

Original Paper

The Turkey/Syria Earthquake 2023: Theoretical Framework of Post-Disaster Logistics and Its Flawed Application

Evin Demir¹

¹ PhD Candidate, Department of Political Science and International Relations Yeditepe University, Istanbul, Turkey

E-mail: evin.demir@std.yeditepe.edu.tr

Abstract

This paper discusses the effects of theoretical planning and framework of humanitarian aid and disaster relief. In order to ease the understanding of this theoretical topic this essay will preoccupy itself by conducting a case study: Therefore, the theoretical framework of the Turkish disaster relief institution “Disaster and Emergency Management Presidency” (AFAD) will be analyzed in depth and set into the context of the number of earthquake that took place in South East Turkey and Syria in February of 2023. The more, the success of the theoretical framework established by AFAD will be critically analyzed by comparing it to its practical implementation during the first seven days following the first big earthquake. The study results by concluding that the practical application of the framework on disaster relief and humanitarian aid was highly flawed due to interpersonal problems, affiliations and as a result of a centralized bureaucratic reform.

Keywords

Earthquake, Turkish politics, Humanitarian aid, disaster relief, logistics, crisis management

1. Introduction

Natural disasters strike societies in a surprising manner from time to time. Over the millennia societies have found a variety of ways to not only cope with the long-lasting effects of these disasters, but also developed tools and remedies that increase the preventive mechanisms of destruction and therefore limit the scope of damage. In modern times and with the creation of nation-states the authority-holding apparatus in each state should have created an institution or a structure that both serves as an organizational safe-haven and prepared entity in times of calmness as well as functions as a fast-reacting institution which can employ its staff during emergency codes in a speedy manner. In addition to that, international organizations have been founded that pursue goals to speedy recovery of crisis zones and medical help for victims.

When the first of two earthquakes occurred with its epicenter in the Southeast of Turkey on the sixth of February 2023, it took the local inhabitants by surprise due to the fact that it had occurred late at night. As a result, unfortunately, the number of casualties has risen to over 50,000 people in the regions of Turkey and Syria in the first month after the earthquake. The more, seismologists were shocked by the magnitude of the earthquake at 7.8 on the Richter scale (Global CMT Catalog 2023). Therefore, it is the highest ever-recorded earthquake in the Middle East.

This research will be conducted with the aim to respond to the following research question: What effects did the theoretical crisis framework have on crisis management during the aftermath of the earthquake in February 2023? On the basis of the earthquake's actuality this article aims to analyze two aspects: First and foremost, it will conduct an extensive review of the first seven days of the disaster relief that was executed by the Turkish AFAD institution which is responsible for disaster relief within the Turkish territories. Second, it will discuss the organizational framework of the first seven days after a thorough literature review of the theoretical framework of disaster relief in different countries and on an international level which includes the UN military and humanitarian aid as well as the International Red Cross and Red Crescent Societies.

2. Literature Review

2.1 Disaster Relief and Humanitarian Logistics

Kovács and Spens (2007) aim to understand the decision-making process of logistical procedures in disaster relief. By conducting an extensive literature review hailing from theoretical studies to case studies they aim to pinpoint the central characteristics of humanitarian logistics. Moreover, this framework is compared with business logistics. As a result, they create a pattern whose framework showcases the scope of influence and limitation of each individual actor.

Leiras et al. (2014) present trends and challenges of humanitarian logistics. A conceptual literature review was conducted for a qualitative and quantitative analysis. In the further, the literature was classified according to different criteria. As a result, the authors highlight the gaps of overlapping in the literature and urge for a more detailed discussion concerning the recovery in disaster relief.

Yáñez-Sandivari et al. (2021) conceptualize their findings of an in-depth literature review in order to visualize the correlation between social factors and technical difficulties in humanitarian logistics and disaster relief. In the following, they present their findings by relying on the accumulated data and models for validity.

Tatham and Pettit (2010) contribute to the literature by deciding to combine humanitarian aid and its logistical support system with the field of commercial supply network management. As a result of their findings the authors argue that the theoretical approaches can be applied without adjustments to humanitarian aid by referring to the balance of benefits and risk.

Özadamar and Ertem (2015) set their center of attention on the lifecycle of disaster management. By using a mixed method consisting of the survey method and model analysis, the authors evaluate the

pursuits, obstacles and hierarchy of mathematical and solution approaches. The more, logistic models of disaster relief are combined with information technology.

2.2 Disaster Relief on the International Level

In their article Jahre and Jensen (2009) strive to highlight the similarities and differences between the logistical framework of the International Federation of Red Cross and Crescent Societies, the UN Joint Logistics Centre and the UN military logistics. After creating a theoretical framework the authors apply it to three cases to revise the scope of practical implementation of each institution. In conclusion, the extensive manner of theoretical framework often exceeds the limit of operations.

Salam and Khan (2020) decide to analyze disaster relief from a different point of view: Instead of focusing on the theoretical preparation they research the post-processing of the earthquake in Haiti that occurred in 2010. By conducting a number of interviews with members of responsible non-governmental organizations, the military and government institutions the authors identify a weakness that can be defined as the refusal of communication and efficiency between the three different institutions.

Holguín-Veras, Jaller, Van Wassenhove, Pérez and Wachtendorf (2012) voice their criticism and discontent with the general outlook on disaster relief. The authors argue that the scope hailing from theoretical preparation to long-term recovery and restoration of infrastructure is too broad of a scope to be implemented by one institution successfully.

2.3 Disaster Relief in Turkey: AFAD

Sahin-Arslan and Ertem (2019) approach the topic of post-disaster logistics by focusing on domestic reformations in Turkey: Since humanitarian aid is in need for modernization they propose the increased utilization of containers within the field of disaster relief. They test their proposal by highlighting the cost efficiencies of containers, storage opportunities and by comparing them with established warehouses and their maintenance.

A central source of literature is the congress paper of the Disaster and Emergency Management Presidency (Afet ve Acil Durum Yönetimi Başkanlığı, abbreviation: AFAD) edited and published by Tanyas, Tümenbatur, Kesgin, Kilic and Yasan (2023): In their articles which were published for the congress from 9th to 11th of February 2023 they criticize the weakness of Turkish official and AFAD institutions and their general unpreparedness. The level of unpreparedness is dependent on a number of factors from demographics to politics.

2.4 Conclusion of the Literature

After reviewing the existing literature published either in academic peer-reviewed journals or by official houses of publications of governmental or inter-governmental institutions a number of observations can be made: First, the literature on humanitarian logistics and disaster relief does not witness a continuous number of contributions. As a result, it is difficult to pinpoint and identify new ideas for the improvement of the theoretical framework in humanitarian logistics.

Second, the existing literature should be criticized for its failure to utilize a variety of research methods. Since the great majority of literature decides to go for an in-depth literature review, the contributions to the general academic literature in minimal.

Third, there are only a few articles that decide to focus on a practical application of the concepts of disaster relief by analyzing their impact in the form of a case study. By highlighting the very recent case of the earthquake in Turkey and Syria, this paper will contribute towards the diversification of applied research methods and cases.

3. Hypotheses

Hypothesis 1: An up-to-date theoretical framework has a positive effect on the first response of disaster relief.

Concept One: up-to-date theoretical framework

Conceptual Definition: An up-to-date theoretical framework is the planning process of the disaster lifecycle that is updated and modernized in harmony with the most recent needs.

Operational Definition: The date and reflection of the last publications of AFAD will be analyzed.

Concept Two: first response of disaster relief

Conceptual Definition: The first response of disaster relief includes the time span ultimately following the earthquake up until seven days post-earthquake.

Operational Definition: The analysis will cover the first week after the earthquake.

Hypothesis 2: The level of cooperation between governmental institutions, the military and NGOs effects the effectiveness during the first response.

Concept One: level of cooperation

Conceptual Definition: The level of cooperation represents the willingness to collaborate between more than one institution.

Operational Definition: The communication between the government, the military and NGOs will be analyzed for tensions, use of wording and public support.

Concept Two: effectiveness during the first response

Conceptual Definition: The effectiveness during the first response measures the degree of success of the primary disaster relief.

Operational Definition: The effectiveness during the first response will be measured by comparing the theoretical time frame of disaster response and the practical response according to news outlets.

4. Research Design and Methodology

A Research design and methodology are needed in order to fulfill the criteria of a good article: In the case of this research topic a mixed method – therefore a combination of two sets of methodology – is sufficient. On the one hand, the in-depth literature of the previously published literature helps to

understand the theoretical framework, on the other hand, a content analysis of the media coverage on the first seven days after the earthquake will be conducted.

With regards to the content analysis, the scope of media coverage should be limited in order to guarantee a thorough review. As a result, this part of the research will be limited to the news analysis of the news agency Reuters. Due to the fact that Reuters represents one of the world's largest news agencies and has obtained a respectable and established position in the journalistic community, it was chosen as the sole source. Regrettably, due to financial and time constraints only one media agency can be analyzed.

With respect to validity, the extensive literature review represents a strong base for academic validity. In addition to that, transparency and the theoretical framework of the research design stand positively for a valid academic project. In addition to that, the generalizability of the project is high thanks to a variety of factors: First, the methodology can be utilized to approach and evaluate further humanitarian crises that go beyond earthquake disaster relief. Second, the methodology can be retested in a different geographical setting and period in time. Third, there can be made additional references and observations to the current political climate in Turkey that may have influenced the follow-up of the elections and their results.

5. Discussion

After conducting an in-depth analysis in accordance with the previously proposed research design and methodology there are a number of observations that can be made: Regarding the first hypothesis there is substantial evidence that an up-to-date theoretical framework has a positive effect on the first response of disaster relief. In the case of the Turkey earthquake the opposite becomes even more evident: Like Tanyas et al. (2023) point out in a number of papers for a conference that was planned for the days after the earthquake Turkey is on tenth place in facing the risk of a disaster (see Figure 1 below).

Ranking Level	INFORM																
	5,0																
Conceptual Level (Dimensions)	Disaster and Exposure							Vulnerability					Coping Capacity				
	7,9							4,9					3,2				
Functional Level (Categories)	Nature-Origin			Human-Origin				Socioeconomic		Vulnerable Groups			Institutional		Infrastructure		
	6,2			9,0				2,3		6,8			3,8		2,6		
Components Level	Earthquake	Tsunami	Flood	Epidemic	Drought	Current conflict intensity	Predicted Conflict risk	Development & Deprivation	Inequality	Aid Dependence	Displaced people	Other vulnerable groups	Disaster Risk Reduction	Management and Supervision	Communication	Physical infrastructure	Access to Health System
	9,7	7,0	5,7	6,1	2,6	9,0	9,6	2,2	4,2	0,5	9,4	0,2	2,1	5,1	2,6	1,8	3,3

Figure 1. Turkey's INFORM Index Scores at Conceptual, Functional, and Components Level (Tanyas 2023, p. 115)

Source: <http://www.inform-index.org/Results/Global>

They continue to point out there is a lack of effectiveness in inter-institutional relations and information exchange. In addition to that, the authors highlight the health sector: Whereas the health system is already

overwhelmed in a normal state of day-to-day life, the health infrastructure is not prepared to supply units of blood and medical care during an emergency state. The more, the population of Southeast Turkey resides with an especially high exposure to risk due to economic disadvantages and high migration fluctuations (Tanyas et al., 2023).

After careful consideration the second hypothesis deems to be truthful as well: During the first response to the earthquake region, it became clear that the cooperation between governmental institutions, the military and NGOs influences their effectiveness. In this case the cooperation is defined by mistrust, assignment of guilt and recriminations.

Moreover, immediately after the earthquake the government issued an appeal to fellow states requesting rescue and medical support. The intervention of foreign rescue teams and support – while being an honorable cause – did not only have a positive impact, but caused an additional source for complications and congestion.

An additional point of discussion to slow down the level of reaction after the earthquake was the increasing centralization on a number of levels: Over the past couple of years the AFAD institution had been subject to a variety of changes. On the one hand, the institutions turned from an association that was the point of approaching and advisory for smaller organizations to an umbrella organization. As a result, not only its internal structure changed, but also its span of organizational work and responsibilities. There was a diversification of topics that AFAD had to occupy itself with as well as a greater number of staff and personnel that was affiliated with the organization as full-time, freelance workers or as part of a volunteering service.

On the other hand, the AFAD organization witnessed additional changes when it was decided to move the responsibilities of AFAD under the authorizations of the Turkish ministry of interior. This decision was taken in the aftermath of the Referendum in 2017. There again, AFAD had to be restructured internally for a second time. As a matter of fact, both reorganizational processes even happened at the same time in a number of departments. Therefore, the overlap of restructuring on two sides means an increasing wearing of structural stability.

The more, being integrated into the ministry of interior also meant that the organization will effectively lose its level of independence and self accountability. Furthermore, from now on the organization was not able to act on behalf of the decision making of its chairperson, but rather had to rely on the decision making of the minister of interior. This goes even a step further due to the fact that the minister of interior had to act in accordance with the president.

When looking back to analyze AFAD's slow reaction to the earthquake, its halt and frozen like actions can be traced back to its structure of decision making: After the initial access to information the organization was not able to make a call for the disaster relief and humanitarian aid since the theoretical framework was knowingly flawed and not yet updated to deal with the restructuring of AFAD as an umbrella organization. In addition to that, the mobilization was put on a halt since the organization was dependent on the approval of the minister of interior. Lastly, the minister of interior was not able to act

and give his approval without the clearance of the mobilization efforts issued by the presidency office. As a result, the reforms of centralization had a negative effect on the reaction rate and governance of the AFAD institution.

In addition to the institutional changes, the people in high-responsibility positions obtain importance in this analysis: Over the first seven days post earthquake media reports were quick to conduct research on the people in power positions within the AFAD organization. As it turns out, there were a number of high ranking managers and chairpersons who held high levels of responsibility without having obtained the crucial and required amount of theoretical knowledge. Moreover, a variety of mentioned members of AFAD do neither hold degrees in security studies and disaster management. The more, the media was astounded to find out that some high ranking AFAD staffers were strategically moved between different government institutions by obtaining puppet or shadow ranks. As a result, a great share of staff with a high level of dependency was not able to function on the basis of academically acquired knowledge as well as long work experience in the field.

6. Conclusion

In conclusion, the earthquake of February 2023 has devastated Southeast Turkey and Syria both in the short and long-term. While it leaves behind a destroyed infrastructure and a traumatized population that mass mobilizes to other part of the country, the disaster also showed that Turkey's theoretical framework of humanitarian logistics and disaster relief was and continues to be highly flawed. For the future, more research should be done on the framing effects of the media concerning the earthquake and its aftermath as well as the discrepancy between Turkish and international data on destruction and death victims.

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