

Population Displacement and Business Continuity After the 2023 Kahramanmaraş Earthquake

Yuto SHIOZAKI *

**Research Division for Social Resilience,
National Research Institute for Earth Science and Disaster Resilience, Japan
y.shiozaki@bosai.go.jp*

Abstract

The 2023 Kahramanmaraş Earthquake that occurred on February 6, 2023, caused severe damage to the southeast region of Turkey. This report, based on a literature survey and field interviews, attempts to identify the difficulties concerning labor shortage faced by the affected manufacturing companies in resuming operations. First, the literature survey revealed that the earthquake caused massive population displacement. The subsequent labor shortage disrupted the continuity and recovery of the manufacturing firms in the affected regions. Secondly, the field interviews conducted in October 2023 confirmed that these difficulties were sustained eight months after the disaster. Finally, further research questions on population displacement are proposed to consider appropriate, long-term recovery of the affected manufacturing firms.

Key words: 2023 Kahramanmaraş Earthquake, Population Displacement, Business Continuity, Recovery

1. Introduction

The two earthquakes on February 6, 2023 (the 2023 Kahramanmaraş Earthquake) caused massive damage to southern Turkey and northern Syria. In Turkey, the earthquakes affected 11 provinces: Adana, Adiyaman, Diyarbakir, Elazığ, Gaziantep, Hatay, Kahramanmaraş, Kilis, Malatya, Osmaniye, and Şanlıurfa, which were inhabited by approximately 16 million people, including 1.8 million migrants (IOM, 2023a). Due to the earthquakes, more than 50,000 people were confirmed dead (UNFPA, 2023). Additionally, according to the Disaster and Emergency Management Presidency (AFAD), 710,000 buildings were heavily damaged, among which approximately 280,000 buildings, including housing, collapsed, or sustained severe damage (UNFPA, 2023; WHO, 2023). Moreover, the damage to infrastructure caused a severe problem in accessing basic needs, such as water supply and hygiene. Housing loss and disruption to basic needs consecutively triggered a massive population displacement from the heavily affected regions to those that were not or less damaged; therefore, manufacturing companies have suffered from labor shortages.

This report, based on a literature survey and field interviews, attempts to clarify the difficulties faced by the

affected manufacturing companies in resuming operations with labor shortage. First, the literature survey identified and summarized the documents that revealed the extent of population displacement and challenges confronting the companies in the damaged regions. However, the collected documents were published within six months after the earthquakes. Secondly, the field interviews that were conducted in October 2023, eight months after the earthquakes, investigated the issues faced by manufacturing companies.

2. Literature Survey

2.1 Population Displacement

As mentioned previously, approximately 16 million people lived in the most affected 11 provinces in Turkey. According to IOM (2023a), as of March 2023, approximately 2.7 million people, including migrants, were displaced in varied situations: some people who remained close to their homes and others who moved away from their original locations. Moreover, at least 1.1 million of the 2.7 million people—mostly Turkish citizens—moved to various parts of the country. As of June 2023, Comfort (2023) described that more than 3.5 million people left the (affected) area and

scattered across the country.

Aslan (2023) indicated three main trends observed in the population movement following the earthquakes. The first trend was the temporary movement to the countryside. People left the city centers, which were heavily damaged, and temporarily moved to the countryside, which was considered safe. The second trend was the population movement to neighboring provinces (e.g., Mersin, Diyarbakir, and Antalya), which were not damaged by the earthquakes. Assumedly, the latter group moved to such provinces to rely on their kinship or to seek employment opportunities. Finally, the third trend was the further long-distance movements to big cities such as Istanbul, Ankara, and Izmir. It was suggested that the third group tended to be more financially privileged and were less likely to return to the affected regions (Aslan, 2023). Furthermore, these people are likely to be highly skilled. Their outflow from the regions could have a detrimental effect on the continuity and recovery of the local businesses.

2.2 Difficulties for Manufacturing Firms

Three months after the earthquakes, the International Organization for Migration (IOM, 2023b) conducted interviews with 2,970 companies in the heavily affected provinces of Gaziantep, Kahramanmaraş, Hatay Malatya, and Adiyaman. According to the report, 2,686 of the 2,970 companies resumed production after the earthquakes. Of the firms that resumed production, 57.3% (1,539 firms) reported that there was no change in production, 4.4% (118 firms) reported that their production increased, and 38.3% (1,029 firms) reported that their production decreased.

For the 1,029 firms that reported decreased production, the most common issue to be solved as a top priority was the shortage of employees (27.8% of 1,029 firms), which follows a decline in customer demand (26.6%), problems in raw material supply (19.7%), financial problems (18.7%), and so on. Additionally, among the 1,539 firms that stated that their production did not change, only 5.5% of the total reported that they experienced difficulties in resuming operations; the most common difficulty faced by the companies was a decrease in the number of employees (53.6%), followed by raw material supply problems (14.5%), machine damage (7.2%), factory building damage (5.8%), and so on. Reasons for not returning to work included displacement, and psychological trauma and concern about the safety of the work environment (IOM, 2023b).

3. Field Interviews

The findings in the previous section (2. Literature Survey) indicate that out-migration is one of the factors contributing to the labor shortage, which is then a major obstacle to the continuation and recovery of manufacturing firms'

operations. However, these findings were obtained within six months after the earthquakes. It is not certain whether these problems persisted beyond six months following the disaster. This report will respond to this question based on the results of the interviews with the local manufacturing firms and officers of Organized Industrial Zones in the affected regions.

3.1 Firms and Organizations Interviewed

The interviews were conducted in October 2023 in collaboration with the J-RAPID project on "Business Continuity and Economic Recovery of Companies and Organized Industrial Zone in the Kahramanmaraş Earthquake." The manufacturing companies and organizations in **Table 1** were visited for interviews regarding the business continuity and recovery of manufacturing firms.

Table 1 Firms and Organizations Interviewed.

Date	Firms/Organizations
October 9, 2024	Gaziantep OIZ
October 10, 2024	Adiyaman OIZ
October 11, 2024	The firms in Kahramanmaraş • BEY-DAĞ TEKSTİL • ARAL

3.2 Findings

This subsection will outline the findings from the interviews, especially regarding difficulties for manufacturing firms in resuming operations.

3.2.1 Gaziantep OIZ

The Gaziantep OIZ has 1,250 firms. Severe damage to buildings, such as collapse, was not reported by the firms; only 22 buildings had moderate damage. Consequently, operations in the OIZ resumed after one week and returned to normal 15 days after the earthquakes. In the interview with the officer in the OIZ, labor shortage was not reported as a difficulty faced by the firms.

3.2.2 Adiyaman OIZ

Before the earthquakes, 155 firms were in the Adiyaman OIZ, and 15 factories collapsed. Because of heavy damage to housing in Adiyaman, many residents, including employees in the OIZ, left the city. Consequently, the number of employees in the OIZ declined from 20,000 to 10,000. The shortage in labor was the most critical difficulty for the firms of the Adiyaman OIZ in recovering their operations. To support the employees at their firms, the OIZ provided container housing to the affected workers.

3.2.3 BEY-DAĞ TEKSTİL

This firm is a textile manufacturing company located in the Kahramanmaraş OIZs (**Fig. 1 (a)**). The earthquake damage to the factory buildings was minor. However, their production machines were severely damaged, which disrupted their operation for 60 days. The firm reported that three employees



(a) BEY-DAĞ TEKSTİL (Kahramanmaraş)



(b) ARAL (Kahramanmaraş)

Fig. 1 Field interviews with textile companies.

were killed by the earthquakes, and approximately 100 employees were displaced to other cities. Prior to the disaster, the company employed 250 individuals. As of October 2024, the number had decreased to 220. The company desired to return to the pre-disaster number of employees but stated that it was unable to hire additional workers due to a labor shortage in the city. The shortage of housing resulting from earthquake damage and the subsequent steep increase in rental prices was highlighted as a contributing factor to the outflow of employees and not returning.

3.2.4 ARAL

This company has two textile factories in Kahramanmaraş: one in the OIZ and the other outside of the OIZ (**Fig. 1 (b)**). The factory in the OIZ did not have damage to the building and facilities; hence, it resumed operations on February 24. Although there were employees displaced to other cities, 225 workers were employed in the factory. However, some workers did not return to work because of disaster-induced mental stress and anxiety.

In contrast, the factory located outside of the OIZ sustained structural damage to the walls and beams of the factory buildings. The structural damage was covered by insurance, but the insurance money was paid out four months later. Moreover, due to the earthquake damage, the number

of production machines declined from twelve to eight. Consequently, the operation of this factory was disrupted for eight months. During this period, many employees outflowed to other cities; the number of workers decreased from 110 to 60 as of October 2023.

As with the previous firm interviewed, they sought to increase the workforce but were unable to do so because of a shortage in labor supply. A lack of housing and the rise in rental prices were further mentioned as the primary causes in securing sufficient labor. Additionally, as another factor, they mentioned the influx of labor into the construction industry due to the increase in its wages, which was driven by rising demand due to disaster reconstruction.

4. Conclusion

Based on the literature survey, this report revealed that the 2023 Kahramanmaraş earthquake caused substantial population displacement in Turkey, which subsequently brought a detrimental effect on labor supply in the affected area. Previous surveys indicated that many manufacturing firms faced difficulties in securing sufficient labor to resume normal operations, three months after the earthquakes. Additionally, field interviews confirmed that these difficulties were sustained even eight months after the disaster. Furthermore, the housing shortage caused by the earthquake damage and the consequent rise in housing price were the main reasons for the difficulties.

Further investigations are required to consider the better long-term recovery of manufacturing firms in the affected region. This includes determining whether the people who moved to neighboring provinces and distant urban centers will return to their original homes, and whether new labor will immigrate to the damaged regions. It is crucial to estimate the extent and duration of the labor shortage and to explore the potential measures and policies that could alleviate the associated difficulties.

Moreover, the interviews found that the shortage of the workforce may vary even within the affected areas. For instance, in Gaziantep, where the damage was minor, an inflow of people from the heavily damaged regions has been observed. It is also imperative to investigate the regional disparities within the affected areas.

Acknowledgments

The author expresses their sincerest gratitude to the J-RAPID project team on “Business Continuity and Economic Recovery of Companies and Organized Industrial Zone in the Kahramanmaraş Earthquake” for vital supports during field interviews. Additionally, partial support from the Japan Society for the Promotion of Science (JSPS) KAKENHI (grant number: 23H00218) is gratefully acknowledged.

References

- 1) IOM (International Organization for Migration) (2023a): 2023 Earthquakes Displacement Overview. <https://reliefweb.int/report/turkiye/iom-2023-earthquakes-displacement-overview-turkiye-march-2023> (Accessed: May 27, 2024)
- 2) UNFPA (United Nations Fund for Population Activities) (2023): Türkiye Earthquake Situation Report #6 03 August 2023. <https://www.unfpa.org/resources/t%C3%BCrkiye-earthquake-situation-report-6-03-august-2023> (Accessed: May 27, 2024)
- 3) WHO (World Health Organization) (2023): Public Health Situation Analysis. <https://reliefweb.int/report/turkiye/kahramanmaras-earthquakes-turkiye-and-syria-31-may-2023> (Accessed: May 27, 2024)
- 4) Comfort, L. K. (2023): Dislocation after disaster: What does ‘returning home’ mean? *International Migration* **61**(4): 337-340.
- 5) Aslan, A. (2023): Disasters and Migration: Kahramanmaraş Earthquakes. *İzmir Katip Çelebi Üniversitesi Sağlık Bilimleri Fakültesi Dergisi* **8**(2): 787-789.
- 6) IOM (International Organization for Migration) (2023b): IOM Türkiye Refugee Response Programme Recovery and Stabilization Unit, Earthquake Impact and Sustainability Analysis for Manufacturing Sector Regional Report 2023.

(Received: July 16, 2024

Accepted: November 6, 2024

Published [online first]: December 13, 2024)

2023年カフラマンマラシュ地震における人口移動と事業継続

塩崎 由人*

*防災科学技術研究所 災害過程研究部門

要 旨

2023年2月6日に発生したカフラマンマラシュ地震は、トルコ南東部に甚大な被害をもたらした。本報告では、文献調査とインタビュー調査に基づき、被災した製造業企業が直面した労働力不足に関する事業再開時の困難について明らかにしようとするものである。まず、文献調査の結果、地震によって大規模な人口移動が発生したことが明らかになった。これにより生じた労働力不足は、被災地の製造業の継続と復旧を妨げた。次に、2023年10月に実施した現地でのインタビュー調査では、こうした困難が震災から8カ月が経過した時点でも続いていることが確認された。最後に、被災した製造業企業の長期的な復興について検討するため、人口移動に関して今後調査すべき研究課題を提示する。

キーワード：2023年カフラマンマラシュ地震、人口移動、事業継続、復興