of managerial approaches intensify the sharing of complementary resources and coordination (Moshtari, 2016)

According to Zoraster (2006), humanitarian networks such as the UN, as well as GOs² and NGOs, as pluralist sets of stakeholder organizations, are being coordinated by common interests and claim to provide assistance, while their differentiations are well understood. In this circumstance, joint capacities promote trust and reciprocal confidence at multiple stages of interaction and lead to a long-term cooperation. The two elements of trust and confidence endure and fruitful interactions subsequently bring about coordination of organizational activities (Zoraster, 2006).

Unlike Zoraster (2006), who implicated trust as an indirect output of the joint capacities, Murdie (2014) suggests a theory of inter-NGO cooperation and claims that two factors of trust and opportunity are necessary for inter-NGO cooperation (Murdie, 2014).

² Governmental Organizations

An important implication of these findings is that humanitarian coordination is an ongoing, growing concept by which, due to the benefit of multidisciplinary perspectives, new effective humanitarian coordination mechanisms might be achievable.

NGOs Coordination Characteristics in Disasters

According to Murdie (2014), inter-NGO cooperation is difficult but not impossible. Therefore, NGOs themselves may be better able to forge partnerships “for good” in areas where they are needed the most (Lotfi et al., 2016).

The present study is addressing the problem of the NGO coordination in disasters by extracting the main characteristics that facilitate this coordination. The most important inferences of these findings are the following:

Whilst some of the above mentioned studies suggest that applying new structures or players for coordination among NGOs might improve NGO coordination, Parmar (2007) encourages amendments to structures that already exist to foster better coordination among them. She suggests that, rather than setting up a new player, enhancement and support of current related measures should be considered. For this purpose, structural, systematic, and cultural forces that hinder NGOs from coordination have to be addressed (Parmar et al., 2007).

In addition to structural recommendations, planning is also important at the organizational level. Considering that a strategic plan is important for any organization, Nabi (2014) suggested preparation of a strategic plan before a disaster strike. A coordination template should be developed and agreed upon by all players, leading to the establishment of a network of NGOs which would be “kind of NGOs, active in the development process during post-disaster relief and rehabilitation operations especially in developing countries”. This network would help players to have access to common reference materials and information. Furthermore, any of the NGOs in charge of organizing the pre-plan could also be the coordinator in disaster time, and it is possible that its authority could be accepted. Nabi also implied that a pre-planned disaster relief program with a clear coordination strategy assures that donor agencies allocate funds to the NGOs (Nabi, 2014).

Aside from the mentioned characteristics, Zoraster (2006) believes that skilled and committed disaster managers should be included in coordinating leadership with clear and quantifiable goals. In addition, there has to be practical authority vested in the leadership to mandate direction. This authority would possess the ability to discard agencies from the response or implement financial penalties (Zoraster, 2006).

The important role of information in disaster management has been proven in several studies. Nabi (2014) explained that in all phases of disaster relief, a low level of coordination between NGOs leads to inappropriate information sharing, which results in an ineffective disaster management system. He also argued that a lack of a coordination mechanism in times of disaster causes a chaotic situation, because several players in each organization distribute different messages. Therefore, it is necessary to identify the existence of a sole spokesperson who is in charge of disseminating information to the humanitarian relief agencies, public, and media (Nabi, 2014). Accordingly, Hilary Patman (2013) also emphasized the collaboration strategy and sharing information beyond organizational borders as effective mechanisms that maximize coordination (Patman et al., 2013).

Zoraster (2006) indicated that active tracking of information and its reliable dissemination is a vital consideration during coordination efforts, as the environment is continuously changing during a disaster. In this regard, leadership must be authorized to steer the direction of agencies during the response phase. This leadership can even consider monetary fines for those organizations that refuse to share data with other parties or to remove them from the response (Zoraster, 2006).

In spite of the important role of information in disasters, Nabi (2014) states that most coordination mechanisms were built for information sharing, not for program convergence or integration. It might result in a coordination problem in response, as evidenced during the Kashmir earthquake (Nabi, 2014).

To summarize, there is a necessity to strengthen platforms for functional NGO coordination before a disaster strikes to guarantee that proper coordination in the response and recovery time of emergencies is achievable. To do so, developing or revising road maps for strategies and an operational plan should be taken into consideration.

The mentioned studies determine the most important factors and concepts of conducting the future NGO coordination research around the world. They can also be useful for developing the future coordination analysis tools for disaster management.

Limitations

The most important limitation of this study lies in the fact that we used only English articles. We may have missed some important published articles, documents, and reports in other languages. Another limitation is that we restricted our studies to natural hazards and other types of hazards were not considered. The findings also might not be representative of all NGOs' coordination characteristics because of the lack of clear terminology for NGOs' coordination. Although we extended our search strategy by related different keywords using MeSH database some relevant studies with uncommon keywords may likely be missed.

Conclusion

The importance of inter-organizational coordination in a disaster response in general, and coordination between NGOs in particular, has been explained in many studies. They have also shown that this coordination is seen to be lacking in most of the recent disasters. In this review, we have extracted a conceptual map to take the first step in filling the current gap between theory and practice in this field by addressing the NGOs' coordination characteristics.

More studies are needed to adopt and investigate whether or not the mentioned factors are applicable to man-made disasters, particularly in complex human crises. Furthermore, the validation and reliability of the mentioned characteristics should be studied in future research.

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