



Understanding the Impact of Natural Disaster in Micro, Small, and Medium Enterprises in Halal Food Sector

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Abstract

Studies on the impact of disasters on Micro, Small and Medium Enterprises (MSMEs) in the halal food sector are often ignored by researchers and academics, even though these studies are needed to mitigate the risks from natural disasters. This study explores the

impact of disasters on MSMEs, especially those engaged in the halal food sector. The research methodology used was phenomenology, with the data source being MSME actors in the halal food sector who were affected by the disaster in Palu City. The results of this study provide a conceptual framework for disaster impacts, which include direct and indirect impacts on physical assets, human resources, raw materials, production, sales, and capital. The relationship between the impact of the disaster and economic actors in the halal food sector breaks the supply chain in impacted and non-impacted areas. Therefore, the aim of this research is to provide information for business actors in Palu city to redesign a safer and more controlled business concept in the event of a natural disaster in the future.

Keyword: Disaster Impact, MSMEs, Halal Food, Palu City.

Introduction

One of the devastating disasters that occurred in Indonesia was the Pasigala disaster (Palu, Sigi, and Donggala), which occurred in the Central Sulawesi region on 28th of September 2018. The direct impact of the disaster on the economy was a decrease in production, physical capital stock, and trading activities, and an increase in the number of unemployed people. The indirect impact was the disruption of all business activities, including damage to facilities and resources for production, lack of various raw materials, increased production costs, and loss of livelihood.¹

Disasters have a significant impact on all types of businesses, both in developed and developing countries, both directly and indirectly, which disrupt business continuity. Real disasters have negatively impacted most business entities, including MSMEs. Although many studies have examined the impact of disasters on households and the macroeconomic climate, the impact of disasters on MSMEs is one of the least explored areas in the discipline of disaster risk reduction.²

¹ Mohammad Aftab Uddin Khan and Mohammad Amir Sayem, "Understanding Recovery of Small Enterprises from Natural Disaster," *Environmental Hazards* 12, no. 3–4 (2013), p. 218–239; Ahmad Ghandour and George Benwell, "A Framework of Business Recovery in the Aftermath of a Disaster," *International Journal of Business Continuity and Risk Management* 3, no. 3 (2012), p. 263.

² Yang Zhang, Michael K. Lindell, and Carla S. Prater, "Vulnerability of Community Businesses to Environmental Disasters," *Disasters* 33, no. 1 (2009), p. 38–57; Eduardo Cavallo and Ilan Noy, "Natural Disasters and the Economy; A Survey,"

Many affected MSMEs are disaster prone. Most MSME actors run their businesses to meet their needs without planning actions to deal with disasters. Meanwhile, the implementation of planning such as Business Continuity Management (BCM) requires no small amount of money.³ Large companies sometimes incur considerable costs and work with experts to build disaster resilience. In addition, the lack of knowledge possessed by business actors related to disaster management causes business recovery to take a long time to complete. Essentially, MSMEs are more vulnerable than large companies are. This is in line with Khan and Sayem, who argue that some types of businesses are more vulnerable than others, even during non-disaster times, and that disasters will only exacerbate inherent vulnerabilities. Smaller businesses carry a much greater risk than larger businesses.⁴ In addition, the consideration of the halal food sector is because this sector is a sector that contributes greatly to Indonesia's Gross Domestic Product (GDP) and is in line with the trend of halal food for consumers around the world, including Indonesia as a country with a majority Muslim population.

Factors that affect the magnitude of the impact of the disaster are business locations around the location of the disaster center, such as coastal areas, areas experiencing liquefaction, and areas along the Palu Koro fault. The greater the impact of a disaster on business, the greater are the problems

International Review of Environmental and Resource Economics 5, no. 1 (2011): 63–102; Jonathan R.T. Davidson and Alexander C. McFarlane, “The Extent and Impact of Mental Health Problems after Disaster,” *Journal of Clinical Psychiatry* 67, no. 2 (2006), p. 9–14; Anwar Khan et al., “The Dilemma of Natural Disasters: Impact on Economy, Fiscal Position, and Foreign Direct Investment Slongside Belt and Road Initiative Countries,” *Science of the Total Environment* 743 (2020), p. 1–14.

³ Malcolm Cornish, “Business Continuity Management Methodology,” in *The Definitive Handbook of Business Continuity Management*, ed. Andrew Hiles (West Sussex: John Wiley & Sons Ltd, 2011), 121-144; Mio Kato and Teerawat Charoenrat, “Business Continuity Management of Small and Medium Sized Enterprises: Evidence from Thailand,” *International Journal of Disaster Risk Reduction* 27 (2018, p. 577–587, <https://doi.org/10.1016/j.ijdrr.2017.10.002>; A Montshiwa, “Impacts of Business Continuity Management (BCM) on Automobile Parts Makers against Natural Disaster Events,” *Journal of Disaster Research* 10, no. 6 (2015), p. 1091–1098; N Sahebjamnia, “Integrated Business Continuity and Disaster Recovery Planning: Towards Organizational Resilience,” *European Journal of Operational Research* 242, no. 1 (2015): 261–273, <https://www.scopus.com/inward/record.uri?partnerID=HzOxMe3b&scp=84920720567&origin=inward>.

⁴ Khan and Sayem, “Understanding Recovery of Small Enterprises from Natural Disaster.”

faced. In addition, the impact is not only related to business but also to the loss of property, damage to homes, and the families of businesspeople who are victims of the disaster. After the disaster, some businesses were able to operate even though they were not as they were before the disaster; however, it was also found that most businesses were unable to operate for a long time. Based on the researcher's research, this is because of the trauma experienced by business people and the increasing public understanding of the location of Palu City, which is prone to disasters. In addition, efforts to overcome the impact of disasters lead to the financial capacity of businesspeople, especially if business relocation is absolutely necessary, it will incur very large costs. Meanwhile, government assistance in the form of capital and equipment assistance cannot be obtained directly, and requires a long process and time.

Several studies on disasters in Central Sulawesi in various aspects have focused on macroeconomic aspects⁵ but the analysis of the impact of the disaster on businesses, especially for halal food sector has not become the focus of the study, so this research is very feasible. In addition, the issue of halal food has become the focus of attention today; therefore, this research is feasible and has an important position in an effort to identify the impact of disasters, especially for businesses engaged in the halal food sector.

Palu City was chosen as the research location because it is the capital

⁵ Yingying Yew, Pedro Arcos González, and Rafael Castro Delgado, "Real-Time Impact Analysis and Response Using a New Disaster Metrics: 2018 Sulawesi (Indonesia) Earthquake and Tsunami," *Prehospital and Disaster Medicine* 35, no. 1 (2020), p. 76–82; Angelo Paolo L. Trias and Alistair D.B. Cook, "Future Directions in Disaster Governance: Insights from the 2018 Central Sulawesi Earthquake and Tsunami Response," *International Journal of Disaster Risk Reduction* 58, no. June 2020 (2021), p. 102-180, <https://doi.org/10.1016/j.ijdrr.2021.102180>; Viverita Viverita et al., "Households Perceptions on Factors Affecting Resilience towards Natural Disasters in Indonesia," *The South East Asian Journal of Management* 8, no. 1 (2014), p. 13–28; Z. Kurniasari, K. F. Nieamah, and W. F. Arum, "Live Recovery after Post Earthquake and Tsunami: Economic Review Case Studies of Earthquake and Tsunami in Japan and Indonesia," *IOP Conference Series: Earth and Environmental Science* 704 (2021), p. 1-4; A. Laapo et al., "Estimated Economic Value of the Lost Coastal Resources Due to Tsunami in September 2018 in Palu City, Indonesia," *IOP Conference Series: Earth and Environmental Science* 575, no. 1 (2020), p. 1-7; Syaakir Sofyan, "Kebijakan Penanganan Pembiayaan Bermasalah Pada Bank Syariah Dan Konvensional Perspektif Ekonomi Syariah Pasca Bencana Di Sulawesi Tengah," *Al Maal: Journal of Islamic Economics and Banking* 2, no. 1 (2020), p. 81–97; Daswati Daswati, Muhammad Ahsan Samad, and Ismail Suardi Wekke, "Collaborative Governance in the Management of Integrated Community Shelters Post Disaster (ICS) in the City of Palu," *Politik Indonesia: Indonesian Political Science Review* 5, no. 2 (2019), p. 229–242.

of Central Sulawesi Province and is a highly developed economic and business area in Central Sulawesi. In addition, Palu City is affected by disasters and has a high level of risk for threats such as flash floods, forest fires, extreme waves, landslides, and earthquakes that can trigger a tsunami, including liquefaction. The explanation above provides the initial information and research gaps that have occurred.

The explanation above has provided initial information and research gaps that have occurred and revealed that until now there has been no research that discusses, analyzes and provides a map of the impact of disasters on the halal food business. This article aims to identify and provide a map of the impact of disasters on businesses engaged in the halal food sector. The results of this study can be used as a reference in efforts to identify potential impacts and provide information to those who care about business recovery, especially business actors engaged in the halal food sector.

Methods

This study uses a phenomenological approach that focuses on the similarity of life experiences in certain groups.⁶ The main purpose of this research approach is to provide a complete view of the nature of the phenomenon in question.⁷ One of the main advantages of phenomenological research is that it does not require complex and sophisticated technology for data collection and analysis but relies on one's life experience.⁸ Researchers attempt to collect data in the field by observing the scientific situation based on extensive field notes that have been made previously. This research was conducted in Palu City, which has been hit by disasters such as earthquakes, tsunamis, and liquefaction. This study reveals the impact of disasters on MSMEs in the halal food sector.

The data obtained were divided into primary data, which were the main data obtained through direct interviews conducted with MSME actors engaged in the halal food sector that were affected by the disaster with the following criteria: 1) the informant is a business owner who manages his own

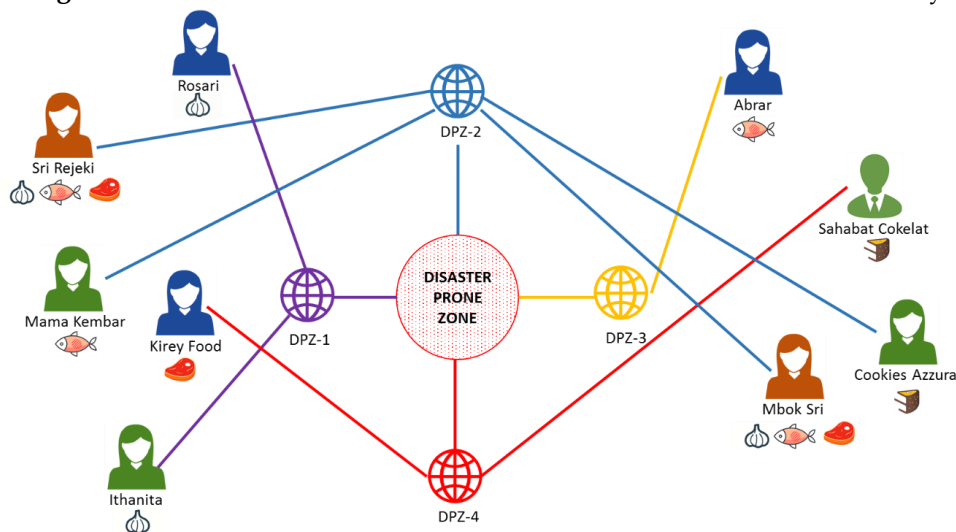
⁶ Joseph A. Maxwell, *Qualitative Research Design: An Interactive Approach* (Sage, Thousand Oak, CA, 2013), p. 214-253.

⁷ John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, Fourth Ed. (SAGE Publications Inc., 2014), p. 52.

⁸ Alfred Schutz, *On Phenomenology And Social Relations* (Chicago and London: The University of Chicago Press, 1973), p. 56.

business; 2) the business of the informant is affected by the disaster; 3) the informant's business is engaged in the halal food sector and is trying to restore its business; and 4) the product obtains halal certification from BPJPH. The second dataset is secondary data to support the primary data. These data were obtained through a search for supporting references related to the research conducted. In the process of data analysis, the author used a data triangulation model, which is one of the methods developed by researchers to explore and apply competent information production methods.

Figure 1. Results of observation on SMEs in the halal food sector in Palu City



Information:



: Micro business



: Small business



: Medium business



: Products made from meat



: Cake and snacks business



: Products made from agricultural products



: Product made from fish

DPZ Disaster Prone Zone

DPZ-1 Development zone

DPZ-2 Conditional zone

DPZ-3 Restricted zone

DPZ-4 Forbidden zone

Results and Discussion

Based on the data obtained, all businesses that were the source of the data in this study were affected by the disaster. Although the impact on each

business varies, in conditions during and after a disaster occurs, business people cannot carry out their usual activities due to limited space for movement and only focus on the safety of themselves and their families. In addition, the emergence of panic due to a lack of understanding related to mitigation for oneself and for business means that the impact of the disaster is very large.

This is exacerbated by the destruction of various infrastructures and services that support business operations, such as electricity networks, roads, and telecommunications networks, so that businesses cannot operate under these conditions. Thus, the impact is not only related to business directly but also indirectly. From all exposures to the impact of the disaster on 9 (nine) businesses engaged in the halal food sector, the following table is presented that summarizes the impact of the disaster on the halal food sector business in Palu City.

Table 1. Live Impact Indicator Interview Results

Informant Statement	Open Coding	Axial Coding
<p>“Bencana kemarin yang mengalami kerusakan itu hanya bangunan fisik, tidak yang sampai rubuh, hanya retak-retak saja, tapi memang perbaikannya ya cukup lumayan sih”</p> <p>“Dinding rumah pada retak hingga ada yang hampir roboh. Kalau mau ditinggali pokoknya tidak layak, karena kalau gempa lagi takutnya rubuh”</p>	<p>Damage to the building</p>	
<p>“Oven listrik saya itu rusak, terus mixer yang besar yang harganya sekitar tujuh jutaan. Itu jatuh semua, semuanya rusak dan sementara diperbaiki dan biaya. Peralatan dan tempat kue penyok-penyok”</p> <p>“Kalo aset sih sekarang setelah bencana, yang tersisa itu diperkirakan 20 juta lah. Banyak yang rusak kemarin, saya punya marmer pecah semua, itu ada di depan itu.”</p>	<p>Damage to tools and equipment</p>	<p>Physical assets</p>

<p>“Motorku yang selalu kugunakan antar barang hanyut dibawa tsunami. Menunjang sekali kasian itu motor”</p> <p>“Kalau bicara tentang usaha pasti kita bicara alat ya rusak termasuk kendaraan juga itukan mobilitasnya kita motor dan mobil.”</p>	<p>Damaged and lost transportation equipment</p>	
<p>“Jadi waktu itu, memang kami sempat down artinya ndak kebayang, artinya kalo di Palu tahulah bagaimana perasaan pada saat itu kan, sangat mencekam kan.”</p>	<p>Psychologically affected</p>	
<p>“Kaki sudah luka, mau duduk sudah tidak bisa, karena daging itu, bayangkan kalo saya lihat kayak bagiling daging. Kesakitan hilang hanya ketakutan, pokoknya disini memar, disini memar, pokoknya disini daging sudah keluar menjuntai.”</p>	<p>Affected by physical injury</p>	
<p>“Lima pekerjaku kasian, sampai sekarang tidak kutahu keberadaannya. Saya sudah mencari tapi tidak ketemu. Tapi memang mereka tinggal di tempat yang likuifaksi itu”</p>	<p>Disaster victims</p>	<p>Human Resources</p>
<p>“Beberapa pekerjaku pilih pulang kampung untuk sementara waktu. Dia kembali pas kondisi sudah agak stabil kondisi di sini”</p> <p>“Karena mencekamnya waktu, ya ada pekerjaku tidak maumi kembali. Mereka memilih kembali kampungnya, ya usaha di sana”.</p>	<p>Workers are temporarily displaced or settled in other areas</p>	
<p>“Dulu waktu sebelum gempa saya bisa beli gula 1 karung dan mentega 1 karton, ya sampai sekarang beli sedikit-sedikitlah”</p>	<p>Ability to buy raw materials</p>	<p>Raw material</p>
<p>“Waktu ada pesanan, hanya beberapa alat yang bisa saya</p>	<p>Main production equipment breakdown</p>	<p>Production</p>

gunakan. Seadanya saja karena marmer yang bagus itu pecah. Saya memanfaatkan saja apa yang bisa dipakai”		
“Jadi memang, kami waktu itu punya stok barang yang sangat banyak, baru ini tak tahu mau diapain.”	Product not sold	Sale
“Pokoknya habis semua modalku. Saya pakai beli air kan waktu itu, baru banyak anak-anak di rumah” “Habis semua untuk pengobatan anakku. Ini sudah berapa kali operasi”	Daily necessities and medication	
“alat-alat yang rusak saya bawa ke tukang servis. Otomatis kan keluar modalku biayai itu”	Tool repair	Capital
“Modalku yang tersisa kupakai untuk perbaiki rumah karena disini saya tinggal sama usaha. Sebagian saya pakai bikin usaha baru lagi supaya ada modal baru bisa kupakai untuk usahaku yang sebelumnya”	Home improvement and new bussiness capital	

Source: Results of interviews with SMEs in the halal food sector in Palu City

Table 2. Results of Interview Analysis Indirect Impact Indicators

Pernyataan Informan	Open Coding	Axial Coding
“Bawang itu sulit baru mahal. Kalau dulu itu sebelum bencana, harganya Rp. 35.000 per kilo, tapi setelah bencana harganya melambung tinggi, jadi Rp.60.000,- sampai Rp.70.000/kg”	Price increases	
“Bahan baku usaha kita ini asalnya dari Palu, Sigi, dan Parigi namun setelah bencana mengalami kendala utamanya ketersediaan pasokan. Ya wajar, beberapa petani mengalami dampak karena saluran irigasi juga rusak”	Disaster-affected raw material suppliers	Raw Material
“Bahan bakuku kan dari Luwuk, baru	Disrupted road access	

akses hanya lewat kebun kopi. Sering sekali buka tutup, belum lagi banyak pengalihan jalan. Butuh waktu lama sampai disini"			
"Kan ikan ini sangat bergantung sama tangkapan nelayan. Nah waktu itu kan nelayan banyak yang tidak turun"	Lack of raw material suppliers		
"Meski kami dapat pesanan, tapi kan kita butuh air bersih, belum lagi listrik masih terganggu kan".	Public interrupted	service	Production
"Banyak langgananku, mereka beli untuk kebutuhan sehari-hari. Tinggal di sekitar rumah semua. Rata-rata mereka pulang kampung semua pergi mengungsi"	Request shift		Sale
"Terigu sama mentega naik, ya terpaksa ku beli daripada tidak menjual ka.	Purchase of raw materials		Capital

Source: Results of interviews with SMEs in the halal food sector in Palu City

In this study, it was found that all micro-enterprises generally do not carry out production activities in certain buildings, but are carried out in the private homes of business actors. This generally applies to almost all micro-enterprises because starting a business requires a very large cost, so micro-entrepreneurs tend to take advantage of various facilities, including buildings and personal equipment and supplies. Moreover, for micro-enterprises engaged in the food business, of course, the space available at home is very capable of being used for production activities including various general cooking utensils and equipment used on a daily basis which will also be used for production activities.

The size of the impact on the physical assets of the business is greatly influenced by the location of the building. Of course, for businesses that are severely affected by the disaster, it will cause damage to buildings, including business equipment and supplies. The collapse of a building is one of the consequences of an earthquake and generally reflects the level of the disaster; therefore, a strong building structure is needed to consider earthquake engineering. Small businesses may be more vulnerable to MSMEs because they are more likely to occupy masonry buildings, which

are more structurally vulnerable to hazards such as earthquakes.⁹ Buildings built with structures that are resistant to earthquakes can build resilience systems for the community, including special businesses in disaster-prone areas.¹⁰ Dahlamer and D'Souza found that disasters disrupt business through a variety of mechanisms other than direct physical damage to buildings, equipment, vehicles, and inventory.¹¹ However, disruptions to infrastructure, such as water/sewerage, electric power, fuel, transportation, and telecommunications, often force businesses to close after disasters. In fact, the company may be forced to close for a long time if there is a shortage of electricity supply or other services, and the business may lose suppliers or buyers because of a power outage in the affected area.¹²

From the perspective of human resources, all workers from various businesses experience psychological impacts due to disasters because disaster events bring the individual's ability to adapt quickly to situations, have risks, and affect mental health.¹³ In general, the people of Palu City have often experienced earthquakes on a small scale and have considered this to be normal. The disasters that occurred were large earthquakes accompanied by tsunamis and liquefaction in several areas of Palu City. This was exacerbated by the fact that several workers were victims of the disaster and were injured, which affected business activities. In addition, other impacts that were present were that some workers decided to temporarily evacuate in other areas that were not affected due to the difficulty of meeting their basic needs during the early post-disaster period, especially for those who had families.

In the raw material aspect, all business actors experienced problems

⁹ Gabriela Wasileski, Havidán Rodríguez, and Walter Diaz, "Business Closure and Relocation: A Comparative Analysis of the Loma Prieta Earthquake and Hurricane Andrew," *Disasters* 35, no. 1 (2011), p. 102–129.

¹⁰ Ye Lieping et al., "Collapse Prevention of Building Structures: A Lesson from the Wenchuan Earthquake," *Journal of Building Structures* 29, no. 4 (2008), p. 42–50.

¹¹ James M. Dahlamer and Melvin J. D'Souza, "Determinants of Business-Disaster Preparedness in Two U.S. Metropolitan Areas," *International Journal of Mass Emergencies and Disasters* 15, no. 2 (1997), p. 265–281; Michael K. Lindell and Ronald W. Perry, "Earthquake Impacts and Hazard Adjustment by Acutely Hazardous Materials Facilities Following the Northridge Earthquake," *Earthquake Spectra* 14, no. 2 (1998), p. 285–299.

¹² Khan and Sayem, "Understanding Recovery of Small Enterprises from Natural Disaster."

¹³ Jonathan R.T. Davidson and Alexander C. McFarlane, "The Extent and Impact of Mental Health Problems after Disaster," *Journal of Clinical Psychiatry* 67, no. 2 (2006), p. 9–14.

caused by rising prices of raw goods due to the lack of raw material commodities traded because of several factors, including many suppliers and shops who were also victims of the disaster, so that businesses did not operate during the initial period of the disaster until the recovery of various public services.¹⁴ This also causes a fairly large price disparity, which generally occurs when the supplied commodity comes from outside the region. In addition, transportation access was hampered, so finding alternative routes was a solution, but this could affect the travel time, which was relatively longer than before. This is similar to what Gardner and Cooper found that disasters can disrupt the delivery of raw materials and businesses can stop operations.¹⁵ Even though the supplier is not a victim and is not in the affected area, the damage to access to the affected area both by land and the temporary closure of ports and airports due to being affected by the disaster has hampered the supply of raw materials.

Regarding the sales aspect, the stock of goods/products is also affected by the absence of buying and selling activities, which affects the feasibility of the product for consumption. However, some business actors decide to consume business products to fulfill their daily needs. During the initial post-disaster conditions, none of the businesses earned any income because of the absence of production and sales activities. This is because, in the initial conditions after the disaster, business actors focused on the safety of themselves and their families.

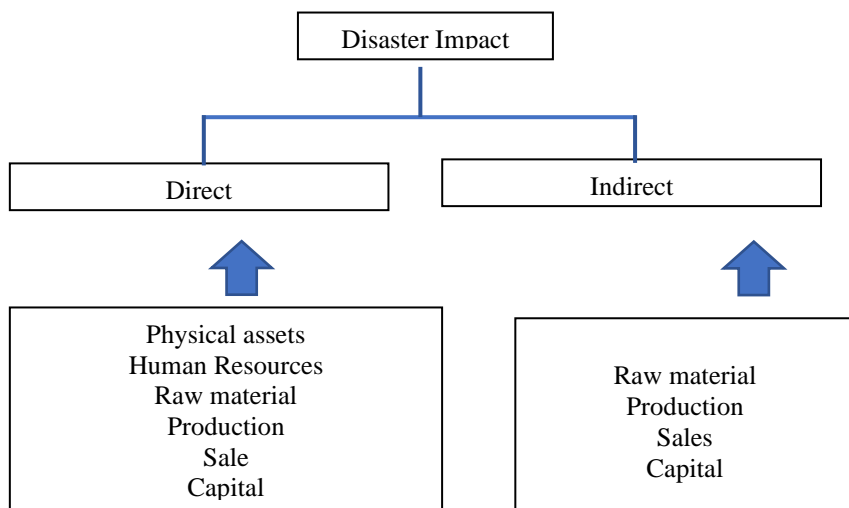
In terms of capital, it was found that the price of raw materials has increased, so there is no step that can be taken other than depending on the available capital. Sufficient capital allows business actors to purchase raw materials in large quantities to avoid price increases, especially at certain times. In addition, capital was used to repair equipment that was damaged and to finance building renovations. According to Ballesteros and Domingos, damage to equipment, including at business sites, as well as decreased revenues, were identified as sources of the disaster's impact on finances after the disaster. Revenue is expected to decline due to less or no sales during and after the disaster. Damage to buildings or business premises will require repairs to restore business operations and a large

¹⁴ Kathleen J. Tierney and G.R. Webb, "Businesses and Disasters: Vulnerability, Impacts, and Recovery," in *Handbook of Disaster Research*, ed. Havidán Rodríguez, William Donner, and Joseph Trainor (New York: Springer, 2006), p. 275–296.

¹⁵ T. Gardner John and C. Cooper, Martha, "Strategic Supply Chain Mapping Approaches," *Journal of Business Logistics* 24, no. 2 (2003), p. 37–64.

amount of financial resources.¹⁶ Another finding was that capital was essentially intended for business purposes, but for business actors, capital was also used to meet the necessities of life during the post-disaster period and pay for medical treatment.¹⁷ This further makes it possible for businesses to recover and operate again, which takes a long time because most of the business recovery is determined by the availability of capital used to repair buildings and equipment, including the increase in the price of raw materials.

Figure 2. Mapping of Interview Coding Results



Based on the table above, from the several impact sub-indicators obtained, it was found that the impact of disasters on business consisted of direct and indirect impacts. Hallagat divided the impacts of disasters into

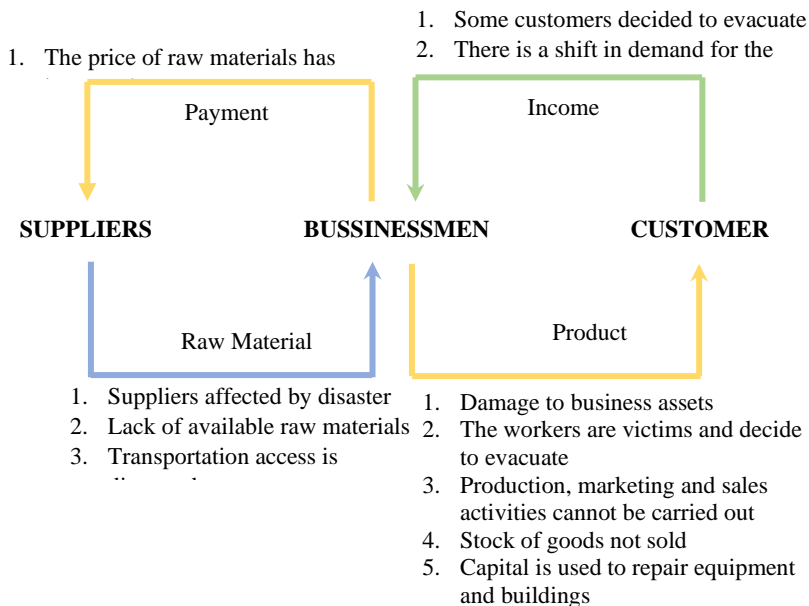
¹⁶ Marife Ballesteros and Sonny Domingo, "Building Philippine SMEs Resilience to Natural Disaster," in *PIDS Discussion Paper Series*, PIDS Discussion Paper Series (Philippine, 2015), p. 1–47.

¹⁷ Kathleen J. Tierney, "Business Impacts of the Northridge Earthquake," *Journal of Contingencies and Crisis Management* 5, no. 2 (1997), p. 87–97; Gary R. Webb, Kathleen J. Tierney, and James M. Dahlhamer, "Businesses and Disasters: Empirical Patterns and Unanswered Questions," *Natural Hazards Review* 1, no. 2 (2000), p. 83–90; Tierney and Webb, "Businesses and Disasters: Vulnerability, Impacts, and Recovery."

direct and indirect impacts.¹⁸ The direct impact is the internal impact on the business, such as damage to buildings, production equipment, and loss of income. Indirect impacts are impacts that are not related to business, but can cause damage to infrastructure that can disrupt business activities. Khan dan Sayem provide indicators of the impact of disasters on businesses with loss of human resources, damage to machinery and equipment, disruption of electricity supply, disruption of raw material supply, and loss of income.¹⁹

To understand the impact of disasters on businesses, the following is a picture adopted from the conceptual model of business operations that explains the relationship between the impacts of suppliers of raw materials, business actors, and buyers to determine the relationship between the impact of disasters on economic actors, namely between suppliers and customers with business actors.

Figure 3. The Relationship of the Impact of Disasters to Economic Actors in the Halal Food Business Scope

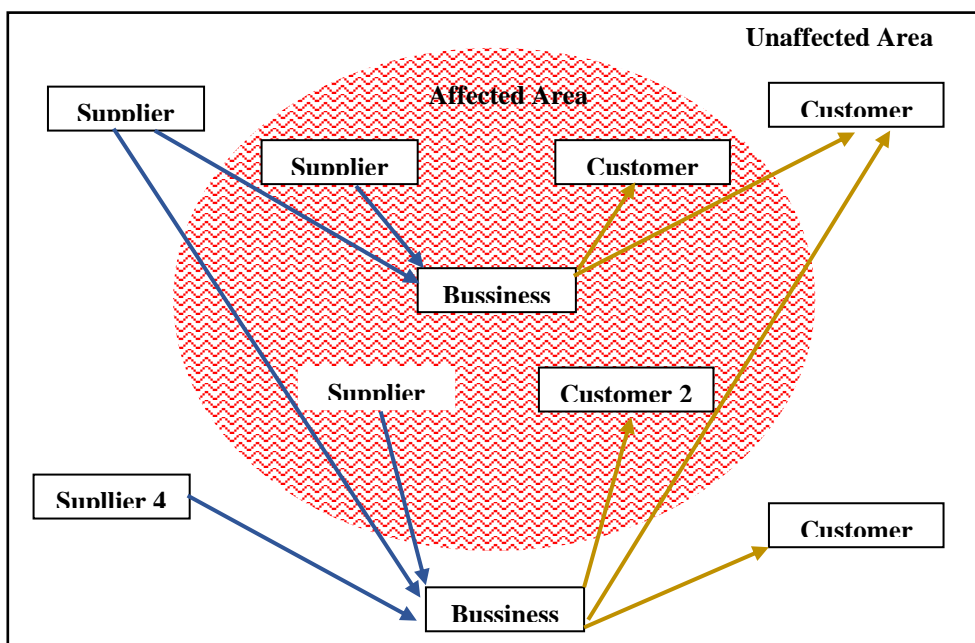


¹⁸ Stéphane Hallegatte, *Natural Disasters and Climate Change; an Economic Perspective, Natural Disasters and Climate Change* (Switzerland: Springer International Publishing, 2014), p. 10-17.

¹⁹ Khan and Sayem, "Understanding Recovery of Small Enterprises from Natural Disaster."

In an area, there are various businesses with various types of products produced to meet various community needs. Several markets are created, spread, and cover a wide area as a meeting place for suppliers, business actors, or business actors with customers. In addition, actors, including suppliers, business actors, and customers, also operate outside their respective areas to meet raw material needs or demand. The following is an image adopted from the business relationship with affected areas model developed by Zhang, Lindell, and Prater.²⁰ This picture explains the relationship between actors in the halal food business scope with disaster-affected areas and unaffected areas.

Figure 4. Relationships Between Actors in the Scope of Business with Affected and Unaffected Areas



Source: adopted from Zhang, Lindell, and Prater, (2009) model

A business within an impact area may have suppliers either inside or outside the disaster impact area (See Figure 4). Similarly, the customer may be wholly or partially inside and wholly outside the affected area. On the other hand, businesses located outside the impact area can be affected

²⁰ Zhang, Lindell, and Prater, "Vulnerability of Community Businesses to Environmental Disasters."

through disruption of suppliers and customers located in the affected area so that there is a possibility that businesses outside the impact area are more severely affected than businesses inside the impact area. This also applies to actors whose access must go through the affected area, and they will also feel the impact of the disaster, so they must find alternative access to avoid the affected area, which can cause high costs and may take a long time.

Conclusion

Based on the results of the research, the authors draw several conclusions related to the impact of disasters on MSMEs in the halal food sector. The impact of disasters on MSMEs in the halal food sector consists of direct and indirect impacts, which include physical assets, human resources, raw materials, production, sales, and business capital. The relationship between the impact of disasters on economic actors in the halal food business breaks the supply chain, so that the recovery process from the impact of disasters depends on the resilience of businesses in the halal food sector. Business resilience includes how business actors can redesign safer business concepts in supply chain activities. The lack of this research is expected to lead to further research using a quantitative approach to measure the magnitude of the impact of each indicator disaster, so that it is more accurate.

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