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Article

Social Capital and Community Resilience in Tōhoku-Oki: Lessons from the 2011 Great East Earthquake and Tsunami Disaster in Japan

Abstract: In crisis and disaster management research, social capital is often examined to understand the impacts of disasters and crises on society. This paper investigates experiences of how local cultural norms and social capital influenced the disaster relief process following the 2011 Great East Japan Earthquake and Tsunami (GEJET) disaster. To underline social capital's multiple-influence aspects, this paper draws from field research that focuses on collective and individual social capital in disaster relief to systematise the findings according to the social capital framework. The paper analyses the 2011 GEJET to uncover new effects of individual social capital and collective capital in a mega-disaster context, thus contributing to pushing the research agenda toward a more critical appraisal of individual social capital and collective capital. This research contributes to the nascent but growing literature that clarifies the relationship between social capital and disaster resilience. A qualitative study using in-depth interviews with eight humanitarian professionals was conducted to capture the essence of their shared experiences. Using a thematic analysis, findings from the study revealed three main themes capturing the essence of the research participants' disaster experiences. First, disaster response relied mostly on locally driven relief due to a clear understanding of the local culture. Second, there was an urgency to establish a sense of normalcy by providing quality supplies that would help survivors. Third, Japanese gender roles and expectations were reflected in the disaster relief process. The three themes establish a wide array of lived experiences that are important to reflect on the role social capital plays in the policy-making and needs assessment processes in post-disaster relief and response efforts. The findings provide insights for integrating social dimensions into a humanitarian aid culture as citizens work towards a sense of normalcy. The findings present a new knowledge on humanitarian workers' experiences concerning social capital influence and disaster relief. Comparing the emerging themes of the research to the framework of social capital, the study provides a broader and deeper understanding of the application of culture and social capital to disaster relief in the aftermath of a major disaster.

Keywords: Social Capital; Japan; Iwate Prefecture; Resilience; Sustainability

1. Introduction

The devastation of the 2011 GEJET disaster posed intense challenges to restoring normalcy, infrastructure, economy, and cultural activities in affected areas. On the other hand, the disaster provided excellent research grounds for academics and policymakers to assess and improve current frameworks and strategies on disaster management, thereby reducing risks and building resilience to future disasters (Aldrich, 2019). Social capital within a community enables disaster relief aid workers, helping them make connections with communities to work towards normalcy.

Social capital, as a system, represents "the resources resulting from social cohesion that may be drawn upon by individuals for collective action and collective benefit" (Reininger et al., 2013). Therefore, social capital is viewed as a critical component to help affected populations respond more effectively to disasters (Bihari & Ryan, 2012; B. L. Murphy, 2007), as well as support their recovery during post-disaster phases (Hawkins & Maurer, 2010; Nakagawa & Shaw, 2004).

Throughout the study, researchers sought to understand the social dimensions in local communities that were struck the hardest by the 2011 GEJET disaster, primarily the southern coastal areas of Japan's Iwate Prefecture (in Tōhoku Region). The paper analyses the

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relationship between disaster response and the practices of local communities, focusing on social capital and influences on the relief trajectory. Without some understanding of the social dimension and local context, it would be challenging to comprehend the social world surrounding humanitarian aid. The social world becomes meaningful through cultural capital and traditions, community institutions, norms and physical spaces, and it can be studied through the actions and interactions of individuals as they are fundamentals of social capital (Lin, 2001; Warren, Thompson, & Saegert, 2001).

This research contributes to the nascent but growing literature that clarifies the relationship between the social dimension and the GEJET disaster. Additionally, the research considered local capacities and resources in the response process and the interplay between these local capacities and outside aid interventions by analysing participants' experiences. The research involved conducting a case study on the 2011 Great East Japan Earthquake and Tsunami (GEJET). By analysing how the Japanese government and community organisations responded to the disaster, we examine the impact of social capital on Japan's disaster management systems. The research is prevalent among residents living within Iwate Prefecture, especially those who have experienced numerous disasters over the past decade and have firsthand knowledge of the importance of preparedness, mitigation, risk management, mobilising social capital, and community resilience.

The social capital (Aldrich, 2019) and cultural norms (Hofstede, Hofstede, & Minkov, 2010; Pearson & Clair, 1998) of a country can significantly affect its disaster response, and these two aspects formulate a social framework in which all other variables related to disaster relief and crisis management are embedded. The research question that guided the study was: how do local cultural norms and social capital influence the relief process of the 2011 GEJET disaster?

Theoretical Background and Literature Review

Social Capital

Important to a community, social capital is a set of values held by a group of individuals that are used to work towards a common goal (cite). Social capital has been used in many empirical studies focused on disaster research (Aldrich, 2012b; Nakagawa & Shaw, 2004; Pelling & High, 2005). The notion of social capital includes components such as trust, networking, and local cultural norms, as well as collaboration, collective action, and volunteering. The common goals of a community, or social capital, "may be drawn upon by individuals for collective action and collective benefit" (Reininger et al., 2013, p. 56) and prove to be an essential coping mechanism that helps populations effectively face disasters (Bihari & Ryan, 2012; B. L. Murphy, 2007). Collaboration and communication are essential in disaster relief, as without them, collective action can fail (Aldrich, 2012a). For example. After a disaster in 1995 in Kobe, debris removal was promised to many condominium residents; however, there was a lack of communication and collaboration among local citizens and the building owners, which in turn, caused missed opportunities for free debris removal in Kobe and some debris sat for 3.5 years before private money was procured for its removal (Aldrich, 2012a).

Past researchers have shared varying perspectives of social capital in relation to community resilience and efforts that influence disaster relief. Bourdieu (1986, p. 51) described social capital as "the aggregate of the actual or potential resources which are linked to a durable network of more or less institutionalised relationships of mutual acquaintance or recognition". According to Bourdieu (1986), the volume of social capital is dependent upon other forms of capital available in a community, which often means an unequal distribution, and some regions are more affluent than others.

Wickes, Zahnow, Taylor, and Piquero (2015) stressed how the effects of social capital could be limited due to the financial assistance provided by disaster relief initiatives. For this study, the definition of social capital focuses on the collective actions of a community in response to disaster relief. Local cultural norms and social capital can influence the social exchange that stems from social networks, benefiting society by increasing the effectiveness

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of disaster relief efforts (Aldrich, 2017); increasing collective action (Aldrich & Meyer, 2015), and supporting a stronger sense of community (F. H. Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008). Aldrich (2012a, p. 33) research builds on Lin (2001) views of social capital 'as the resources available through bonding, bridging, and linking social networks along with the norms and information transmitted through those connections.

The social capital of a community may help bridge ties between citizens to organise, share resources, and pressure officials to respond to their needs. Stronger linking ties between communities and elected officials can influence recovery efforts and disaster response policies (Aldrich et al., 2018). As a result, social networks, trust, civic engagement, and governance are all key concepts related to bonding, bridging, and linking social capital.

In crisis and disaster research, resilience and vulnerability have been increasingly studied alongside social capital (Aldrich & Meyer, 2015; F. H. Norris et al., 2008; Wickes et al., 2015; Wisner, Blaikie, Cannon, & Davis, 2004). Thus, social capital became a key concept in crises and disaster governance research (Meyer, 2018). The concept is widely studied to understand how people behave (Roque, Pijawka, & Wutich, 2020) when they experience exogenous and disturbing events that are difficult to predict, understand and influence, such as disasters and hazards (Rosenthal, Charles, & Hart, 1989). In this context, social capital can be considered an important aspect of resilience (Aldrich, 2012a) since it is built and exists before the triggering of hazards (L. K. Comfort, Boin, & Demchak, 2010).

Social Capital in the Disaster Relief

Social capital has played an important role in social science research concerning disasters and crises management. Sociologists have contributed to research on the impact and role of social capital in the recovery phase of a disaster-stricken community (Hawkins & Maurer, 2010; Patterson, Weil, & Patel, 2010; Tierney, 1999). Economic, physical, natural, human, and social capital are all affected by a disaster; however, social capital is affected the least because the communication efforts and collective actions among a community increase during disasters (Dynes, 2006).

Bonding, bridging, and linking are the three main types of social capital (Aldrich & Meyer, 2015). Bonding is the relations between similar or emotionally close individuals, such as friends or family, and can be driven by culture, religion, ethnicity, and identity (Putnam, 1993), 1993). Bonding describes the connections between family members, friends and close allies resulting in tight bonds in a group (Aldrich & Meyer, 2015). In post-disaster relief, for example, bonding capital can be evident in the emergency assistance, such as in the provision of food, shelter, and temporarily or evacuation residence, given by the relationships with immediate family members and relatives as occurred with Cyclone Sidr in the case of Bangladesh in 15 November 2007 (Islam & Walkerden, 2014). Similarly, Hawkins and Maurer (2010) explored how different forms of social capital were present among 40 families in the aftermath of Hurricane Katrina. Their study showed that bonding social capital was important for immediate support, especially for those with low incomes.

Communities are often seen as bridging, which supports "linkage to external assets and for information diffusion" (Putnam, 2000, p. 22), and "connects "individuals across various ethnic and racial groups, bringing together different communities" (Aldrich, 2011a, p. 83). Bridging social capital is characterised by people who are like each other through community ties or organisations in different locations making the network diverse (Nakagawa & Shaw, 2004). In a disaster context, bridging connections assist in community revitalisation and resilience as people can exchange resources that help in long-term recovery (Hawkins & Maurer, 2010). For example, after Hurricane Katrina, neighbourhoods that connected with outside neighbourhoods enhanced their recovery in contrast to communities that stayed within their neighbourhood (Aldrich et al., 2018)

Finally, linking connects regular citizens with those who hold authority and power positions (Aldrich, 2011b). The concept brings communities access to resources that are not local such as funding from the government, humanitarian aid institutions, and non-local

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donations. Linking social capital becomes important, as Nakagawa and Shaw (2004) highlighted in their comparative case study exploring the post-earthquake cases of Kobe, Japan and Gujarat, India, as it connects disaster survivors with governmental officials for response and recovery efforts such as providing financial and physical resources. Similarly, connecting with decision-makers in the central government, private sector, supra-local entities, foreign non-government organisations (NGOs), and civil society organisations have also been proven to accelerate recovery processes (Aldrich, Page-Tan, & Fraser, 2018; Hawkins & Maurer, 2010; Tierney, 2014).

Bonding, bridging, and linking social capital have been the focus of past studies concerning the recovery phase of a community after a disaster; however, a lack of research exists on addressing disaster relief with considerations of cultural norms, practices, and capabilities of disaster-affected communities. Social capital research significantly grew after the 2011 GEJET, where disaster risk management technologies have already been in place since the 1995 Great Hanshin Earthquake. Disasters in Japan have led to increased research investigating governance and policy choices made for disaster relief (Aldrich, 2019; Littlejohn, 2020; Nagamatsu, 2018). The emerged studies showed a remarkable capacity for recovery from communities with certain kinds of social capital from these events. Scholars, policymakers, and practitioners have emphasised that social vulnerability and social capital are the root causes of community resilience (Fraser, 2021). Social capital is an important facet of resilience (Aldrich, 2012) as it exists before disaster strikes (L. K. Comfort et al., 2010)

Community resilience supports social capital as it is a process linking a set of adaptive actions and functions after a disaster (F. H. Norris et al., 2008). Four interlinked sets of resources support community resilience and comprise economic development, social capital, information and communication, and community competence (F. H. Norris et al., 2008). According to Dynes (2006), community knowledge and resources can be used to build community resilience. For example, pre-existing networks and trust contribute to social support among neighbours when some resources are not accessible. Social capital supports the cohesiveness of communities as those who have stable localised attachments, and dense social networks are more likely to rebuild and less likely to relocate (Aldrich, 2017).

Japan's Disaster Management System

The disaster management system in Japan was established under the Disaster Countermeasures Basic Act, first enacted in 1961 after the 1959 Isewan Typhoon in Nagoya city in Aichi prefecture. Japan operates a disaster management system as a classic hierarchical organisation (L. Comfort, Okada, & Ertan, 2013) managed by different actors, agencies, and jurisdictions. The Basic Disaster Management Plan, outlined in the 1961 law and modified through subsequent decades, could not predict future possibilities of continual disasters triggering a cumulative breakdown of operations at local and prefectural levels of jurisdiction, requiring national and international interventions to meet the needs of communities (L. Comfort et al., 2013). Figure 1 outlines Japan's disaster management system.

Figure 1: Disaster Management Organisations and the Central Government and Cabinet Office Structure for Disaster Management Japan 2011

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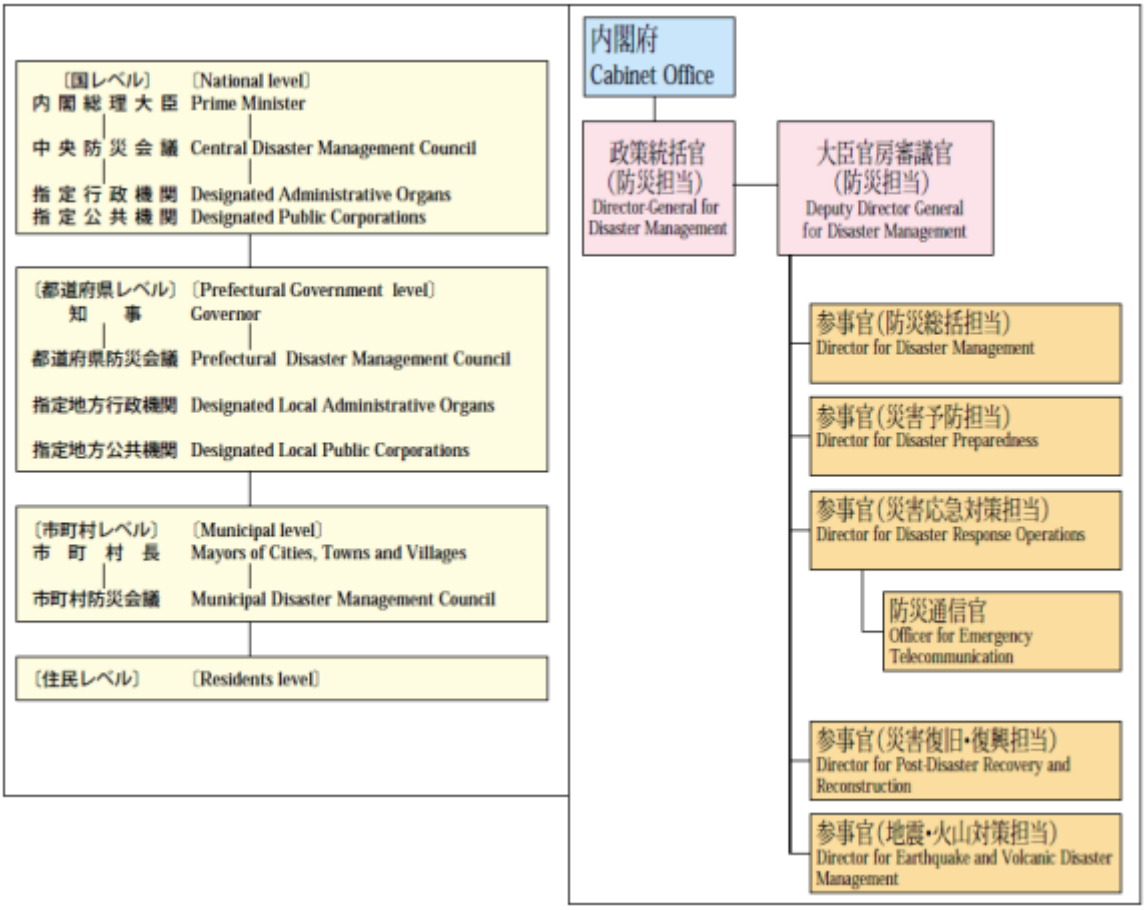

Disaster management system, Japan, 1961 Disaster Countermeasures Act (Source: (Cabinet Office 2011)).

Members include: designated local government organisations, designated local public corporations. The municipal level includes mayors of cities, towns and villages. Central and Municipal disaster management council tasks include formulating and implementing a disaster management plan. Residents develop household disaster management plans.

Institutional responsibility for disaster governance involves a three-tier structure of national, prefectural, and municipal organisations (see Figure 1 – dark yellow, blue, and pink colours). The Central Disaster Management Council is responsible for formulating and implementing the Basic Disaster Management Plan at the national level. The prefectural and municipal levels develop and support local disaster management plans. All levels are required to designate administrative organisations (the Cabinet Office, ministries, and agencies) and public corporations (such as organisations in the fields of transportation, electric power, or gas) to support the implementation of the disaster relief plans.

The Context of the Study

The 2011 Tohoku Great East Japan Earthquake and Tsunami (GEJET)

This research examines the impact of the Japanese social context on the response operations after the 2011 GEJET disaster. Considering the social capital is worthwhile because this topic repeatedly surfaced in interviews as participants emphasised the uniqueness of Japanese society, culture, and traditions and how it may have affected local disaster relief and management approaches. Therefore, we began our study by looking into how local organisations utilised their familiarity with the community in their rescue operations and how well they were aware of providing culturally appropriate and sensitive psychosocial support.

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Japan has faced one of the deadliest natural disaster events ever, and a landmark in investigating relief and response activities is the 2011 earthquake and tsunami and the subsequent Fukushima Daiichi Nuclear Power Station accident. While Japan is among the countries with the most natural disasters, especially earthquakes, the March 2011 GEJET disaster was Japan's worst crisis since World War II (BBC, 2011). The Japanese people, on many occasions, have responded positively and vigorously to their hardships. The Japanese are resourceful and knowledgeable people and possess deep wells of self-discipline and determination, characteristics necessary for facing future disasters..

2. Source and Methodological Steps

The Materials and Methods should be described with sufficient details to allow others to replicate and build on the published results. Please note that the publication of your manuscript implicates that you must make all materials, data, computer code, and protocols associated with the publication available to readers. Please disclose at the submission stage any restrictions on the availability of materials or information. New methods and protocols should be described in detail while well-established methods can be briefly described and appropriately cited.

Research manuscripts reporting large datasets that are deposited in a publicly available database should specify where the data have been deposited and provide the relevant accession numbers. If the accession numbers have not yet been obtained at the time of submission, please state that they will be provided during review. They must be provided prior to publication.

Interventionary studies involving animals or humans, and other studies that require ethical approval, must list the authority that provided approval and the corresponding ethical approval code.

2.1. Case Study Context

Life in Tohoku will never be the same. Residents have lost loved ones, homes, farmland, treasured possessions, livelihoods, and cherished family pets (Bayer, 2011; Matanl, 2011). This paper is a snapshot of the conditions in Japan in the aftermath of the 2011 GEJET. The data were gathered from professional groups while conducting fieldwork in the country, from watching, observing personal experiences and discussions, a small number of organisations with volunteers and those affected in Iwate Prefecture.

This study used a qualitative research design, specifically focused on five selected cases of use of social capital in post-disaster relief. This design is appropriate for exploratory analyses as it is meant to understand the meaning and dynamics of social or human problems (Creswell & Creswell, 2018). Although this exploratory design cannot explain when or why social capital fails, it can identify possible social capital dynamics that may contribute to successful post-disaster relief.

Our study focused on five of the selected sites in Iwate Prefecture that have special conditions of interest for our research: Kitakami-city, Kamishi-city, Tono-city, Shiwa-town and Rikuzentakata (see Appendix I - Figure 2). These cities share similar social and cultural characteristics, besides some other particularities in common, such as geographical and climatic conditions and similar environmental challenges. Therefore, we considered that the data collected from those sites represent the overarching city perspectives and municipality perspectives allowing us to have a rich understanding of the social dimensions in the wake of a disaster.

2.2. Sampling

This research used a purposeful qualitative sampling method with criterion-based sampling strategies to select its research participants for data collection to convey the information from firsthand evidence about community and relief dynamics (Creswell, Vicki, & P., 2011). In this research, participants met the following predetermined criterion: (1) they were humanitarian professionals who

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worked for NGOs and NPOs with a senior role in their organisations. (2) the geographic location, with the focus being primarily on participants from the affected areas. (3) active role in the post-disaster relief and recovery operations within the local communities and municipalities. Our sample is small due to the small number of community relief lead teams available at each site, but each site's sample size meets the minimum size required for their identification in qualitative research design (Guest, Bunce, & Johnson, 2006).

Eight humanitarian professionals met the criteria and were invited to participate in this research, including their staff members, with whom we conducted informal discussions and observations during our fieldwork visits. This research received ethics approval from the RMIT University's Human Research Ethics Committee prior to the research. The organisations that participated in this research represented local humanitarian operations, including emergency, response, rehabilitation, and development.

2.3. Case Study Selection

Fieldwork was conducted in Japan in 2017 to investigate the 2011 Tōhoku post-disaster relief activities. The primary criterion for selecting our cases and sites was their involvement in humanitarian aid and relief operations during disasters. We selected humanitarian aid organisations as they were involved and engaged in providing direct support to beneficiaries and survivors in disaster affected regions and coastal areas.

2.4. Data Collection and Analysis

This research successfully employed an in-depth semi-structured interview technique as the critical method of qualitative empirical data collection to study the effect of social dimensions on post-disaster relief (Seidman, 2013). The primary researcher conducted face-to-face semi-structured interviews and observations to collect information concerning the challenges the community organisations and leaders faced in the aftermath of the disaster.

Interviews lasted from 45 to 90 minutes, depending on the details the participants wanted to share. In addition, we conducted eight in-depth semi-structured research interviews on-site throughout various departments and administrative units of the selected organisations. All participants gave their consent before the interview and provided demographic and background information. A native Japanese translator (Japanese/English) was available for those who did not speak English.

The researchers used thematic analysis to encode and organise the data obtained. The data analysis used the six-step thematic analysis approach as Braun and Clarke (2008) recommended. Manual data coding was used to reflect the full range of participant views and experiences (Basit, 2003). Three primary themes emerged from the analysis. First, disaster response relied mostly on the collective actions of local communities. Second, restoration of normalcy. Third, Japanese gender roles and expectations were reflected in the disaster relief process.

The thematic analysis approach involves a constant moving back and forward between the entire data set, the coded extracts of data and the analysis of the data that are being produced. Analysis was conducted by the principal researcher (NS as a primary researcher) using an iterative procedure or non-linear process (Braun & Clarke, 2008; Dey, 1993; Miles & Huberman, 1994). See details in Appendix IV.

3. Findings

The focus of the study was on identifying how local cultural norms and social capital influenced the relief process of the 2011 GEJET disaster. Findings indicated community resilience supports social capital, linking a set of adaptive actions and functions after a disaster. Past studies have highlighted bonding, bridging, and linking social capital concerning the recovery phase of a community after a disaster. For this study, addressing disaster relief with considerations of cultural norms, practices, and capabilities of disaster-affected communities was emphasised in participant responses. Three themes emerged regarding the research question focused on local cultural norms and social capital

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influence. The themes are (a) collective action and collaboration of local communities, (b) restoration of normalcy, and (c) gender differences and expectations. Other essential information relevant to social capital and disaster relief will be discussed. The following sections present the findings from the data analysis.

3.1. Collective Action and Collaboration of Local Community – Neighbourhood Bonds

The first theme across each crisis in this study is the articulation of collective action and mutual collaboration as widespread among neighbourhoods in the aftermath of the 2011 GEJET. Collective action is perceived the most frequently in local communities with significant and strong social capital and proved to be a valuable resource and an important factor of community resilience (Aldrich, 2019).

Collective social capital proved to be successful through local support, with many collective actions in inundated areas, including external workers, mostly volunteers and neighbours who came from outside the affected prefectures. For example, they contributed to the recovery efforts by cleaning up the roads, waste management, supporting with logistics, and organising public places. However, establishing rapport with the locals took time. In urban areas, however, such experiences and community relations are not uncommon. One participant explained:

We came to help and support the most vulnerable people in Iwate Prefecture, we didn't find it easy to understand the structure of networks in the local community. Mostly relied upon local organisations. [Ms Anza

Moreover, many participants highlighted the role of the locally community-based organisations and evacuation teams in the early days of the disaster response. This was evidenced by the responses provided by Mr Takashi:

It was a very big help. Those large NGOs came from outside of Iwate Prefecture. They were individually driven to come and provide help to us. They had good motivations, however, there wasn't an appropriate network and communication channel with the local people. We assisted them to establish connections with people by highlighting our cultural similarities. [Mr Takashi, NPO]

The above statement shows that although several issues surfaced in the early stages of the disaster relief, residents in the affected regions relied mostly on locally driven relief due to the clear understanding of the local culture, networks, and social bonding among people.

The community organisations involved in meeting the basic needs, priorities, and assessments of the types of supplies required and maintaining social relationships in the community were identified by the role and responsibilities in helping the local communities. These aspects imply that local organisations had strong linking social capital.

In addition, primary aid partners who came to help were providing relief services to survivors through the means of social engagement, social cohesion, and inclusion, implying strong social capital. This was confirmed by Mr Sato, who was responsible for eight team members, he explained:

Social support wasn't only about keeping social relationships with survivors, it was also about increasing their resilience and keeping them motivated. We touched on culture, norms, food and assessed primary needs and priorities. [M Sato, NPO]

This statement shows that relief efforts looked beyond providing essential needs and priorities such as food, clothing, and medical care. Addressing the social needs of a community was possible through a deep connection and understanding of the lives and livelihoods of affected people.

According to the participants, the social relationships and bonds between humanitarian workers and survivors were integral to the well-being of the affected regions. For example, the concept of 'kizuna', meaning human bonds or bonds between people, was adopted since the early recovery period to convey a powerful message of unity to the local communities and to mobilise the potential power of the affected communities to make important contributions to the recovery efforts. The

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extensive use of 'kizuna' after the disaster shows a strong emphasis on social cohesion and solidarity (Tokita, 2015).

For many participants, the immediate response involved helping the survivors and moving them to evacuation shelters or emergency housing with better health conditions. These were mostly schools and community centres designated in the local Disaster Management Plans according to the Disaster Response Basic Law (Act No. 223 of 1961). In isolated urban areas, survivors were paralysed in their response capacities as they were dealing with their own tragedies. It might be due to weakly connected communities with fewer ties making the recovery processes harder (Aldrich, 2019).

Many participants also reflected that they were making great efforts to effectively localise urgent humanitarian aid. Compared to other parts of Japan, the Tohoku region has a higher prevalence of mental health conditions. The people from that region are also known throughout Japan to be reserved and unwilling to express their feelings. Therefore, to ease the anxiety of survivors, negotiation and assessment of their needs and health needs assessments were emphasised in the relief process. Frequent visits were crucial as the devastation of services and infrastructure was significant, hampering relief and rescue efforts. One participant commented:

In Iwate Prefecture, although we were mainly dependent on the evacuation centres and emergency shelters, basic services were paralysed, including roads and transportations, hence hampering the relief efforts. [Mr Takashi, NPO]

Participants acknowledged some frustrations, especially with the emergency shelters that did not receive essential relief supplies such as drinking water and food due to a shortage of fuel for delivery vehicles. The lack of economic resources was articulated by basic supplies such as fuel, gas, blankets, diapers, and toilet paper were running low. However, while local donations were abundant, and residents donated tons of used clothes and towels, those supplies ended up not going to the right people. Perhaps, these flaws were due to the flow of information to organisational levels. To confront these challenges, response teams in rural communities offered individual support as indicated in this statement:

Our efforts represented individual social connections and solidarity to survivors despite the limited resources we had. [Ms Akira, NPO]

Several organisations shifted their focus and priorities to women and the elderly. As this research showed, these vulnerable groups in the affected regions posed unique challenges to emergency operations, especially for Japan's established medical assistance teams (DMATs). The DMATs teams are medically trained mobile teams deployed in the acute phase of disasters. Most of the survivors in the coastal regions were elderly people who were chronically ill. Many of them were patients in nursing homes and hospitals or people living with mental illnesses and in need of primary care. One participant from the relief operation team, who was part of the local community support services (NPO), explained:

We had unique struggles with the most vulnerable populations, due to the difficulties of mobilising the elderlies, women, and children and addressing the special needs relating to medical and trauma-focused treatments of sick people. [Mr Nobou, NPO]

Vulnerable populations posed unique challenges to the planning and implementation in the disaster response phase. Extra attention and efforts are required to address the physical and medical needs of these groups of people. This aspect implies that bonding social capital is an important element in understanding the networks within the local community.

Civil and community organisations of the evacuation centres and emergency housing addressed the gaps left by DMATs. Mr Obha clarified:

Some Japanese aid organisations helped survivors in a different way, by distributing household supplies, while some NGOs prefered to focus on children and the elderly. They built temporary playgrounds and that way, they provided a different type of support to affected families. [Mr Ohba, NGO]

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This statement suggests that by having different priorities and target groups, the aid organisations could ensure an even distribution of workload and fulfil the various needs of survivors that other organisations might have missed.

The focus on meeting survivors' needs furthermore suggests that rapid needs assessments were conducted. Another important factor is knowing how to adequately reach out to survivors in need of support in a way that is sensitive to local norms and conventions while ensuring that they are being supported by their community. Disaster relief actors working on the ground adopted an attitude that is aligned with the Japanese concepts of respect and politeness. As Ms Akira narrated,

I would not knock on people's doors and ask "Are you okay?" [and] "Are you safe?" In Japan, these are very rude questions to ask. Entering a person's house and interfering with somebody's privacy in such a manner is perceived as extremely intrusive. Instead, I would typically ask survivors "[Is there] anything we can help you with?". Even if they are unwell, this approach may help them feel more comfortable and receptive to receiving help. [Ms Akira, NPO]

When disaster professionals are well aware of the local culture, norms, and practices, people are more open to receiving assistance; hence, they can build trust, a fundamental element in social capital.

For both scholarly and non-scholarly audiences, disaster response and relief narratives helped bring awareness to some of the pressing social and cultural issues. In particular, social capital fostered support and facilitated smoother relief operations. Interviews with participants highlighted the importance of social capital awareness and cultural sensitivity in disaster response. Building social linkages, engagement, and bonding with survivors must be considered in adjunct to meeting their physical and medical needs. Disaster aid professionals and volunteers must also follow local customs and practices.

3.2. Restoration of Normalcy - Empowering People and Improving Places

The second theme was the restoration of normalcy within the affected communities. Two elements stood out as outcomes of the social capital and disaster relief: the quality of provided supplies and the intended restoration of a sense of normalcy among the affected population to empower people (life-changing strategies). However, the findings show that the quality of supplies (as assets) is personally linked with the mental recovery and rehabilitation processes, as this may facilitate a return to psychological stability among survivors. Mr Nobou, who was responsible for distributing and coordinating the relief supplies, explained:

We believe that making a connection to place and increasing awareness of mental health help to ease the trauma experienced by survivors due to forced displacement, as most had lost their homes, friends, families and some of them had severe injuries [Mr Nobou, NPO].

The primary concern of local relief community organisations, including voluntary and non-profits, was aimed at meeting survivors' needs and ensuring that the distributed supplies would restore a sense of normalcy in their everyday lives. The quality of distributed supplies was pivotal in determining how local communities were satisfied with the support they received. According to the participants, humanitarian relief supplies and donations from different sources and places were piling up in front of evacuation centres and emergency housing. However, to address displaced communities, efforts were invested in ensuring that the supplies were culturally appropriate to the affected communities to recreate a feeling of homeliness. As Mr Takashi explained:

We bought everything we could to make them feel as if they were safe at home again even though they did not have most of their belongings. We aimed to help victims get back to their normal lives and mental states at the emergency shelters. [Mr Takashi, NPO]

The findings showed that actors with greater disaster relief field experience were most aware of the speed and efficiency of reaching the affected regions. Despite the dire situation and challenges families faced, Ms Akira showed how attachments to belongings might bring back good memories for

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the survivors, which could, in turn, establish a 'stability of mind.' Ms Akira, NPO, stated, "Returning to their normal daily lives is their goal, I think. They want to go back to using what they used in the past and restore a sense of continuity." Furthermore, ensuring the quality of the provided supplies was perceived as a challenging task for humanitarian actors. As one participant pointed out:

…decision making [was dependent] on each team leader. However, we are going to buy from the shop located somewhere in the Tohoku region to support the local businesses and activities regardless of the actual quality of the materials. [Ms Yuki, NGO]

If you want to improve the humanitarian response, make the quality matter. It means providing the right things, the right supply to the right people at the right time, in the right quantity, hence reducing the impact of the disaster on people's lives. [Ms Obha, NGO]

While the quality of the aid was an essential criterion during the decision-making process for local community organisations during the GEJET disaster, many other factors also influenced the type of supplies selected for survivors. Engagement of various stakeholders was also an approach used to encourage involvement in the relief and response activities. In this regard, Mr Sato commented:

My team and I began by approaching each stakeholder involved in the humanitarian assistance, ranging from provincial and district disaster management agencies to community leaders. Additionally, we also encouraged private sectors to actively participate. Thus, when there was a surge of demands, each party had a sufficient understanding of their responsibilities. [Mr Sato, NGO]

The provided supplies had to be connected to a place to give the receivers a feeling of reunion with their households (Renn, Burns, Kasperson, Kasperson, & Slovic, 1992). However, the quality response depends on the organisations' preparedness. One participant explained:

I think it is difficult to have a quality response to a disaster, even knowing that this could affect the return to normalcy. I think we can improve the response by being adequately prepared and implementing pre-planning. This means the response to the disaster can be better because there has been more planning. However, I still think it is difficult to have a quality response because of the unpredictability of a disaster. [Mr Nobou, NPO]

In summary, shelter, assets, and supplies are all culture-specific and critical to successful recovery elements if linked or connected to the survivors' culture, norms and social dimensions.

3.3. Gender Differences and Expectations – Eliminating Boundaries

The final theme was gender differences in disaster response. While little is known about the gender dimension of social capital in the context of a disaster, gender elements emerged from the data. There exists a range of understandings about the nature of gender in Japan (Craig, 2015; Martinez, 1998). The Hyogo Framework for Action 2005-2015 (UN Office for Disaster Risk Reduction, 2005, p. 26) identifies "gender perspective and cultural diversity" as one of the four cross-cutting issues relevant to all agreed priorities for action.

The differences in gender roles in Japan were also reflected in the context of the 2011 GEJET, where women and men were treated differently. Women in the Morioka region received special attention and support because the idea is that women cannot speak to the media and authority about their needs and concerns. Ms Akira expressed her concerns:

We were worried that women have suffered a lot from this disaster. They were not involved in the relief process as much. [Ms Akira, NPO]

Humanitarian aid provided many kinds of benefits for Japanese citizens, who were thus obligated to show their gratitude to the supporting organisations in public. To show their gratitude, they publicly thanked them on the media. This is how the Japanese culture can influence the way disaster situations are treated.

Ms Akira commented:

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I felt heartbroken about it because I knew I could perform better. However, the young girls had to say "Thank you for your help", "Thank you for your support", "Thank you for everything you did" on behalf of other people. Men wouldn't do this due to their positions in society. [Ms Akira, NPO]

These statements conceded that Japan's culture is male-dominated, and power lies in the hands of men. Many regions felt that it was necessary to push their young females out in front of the camera to share their needs and concerns. One participant commented:

In our society, men strive to compete, and they are always looking for perfection. On the other hand, women are considered more as insiders and have their own motivations [Ms Yuki, NPO].

Ms Yuki was involved in supporting female victims but was also interested in helping others during the disaster's high demand time. She explained that sometimes in her duties, she wandered into evacuation centres out of curiosity, and that could reignite her motivation and interest in supporting the older women. Despite challenges in her job, she found a sense of comfort when visiting shelters. In her response to how she was able to provide support, she describes how the disaster made her feel:

I realised I feel a little bit better when I am at the evacuation centres. I realised that no matter how bad a day I am having, no matter how depressed or sad I might be because of the high demands and the situations of the survivors, I would still feel so much better when I go to the evacuation centres. It's a little bit of an escape. [Ms Yuki, NPO]

I just tried to hear the survivors' stories. I was trying to find out any problems with what I've been doing for them. I get a thrill from knowing that they felt comfortable. It's like looking for a link between us in a way since we have the same culture. [Ms Yuki, NPO]

The above statements show that a sense of comfort not only matters to survivors but also provides relief and satisfaction to the workers who were helping them. The different expectations and treatment of men and women during the relief process might be more prominent in Japan than in any other country, as the two genders' socio-cultural roles, norms, and values affect the kind of responses provided. These factors should be taken into consideration during the strategic planning and policy-making processes of disaster management, despite the little consideration of gender dimensions in the context of a disaster. But what were the advantages social capital showed for women in the 2011 GEJET? The findings revealed that gender dimensions contributed to the community resilience level through collective social capital. The collective social capital of the residents of local communities helped them adapt to major flaws by using their social networks and their institutions. Some women established their organisations that showed bonding and bridging capital and norms of Japanese women, mainly due to strengthening solidarity and cohesion among the residents and can be valuable for dealing with future disasters or crises.

3.4. Social Capital and Disaster Relief

Outside of the three primary themes, other essential information was shared among participants relevant to social capital and disaster relief efforts. Linking and bridging among communities and organisations were emphasised by participants. Also, the importance of recognising perceived constraints in helping others after disaster relief was important to note.

3.4.1. Linking and Bridging

From liking and bridging perspectives, a local leader with successful operations suggests the leaders' role as helpful in the humanitarian relief context, as the Japanese culture relies on leaders and their perceptions and decisions. Almost all participants showed a desire to establish a creative working environment for humanitarian works through established adapted behaviours of front-line humanitarian teams, including community volunteers and organisations. However, there are negative connotations to this view of building networks and collaboration between aid workers due to the domination of experts in decision-making. The most significant social influence emerged, empha-

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sising the role of decision-makers with conflict values, contradictory and unclear performance outside the group or teams, and different decision-making styles that made it difficult for team members to maintain and manage the standards in humanitarian disasters.

As revealed in the following statement by Ms Yuki:

We had team leaders who manage all the activities, gather information about the materials, and put them to good use. [Ms Yuki, NPO]

One participant gave a more 'neutral description':

Our country is schemed by culture, hence the authority and leadership [Ms Yuki, NPO]

Ms Tamika described her experience with the flow of donations:

Organisations started to accept donations regardless of the source. We realised that trucks were coming and unloading supplies in our warehouse. We sorted those supplies and stored them. We prepared the supplies according to the needs of every team. But we looked at which supplies are more appropriate to the people and whether the items fit their culture and tradition. These are two sensitive characteristics in Japan, affecting and leveraging our decisions. [Ms Tamika, NGO]

These statements indicate that solidarity among disaster-affected populations and aid communities remained high in the disaster event.

3.4.2. Perceived Constraints to Helping Others

Many participants shared views on cultural norms, traditions, and disaster management of the authorities. The understanding and intimate social ties that Iwate regions have within and between communities created informal networks to satisfy deficits of the response operations. Often local communities shared resources through community ties rather than formal channels. For example, when asked what they did during their visits to the temporary shelters, these participants often mentioned conversing with survivors and describing another motivation for visiting the sanctuaries, but when things do not happen as planned, frustration and intolerance are visible.

Naturally, volunteers are a large part of this type of effort as disaster and evacuation centres provide participants, such as Ms Yuki mentioned, a unique and exciting outlet. There was more focus on community and collaboration as there were an outpouring of donations and manpower to bring a sense of comfort to survivors. However, there was a boundary between survivors and cultural dimensions since they use this connection to survive. As one interviewee explained: *"I believe things are related to the strength of a community and the resilience of a community that volunteers can offer, help others and show solidarity" [Ms Tamika, NGO].* Another participant explained:

Even though establishing local evacuation units helped aid organisations in their interactions within the local disaster units, they saw overlapping responsibilities among local supporting teams, with many organisations pouring their aid in the same area. Local aid was hailed as humanitarian because it allowed practitioners to divide their efforts evenly. Individuals must, however, obey their leaders in Japanese culture. At the same time, individuals who control the action have lawful power and authority. Governance style and culture are significant factors influencing control and decision-making. [Ms Yuki, NPO]

The statement shows that Japanese culture and values, such as obedience to one's superiors, can become critical factors affecting the efficiency and effectiveness of local aid efforts. The type of aid provided to survivors and the motivations of individual leaders placed a strain on the ability of local organisations to use local capabilities.

4. Discussion

The case study on the 2011 GEJET in Japan is an intriguing, unique, and valuable example that highlights the need to assess the roles and responsibilities of disaster relief operations within the

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cultural and social capital contexts. The presence of solidarity, culture, and generalised social dimensions among the community who survived the 2011 GEJET imply that bonding social capital was strong. The themes found in the data suggest an intimate relationship between the dynamic and nuanced ways in which vulnerability and resilience are produced in disaster-affected areas and the relational social aspects captured by social capital theory.

4.1. Identifying Collective Social Capital

The findings revealed that local efforts were already active and underway when the aid organisations arrived; hence, collective social capital was enhanced with local assistance received and shared among survivors. Many of these efforts were an extension of culture, norms, and practices embedded in the collective social capital, which has equipped the Japanese to deal with crises for decades. Similarly, local community organisations recognised the impact of government policies and the influence of national policies and practices of crisis management and their relationship to local cultural responses. These findings imply the emergence of local disaster communities demonstrated through sharing resources, helping vulnerable people, and organising collective actions, as Solnit (2010) discussed.

Although disaster management policies aimed to enhance the governance structure, evidence showed community resilience. Hence, our findings indicate that the interpretation of the social capital through community resilience has favoured disaster relief and the undertaken approaches by the local communities (Aldrich, 2017; Dynes, 2006; Helliwell, Huang, & Wang, 2014).

4.2. Cultural Connections and Ties

While populations, organisations, and institutions planned to respond to natural hazards, events have witnessed overwhelming cultural connections and ties bolstered the communities. As evidenced by the participants, local community organisations and evacuation teams contributed to most early response efforts. Apart from being geographically convenient, local aid agencies also benefitted from their knowledge of the unique challenges associated with the affected regions and vulnerable populations. The ability to relate and connect to the victims through culture led to more effective connections among humanitarian workers and affected populations.

Previous research has established that culture comprises many different components, including language, religion, values, and standards, and it is indisputable that the culture of human beings influences their decisions and behaviour (Petrina, 2009). When applied in disaster relief, this means that the people of a particular culture would better appreciate humanitarian assistance if it was provided in a manner that they perceive to be culturally acceptable (Hall, 1989). Japan's culture is no exception, as supported by the case study data presented in the previous section. Therefore, it is essential to be mindful of cultural awareness and sensitivity in disaster response.

4.3. Restoration of Normalcy

A focus of the disaster relief organisations involved in the 2011 GEJET was to establish a sense of normalcy by providing quality supplies that would help survivors feel connected to their homes and everyday life, even at temporary shelters. These actions would minimise the psychological and physical impact caused by forced displacement and restore a sense of balance for the affected populations. Culture awareness and bonding played an important role in determining the appropriate supplies and support types for each individual or household. Bonding social capital can contribute to establishing strong ties and support among members of a group and can be motivated by culture, religion, ethnicity, and identity (Putnam, 1993).

As our findings began to frame the disaster as a story of relief and recovery processes, fewer participants cited survivors and their concerns over ongoing risk from hazards and disasters. Notably, our analysis elicited the impact of restoring the normalcy of survivors whose subsistence revolved around fishing and farming and whose lives and culture was imperilled by the disaster. The relief system is dependent on cultural values such as trust and loyalty to restore society. Japanese humanitarian workers emphasise the need for empathetic helpers who are responsible and sensitive to

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their cultural context to restore normalcy beyond the disruption of disasters. Bruhn (2011, p. 112) explained: "disasters have common effects—they produce trauma that changes the social and emotional lives of the individuals, the resiliency of families, and the cultural fabric of families." In so doing, they can also give rise to new communities that are defined by people, for example, survivors of or displaced by a disaster, crisis or conflict.

4.4. Emergence of Gender

Research has established that the way people prepare for and respond to disasters is dependent on the physical and socio-economic differences between males and females (Hazeleger, 2013). Gender was another recurring topic that has emerged from the findings. While there are strong distinctions between the male and female domains in Japan, they are deemed to be complementary and necessary for societal balance. Women are generally associated with the inside, or the private sphere (uchi), whereas men are associated with the outside or the public sphere (soto). It is argued that women are also often associated with the outside (soto), as they are believed to possess dangerous powers. Their role as "outsiders" goes hand in hand with their role as "insiders", that is, as wives and mothers (Harvey et al., 1998). The delicate balance between insiders and outsiders of Japanese women explains why they were both treated as a vulnerable group and as spokespersons of survivors in the disaster. Women were expected to keep their opinions and concerns to themselves, but at the same time, they were deemed to be the perfect candidates to represent the affected populations and to appear in front of the media. Gratitude and concerns (of the entire community) expressed by a young woman would be often seen as more convincing and sympathetic than that of a man.

5. Theoretical and Practical Contributions

As social capital and community resilience literature illustrate, governments and markets may fail in the aftermath of a disaster, but social capital can fill the gap for resource and human capital (Aldrich, Sothea, & Yasuyuki, 2015). However, social capital alone is not sufficient to achieve disaster relief and community resilience (Nakagawa & Shaw, 2004). In this context, although our study provided a snapshot of the role of community-based organisations in the aftermath of a mega-disaster, it will be vital for understanding how social capital can enhance community resilience-oriented approaches. The findings advance the literature on understanding social capital from a community and solidarity perspective. The implications of this study show that community organisations and social interactions provided the bases for community reliance, especially in organising communities to gather in a mega-disaster. For a country without economic limitations, the study also found that the community-based organisations provided substantial donations and aid to support the survivors.

Practical implications of this research point to the need for the establishment of community-based organisations to aid the municipality to seed social capital in their community. Municipalities can help the gathering of people and advance in building trust, cooperation, disaster management, networks, and vulnerabilities. This view on the importance of community-based disaster management bodies emphasises strong social capital, which advances building resilience (D. J. Murphy, 2011).

6. Limitations and Directions for Future Research

One limitation was the small number of participants in the case study and the limited number of sites. The data collected is not representative of all communities, limiting the generalisability of the research. Future studies could increase the sample size in each organisation, and the sites covered by the research would obtain more generally valuable answers to the cultural influence on the perception of disaster relief.

Second, the study could not isolate the effect of the country in which the study took place. All the participants were Japanese. Nationality may influence perceptions of the disaster relief by whatever perceptions the samples had about Japan.

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Third, recall bias was a concern, given the amount of time elapsed since the event. Yet, it is essential to note that the earthquake and tsunami impacts were still acutely evident among many participants when contributing to this research. Furthermore, the literature indicates that self-reports related to disaster losses are reasonably stable over time (F. H. Norris & Kaniasty, 1992).

7. Conclusions

Broader connections with all partners helped participants in understanding the needs of people. Participants thought that aid should be proactive, working together with the team leader, allocating resources, and improving efficiency in response times. In addition, local communities showed trust and responded collectively to the disaster through donations to secure the needs of victims. However, the indicated impact, conceded by some of the participants, is that needs assessment helped them reach the most vulnerable and provide goods to those affected. The allocation of needs and correct needs assessment significantly affect disaster relief activities. Moreover, the motivation and knowledge of team leaders who possess a high level of technical expertise can leverage the decision of disaster relief operations. When engaged in collaborative works, participants felt that they were socially linked and adapted cultural norms and connections made through the work and the people they were helping.

The study contributes to existing disaster studies and crisis management research with a holistic approach to the post-disaster relief operations of the 2011 Tōhoku GEJET through a comparative study of eight humanitarian participants from eight different sites in the Tōhoku region. In addition, the study captured the effects of the events on the local community, which all suggest that natural disasters do stress social fabrics in one way or another.

This research provides a new body of knowledge on humanitarian workers' experiences within the notions of social capital influence and disaster relief. Comparing the emerging themes of the research to the framework of social capital, the study provided a broader and deeper understanding of the application of culture and social capital to disaster relief in the aftermath of mega-disasters. While the local response to the GEJET was not impressive or extraordinary, residents and local communities showed resilience to this disaster by all accounts. The evidence of social collective actions and bonding was favoured in several disaster's affected locations.

Of particular interest and urgency, the need for food, water and shelter, and relief organisations met those needs until the arrival of additional help from local communities (some efforts were performed by Chōnaikai (町内会) - neighbourhood association), local networks, and another source of local assistance. Overall, however, relief efforts were perceived locally as a destabilising influence in the response and recovery process rather than leveraging local capacities successfully. Moreover, outside aid disrupted local response efforts, social networks, and village hierarchies.

Significantly, analyses of these events from the standpoint of culture suggest that, while the distribution of aid reflected, to some degree, traditional cultural norms, underlying cultural interactions may have contributed to the sense of dissatisfaction with the relief process. The study, therefore, has implications for the role of a relief organisation in a cultural context. It highlights the need for relief organisations to support the local response system. More research is needed to understand how to operationalise this objective meaningfully.

Finally, the study also highlights the importance of cultural and intercultural understanding on the part of relief organisations. While considering the immediate and unplanned nature of disasters, post-disaster relief risk generates a host of unintended consequences when they are not reflective of the local culture or based on limited comprehension of the local culture.

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