

# Examining the Content of Disaster-Related Information Disseminated to a Migrant Population: A Case of Municipal-Level Information Dissemination in Japan

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## Abstract

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Many local governments, especially in Japan, disseminate multilingual disaster-related information to migrants as part of their disaster education programs to make their disaster risk reduction (DRR) policies more inclusive. However, little is known about the specific content of the information disseminated through such programs and how or why that content is selected. Using an example case of Okayama Prefecture in Japan and its principal city, Okayama City, the current study identifies the content of multilingual disaster-related information, as well as the assumptions behind its selection. To this end, the content of multilingual disaster-related information disseminated by these local governments was inductively analyzed, focusing on (1) what is and is not communicated, (2) how the government views the migrant population, and (3) their goals of information dissemination targeting migrants. As a result of conducting a qualitative content analysis on information disseminated by the Okayama local governments via information booklets and a YouTube video, it was found that the content was largely concerned with calling migrants to be proactive in taking preventive and harm reduction measures, as well as acquiring prerequisite knowledge (e.g., about disasters and their management). The underlying assumptions and expectations behind this content (e.g., how a behavioral change occurs and self-sufficiency as an expectation in disaster preparedness) are discussed, as well as issues associated with these assumptions.

**Keywords:** disaster preparedness; information dissemination; migrants in Japan; policy assumptions

**Publication Type:** research article

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## Introduction

Although there is a robust body of research documenting the vulnerability of migrants in times of disaster (see Donner & Rodríguez, 2008), less is understood about what should be done to address this issue. In Japan, for example, the Government's Cabinet Office has identified foreign residents as a group requiring special assistance evacuating during times of disaster (Cabinet Office of Japanese Government, 2008). Yet, there are no guidelines for ensuring that disaster risk reduction (DRR) policies formulated by local governments are inclusive of a migrant population (Institute of Scientific Approaches for Fire and Disaster (ISAFD), 2017). Local

DRR policies targeting migrants in Japan often take the form of disseminating multilingual information on personal disaster management to provide necessary support in times of disaster or to promote disaster preparedness (Doi, 2013; Earthquake Information Center for Foreign Residents (EICFR), 1996; ISAFD, 2017; Kataoka, 2016). However, little is known about the content of the information being disseminated because there is no national standard for a local DRR policy targeting the population. Little is also known as to why they are included in the materials being disseminated by local governments in the first place. Hence, the current study aims to identify assumptions reflected in the disseminated information about the migrant population and their actions in times of disaster, as well as what is and is not communicated to migrants as being disaster-related information. To this end, we investigated disaster education programs targeting migrants by Okayama Prefecture and its principal city, Okayama City, as an example of local multilingual information dissemination in Japan.

### Migrant Populations and DRR Policies in Japan

Research has shown that a natural disaster could have a more adverse impact on marginalized populations, such as migrants, than on majority groups (Donner & Rodríguez, 2008), and there is growing international recognition of the need to address this issue. For example, in 2015 the United Nations Office for Disaster Risk Reduction adopted the *Sendai Framework for Disaster Risk Reduction 2015-2030*, which explicitly calls for the inclusion of migrants in the DRR policies and practices of its host countries and communities (Guadagno, 2016).

The vulnerability of migrant populations in times of disaster has also been acknowledged in Japan, particularly after the Great Hanshin Awaji Earthquake in 1995. The earthquake struck areas of metropolitan Kobe, which has Korean and Chinese communities, resulting in unproportionally large casualties of migrants. In Hyogo Prefecture, where Kobe City is located, foreign residents accounted for 3.19% of the total fatalities caused by the earthquake, despite constituting only 1.81% of the prefectural population at the time (EICFR, 1996). Many marginalized migrants also lost their living spaces, as they lived in relatively old housing in lower socioeconomic neighborhoods that were not resilient to earthquakes (EICFR, 1996; Toda, 1998).

The Great Hanshin Awaji Earthquake also served as an opportunity to initiate DRR policies targeting migrants in Japan. Specifically, disaster-related information at the time was all in Japanese, making it challenging for many migrants to obtain the information needed to navigate the post-earthquake confusion (Doi, 2013). To meet this need, a few days after the earthquake the EICFR was established to disseminate disaster-related information in 13 different languages in the aftermath of the earthquake (EICFR, 1996). Its establishment encouraged other municipalities to implement programs aiming to provide their foreign residents with multilingual disaster-related information to encourage them to be prepared for future disasters. Such multilingual information dissemination has consequently become a primary aspect of local DRR policies targeting migrant populations in Japan (Doi, 2013; ISAFD, 2017; Kataoka, 2016).

### The Content of Disseminated Information and Underlying Assumptions

Discussions in the literature on multilingual information dissemination targeting migrants have often focused on either the effectiveness of information dissemination or on communications (Doi, 2013; EICFR, 1996; Huang, 2017; Kataoka, 2016; Koval et al., 2022; Kreps & Sparks, 2008; Wakamatsu, 2012; Wang & Ogawa, 2008). Although this is an important issue, as many institutions face challenges in effectively disseminating information to a migrant population (Kataoka, 2016),

other relevant issues, such as the content of the information, have received little attention in the literature.

Examining the content of disseminated information targeting a migrant population, particularly in the context of disaster management, is critical for two reasons. First, it enables us to identify what is and is not communicated to migrants. Past literature has identified the content of multilingual information disseminated by local authorities or nonprofit organizations in the aftermath of a major disaster (Doi, 2012; EICFR, 1996), revealing that local governments may prioritize certain content, regardless of their intention, in their multilingual information. For example, according to the EICFR, one of the most common topics in the information disseminated in English by local governments in Hyogo Prefecture at the time of the Great Hanshin Awaji Earthquake in 1995 was that of donations, and some of the least common topics included post-disaster assistance (e.g., temporary housing, emergency public assistance, tax exemption). Consequently, despite the eligibility of foreign residents in Japan for these public resources, local governments were indirectly blocking their access to them by making relevant information inaccessible in their first language (Tamura, 2021), implying a potential inequality in local DRR policies in Japan.

Second, while approximately 70% of municipalities in Japan implement a multilingual disaster management program to educate their foreign residents (ISAFD, 2017), little is known regarding the content included in the multilingual information disseminated by local governments as part of their “disaster education” programs (Doi, 2013). Examining the content of such information is therefore particularly important to identify what is and is not included in the disseminated information and to analyze potential inequalities embedded in their information dissemination efforts.

Additionally, examination of this content is relevant because such information can communicate government assumptions about how migrants process such information and their resulting actions in times of disaster. Uncovering these assumptions is important because it will allow us to identify how and why local governments choose certain information to disseminate to migrants. It helps us understand how to improve personal disaster management by resolving any issues with disseminated information due to incorrect assumptions. For example, health intervention programs often involve disseminating relevant health information, but the information communicated, and its purpose, can depend on their assumptions about how an individual processes information and their behavioral consequences (Albarracín et al., 2005). Hence, if the goal is to discourage a specific negative health behavior (e.g., smoking), health intervention programs may disseminate information that induces fear by communicating risks associated with the behavior (e.g., increased likelihood of cancer) to result in a behavioral change (Rogers & Mewborn, 1976). In addition, if the method is not effective in realizing the goal, this failure could be attributed to the flawed underlying assumptions of the program (e.g., rather than quitting smoking, inducing fear may encourage one to cope with the fear). This example illustrates the fact that the assumptions of an information provider about how the target audience processes certain information, and the consequences of those assumptions, inform the information provider’s methods of disseminating information and its content, which could be useful in evaluating the effectiveness of the dissemination effort (Gladfelter, 2018; Kiyohara et al., 2022).

Furthermore, the underlying assumptions of an authority in its information dissemination could be biased against a targeted migrant population. For example, a past study demonstrated that within the discourse surrounding ethnic minorities among health professionals in Denmark,

minorities were often represented as being ignorant about health, which can lead to professionals approaching the population in a biased way in their health communication efforts (Jæger, 2013). Similarly, by disseminating information about a certain topic that is based on normative assumptions in a given society, an authority could hinder a migrant's access to information. In the context of disaster management in Japan, for example, Kataoka (2016) points out that multilingual information disseminated by a local government to a migrant population is often translated from material originally produced in Japanese without conveying its cultural nuances and norms. Thus, information about personal disaster management (e.g., methods of risk evaluation) that is comprehensible to the host society may not be understood by migrants with diverse cultural or ethnic backgrounds. Therefore, by disseminating content based on normative assumptions dominant in a society, authorities can provide information that is inaccessible to migrants. Consequently, by examining underlying assumptions in multilingual disaster-related information disseminated by local governments in Japan, we can identify biases in these assumptions and evaluate the inclusivity of the information toward migrants in the society.

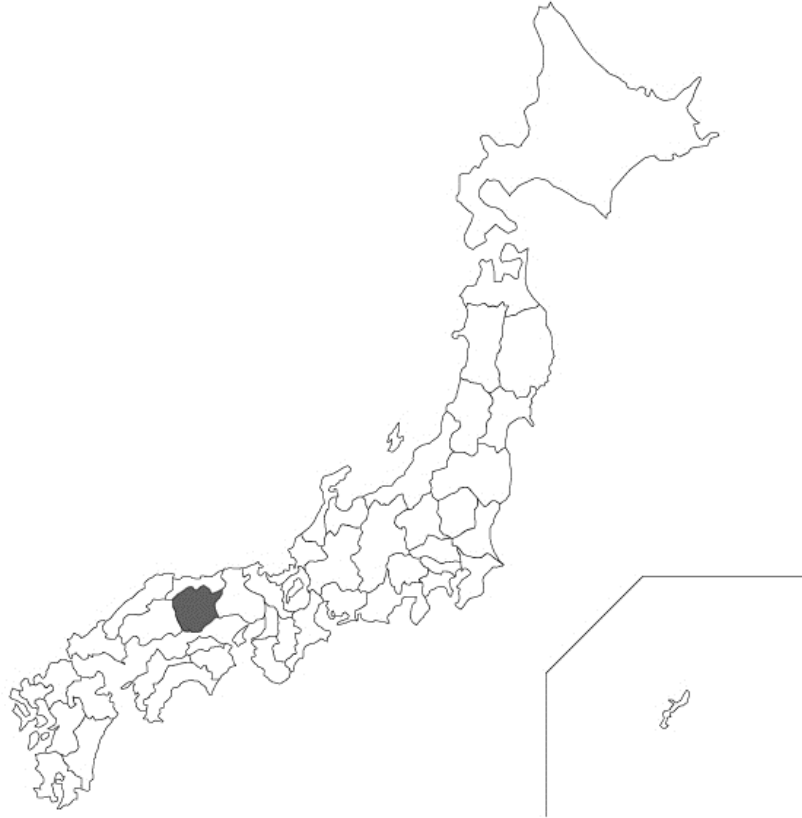
In summary, the current study focuses on the content of disaster-related information disseminated to a migrant population by local governments in Japan as part of a disaster education program, a little-understood aspect of information dissemination and DRR policies in Japan. We aim to understand not only what is and is not communicated to migrants, but also the underlying assumptions in the material about how they process information and their resulting actions in times of disaster. We focus on the information dissemination efforts by Okayama Prefecture and its principal city, Okayama City, as an example of multilingual information dissemination as part of local DRR policies in Japan.

### **Migrant Populations in Okayama, Japan, and DRR Policies**

Whereas past literature from Japan has tended to focus on DRR policies targeting migrants in areas that experienced major earthquakes or disseminated post-disaster information (Doi, 2012; EICFR, 1996; Wakamatsu, 2012), information dissemination efforts to promote disaster preparedness in other areas, including Okayama, have been less studied. Okayama Prefecture is located in western Japan (see Figure 1) and has a population of 1,858,269 as of January 2023 (Okayama Prefecture, Jan 2023, p. 66226). Among the 47 prefectures in Japan, it has a medium-sized population (Statistical Bureau of Japan, 2020), and the prefecture's principal city, Okayama City, which has a population of 718,638 (Okayama Prefecture, Jan 2023, p. 66529), is one of the major cities in western Japan. The prefecture can be understood as representative of Japan concerning recent increases in migration and natural disasters due to climate change, making it ideal for studying local governments' efforts to include migrants in their DRR policies.

**Figure 1**

*Location of Okayama Prefecture, Japan*

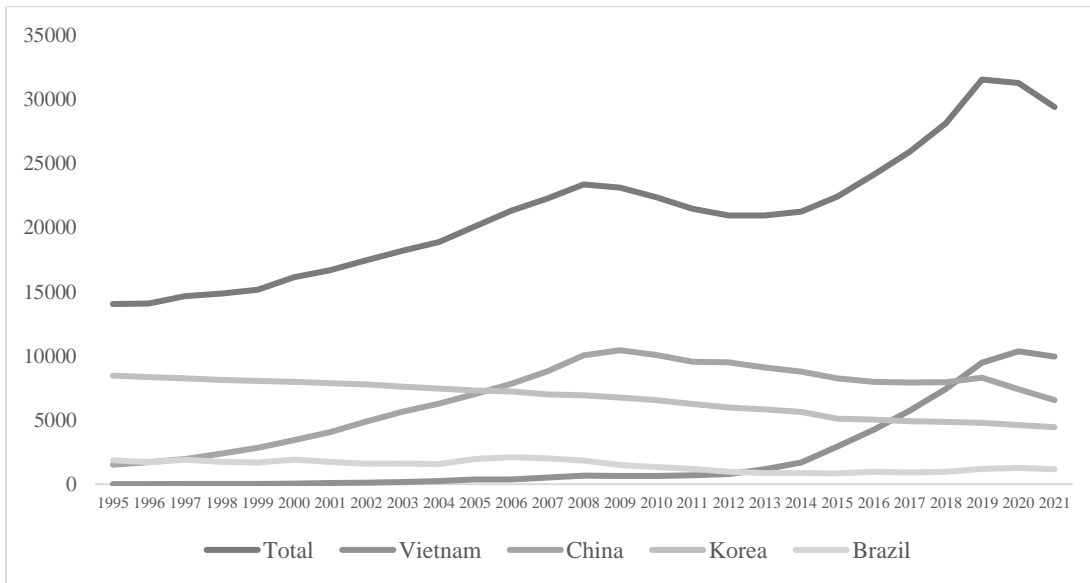


*Note. The dark-colored spot on the map indicates the location of Okayama Prefecture. From Nihon Chizu to Okayama-ken no Irasuto [An image of Okayama Prefecture and the Map of Japan], by Sozai Library.com, n.d. (<https://www.sozai-library.com/sozai/2395>). CC BY 2.0.*

In line with the nationwide trend, the number of residents with foreign nationalities in Okayama Prefecture has been increasing since the 1990s when Japan's immigration law was revised to allow the immigration of a limited number of foreign workers<sup>1</sup>. As indicated by Figure 2, the growth of the foreign population gradually accelerated in the years before the COVID-19 pandemic with the population reaching a peak in 2019. The rapid growth can be attributed to an increase in foreign workers primarily from China and Vietnam (see Figures 2 and 3). Many of these workers are either under the Technical Intern Training Program or they immigrated to Japan as technical interns and are currently working in Japan under a different program<sup>2</sup> (Okayama Prefecture, 2020).

**Figure 2**

*Number of Foreign Residents in Okayama Prefecture by Nationality, 1995-2021*

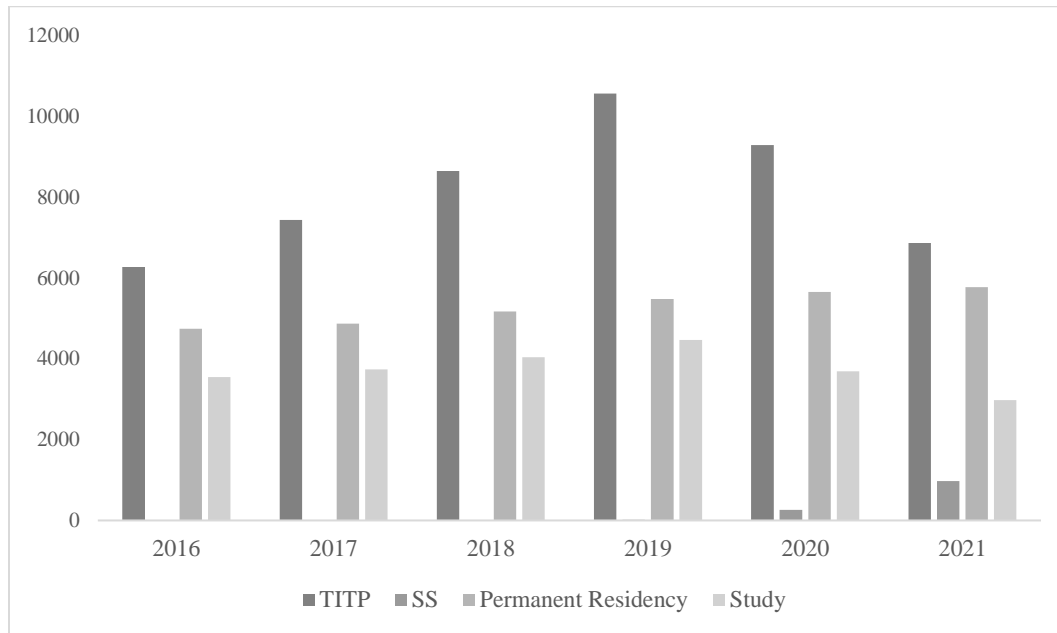


*Note. This graph was created by the authors using demographic data from “Disaster Prevention Guidebook for Foreign Residents,” by Okayama Prefectural Government, 2009/2022 ([https://www.pref.okayama.jp/uploaded/life/771579\\_7154540\\_misc.pdf](https://www.pref.okayama.jp/uploaded/life/771579_7154540_misc.pdf)).*



**Figure 3**

*Number of Foreign Residents by Immigration Status, 2016-2021*



*Note.* “TITP” refers to working visas issued through the Technical Intern Training Program, and SS refers to working visas issued through the Specified Skilled Worker Program, which was established in 2019. This graph was created by the authors using demographic data from “Disaster Prevention Guidebook for Foreign Residents,” by Okayama Prefectural Government, 2009/2022 ([https://www.pref.okayama.jp/uploaded/life/771579\\_7154540\\_misc.pdf](https://www.pref.okayama.jp/uploaded/life/771579_7154540_misc.pdf)).

Although Japan has frequent earthquakes, Okayama, like many other municipalities, has not experienced a major earthquake in recent history. However, in common with other areas across the nation, the prefecture has been experiencing an increase in floods and other natural disasters due to climate change. In particular, the 2018 floods in western Japan killed 86 Okayama residents and destroyed 8,195 houses (Okayama Prefecture, 2020, p 653529). While Okayama Prefecture and Okayama City do not provide information about disaster victims with migration backgrounds, migrants were affected by the 2018 floods, as evidenced by the number of calls to a multilingual helpline set up in Soja City in the prefecture<sup>3</sup>. The increase in natural disasters along with the increase in foreign residents has led to the publication of multilingual information booklets on disaster management by Okayama Prefectural Government (2009/2022) and Okayama City (Risk Management Department of Okayama City, 2017), as well as the creation of multilingual videos on the Okayama City’s YouTube channel (Okayama City, @user-eq7yb4tc2j, 2022). The prefecture and city’s multilingual information booklets are available at the Okayama City Office, the Okayama International Center, and other public spaces, and the YouTube videos are currently promoted by officers of Okayama City as part of its outreach to foreign residents. The content of these materials is analyzed in this study.

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## Overview of the Study

In our evaluation of local DRR policies in Japan concerning migrant integration, we examined the content of multilingual information on disaster management disseminated as part of local programs to promote disaster preparedness. This was an exploratory study conducted as part of a project examining migrants' information access in non-metropolitan areas in Japan. We are currently following up with a survey and interviews targeting migrants on their experiences accessing information disseminated by local governments, including information related to disaster management.

In conducting the current study and examining the content of multilingual information on disaster management, we aimed to identify what is and is not communicated to migrants, as well as the local governments' underlying assumptions in their information dissemination efforts. Specifically, we focused on the assumptions regarding how migrants process such information and their resulting actions in times of disaster. By identifying these aspects of disseminated information, we aimed to examine biases underlying the assumptions and potential issues related to migrants' access to information and the effectiveness of dissemination.

To this end, we inductively analyzed the information disseminated by Okayama Prefecture and its principal city, Okayama City. In particular, the content of multilingual information booklets (Okayama Prefectural Government, 2009/2022; Risk Management Department of Okayama City, 2017), and a multilingual video on the Okayama City's YouTube channel (Okayama City, @user-eq7yb4tc2j, 2022), focusing on disaster management disseminated by the Okayama local governments, were all analyzed based on the following questions:

- (1) What is being communicated in the information booklets and the video?
- (2) What is potentially missing from these materials given the goal of making disaster-related information accessible to migrants?
- (3) How are the targets of the disseminated information (i.e., the migrant population) viewed in these materials as information receivers?
- (4) How are they expected to respond to a disaster?
- (5) What are the prefecture and city's goals when disseminating disaster-related information to migrants?

## Method

### Materials

We analyzed three different materials disseminated by Okayama City and Okayama Prefecture: the content of the multilanguage information booklets on disaster management published by Okayama Prefectural Government (2009/2022) and Okayama City (Risk Management Department of Okayama City, 2017) and a five-minute YouTube video called "Actions to take when disasters happen" created by the city (Okayama City, @user-eq7yb4tc2j, 2022) to discuss disaster management<sup>4</sup>. These were the only available multilingual materials disseminated by the prefecture and city as part of their disaster preparedness effort. According to the prefecture and

city websites, as well as their officers, these three materials are somewhat different in terms of how they were prepared; although, it appears that migrants were not always included in the decision-making process to determine the materials' content (Okayama City, 2023; Okayama Prefecture Officer, personal communication, December 27, 2023; Okayama City Officer, personal communication, January 15, 2024). See Table 1 for the summary of the materials' characteristics related to their preparation.

Table 1. Characteristics of Each Material Related to Their Preparation

Materials	Target Audience	Decision-making of Content	Migrants' Roles
Prefecture booklet (Okayama Prefectural Government, 2009/2022)	Created specifically for foreign residents	Content was decided by Japanese officers based on similar booklets published by other prefectures	Foreign residents hired as the government office's staff involved in the translation of the content
City booklet (Risk Management Department of Okayama City, 2017)	A version for Japanese citizens also exists	Not known	Not known
City video (Okayama City, 2022)	Created specifically for foreign residents	While city officers led the decision-making process, members of Okayama City's Citizens with Foreign Nationalities provided feedback on content.	Suggested the city should disseminate critical information via YouTube Provided feedback on the content of the videos Appeared in the videos

*Note. Based on our assessment, the content of the city booklet for Japanese citizens, is generally the same as its multilingual version (Risk Management Department of Okayama City, 2017). Meanwhile, we were unable to acquire much information about the preparation of the city booklet (Risk Management Department of Okayama City, 2017) compared to their YouTube videos (Okayama City, @user-eq7yb4tc2j, 2022), as different departments of the city were involved in creating these materials.*

Materials from both local governments were analyzed, as there is no evident difference between prefectures and cities' responsibilities related to DRR policies targeting foreign residents; however, cities are directly responsible for resident evacuations in the case of a disaster (ISAFD, 2017). Thus, we focused on identifying the characteristics of the entire multilingual information disseminated by both the prefecture and the city.

### Analytical Procedure

A qualitative content analysis using an inductive approach (Hsieh & Shannon, 2005) was chosen to analyze the content of the materials. We chose this method because there are no established criteria for the content's information targeting migrants for disaster education, thus we attempted to inductively identify categories of disaster-related information from the data. Since we were interested in understanding the underlying assumptions shared in the disseminated

information and their potential biases against a migrant population, we also incorporated a critical approach in interpreting texts. To this end, texts were interpreted using theories and findings of past research in the fields of migrant integration and disaster management, as well as those from social and psychological literature related to information processing, intergroup relations, stress, and coping.

Before analysis, the first author, who is fluent in Japanese and English, read and viewed the content of these booklets and videos in English and Easy Japanese, which does not require an ability to read Chinese characters and aims to be jargon-free. After confirming that the content of these materials was the same in both Japanese and English, she analyzed the materials in Easy Japanese, which many long-term foreign residents are assumed to understand. The first author also transcribed the content of the YouTube video in Japanese.

The content analysis primarily focused on identifying what is being communicated in these materials. In this analysis, keywords in the information booklets and the transcribed video content were highlighted, and then the texts were coded line by line to identify common themes using the identified keywords. The codes were adjusted following the initial coding process. Lastly, the codes were reviewed by the second author, and finalized and summarized into categories and subcategories. Throughout this process, verification strategies for qualitative research proposed by Morse et al. (2002) were referred to, to ensure the robustness of the research. Finally, the proportion of lines of texts containing each of the final categories and subcategories was calculated to identify the overall patterns of content across the materials. The local governments' underlying assumptions about how a migrant processes information and their resulting actions in times of disaster, as well as what is not communicated in these materials, were primarily interpreted after identifying the overall patterns of information content.

## Results

This section reports the categories that emerged through the analysis, as well as their definitions and descriptive statistics. Overall, three general categories emerged across the three materials: knowledge about disasters, knowledge about disaster management, and a call for proactive actions. Each of the three general categories had two to three subcategories. When defining each category, examples of text are quoted from the English version of each material. See Table 2 for a summary of these categories and their overall patterns across the three materials.

### Knowledge about Disasters

This category refers to information that conveys knowledge about certain disasters, such as earthquakes, floods, storms (e.g., typhoons), and sediment disasters. As indicated in Table 2, this category consists of three subcategories. One of them is labeled “Characteristics of disasters,” and approximately 10% of the content across the three materials fits into this subcategory. This subcategory is characterized by information about common disasters in Japan and/or Okayama Prefecture (e.g., earthquakes, typhoons), different types of each disaster, and the disasters' notable characteristics. An example of text in this category is an explanation about a typhoon in the Okayama Prefecture booklet, which states that “a typhoon...[has] a maximum wind speed exceeding 17 m/s, with many approaching Japan between the months of August and October” (Okayama Prefectural Government, 2009/2022, p. 2).

Table 2. Categories of Disaster-Related Information and Their Prevalence

Category	Subcategory	Total: Prefecture booklet (n)	Total: City booklet (n)	Total: City Video (n)	Grand Total	
Knowledge about disasters	Characteristics of disasters	24	48	4	76 (10.22%)	
	Mechanism of disasters	16	11	0	27 (3.6%)	
	Actual and predicted harms	64	54	7	125 (16.8%)	
Knowledge about disaster managemen t	Knowledge needed to access information	46	51	1	98 (13.1%)	
	Prerequisite knowledge for managing disaster risks	50	57	10	117 (15.7%)	
Call for proactive actions	Preventive measures	70	61	15	146 (19.6%)	
	Types of actions	Harm reduction	147	93	11	251 (33.6%)
		Accessing information	22	15	3	40 (5.4%)
	Purposes of actions	Self-help	179	124	20	323 (43.3%)
		Helping others	25	18	1	44 (5.9%)

*Note. The proportion (%) of each subcategory was calculated as the number of lines related to the subcategory across the materials divided by the total number of lines across the materials (N = 746). A line of text may be categorized into multiple categories or subcategories.*

The second subcategory, labeled “Mechanism of disasters,” refers to information about why and how a certain disaster occurs, and 3.6% of the content in the materials fits into this subcategory. For example, the Okayama City booklet, explains that Japan experiences many earthquakes because “crustal plate boundaries are concentrated” around Japan (Risk Management Department of Okayama, 2017, p. 1).

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The third subcategory is labeled as “Actual and predicted harms.” Approximately 17% of the content fits into this subcategory, which includes examples of harms (e.g., casualties) and damage (e.g., the collapse of buildings) that occurred in previous disasters in Japan and/or Okayama Prefecture, as well as information about possible harms in a future disaster. For instance, the Okayama Prefecture booklet states that “the Great East Japan Earthquake, which took place in March of 2011, caused extensive damage, resulting in some 16,000 deaths. ... It is possible for such an earthquake to hit Okayama anytime” (Okayama Prefectural Government, 2009/2022, p. 5).

### **Knowledge about Disaster Management**

The second category refers to types of prerequisite knowledge needed to engage in disaster management. This category consists of two subcategories, one of which is labeled, “Knowledge needed to access information,” which refers namely to prerequisite knowledge needed to access information for the purpose of personal disaster management. About 13.1% of the content across the different materials fit into this subcategory. This subcategory includes, for instance, information about how to interpret weather maps to predict the progress of a typhoon (Okayama Prefectural Government, 2009/2022; see Figure 4), or explanations about how to access the earthquake early warning system (Risk Management Department of Okayama City, 2017). Note that although this content defines related terminologies as part of the explanation of how to access the information, it does not explain certain nuances associated with the terminologies. For instance, as can be seen in Figure 4, the content describing how to interpret the progress of a typhoon differentiates a “violent wind zone” and a “strong wind zone” (Okayama Prefectural Government, 2009/2022, p. 2). These categorizations have been used in weather forecasts in Japan for many years, yet the booklet does not give a rationale for this categorization (i.e., why it is important to differentiate the two). This observation supports Kataoka’s (2016) argument about issues of translation and normative assumptions shared in disaster-related information disseminated by a local government in Japan.


Figure 4

Example of Content on Disaster Management

4 How Typhoons are Categorized on Weather Maps

If a typhoon passes near western Japan, damage can be expected. It is important to pay attention to typhoon information.

- The mark X: Indicates the center (eye) of the typhoon.
- Violent wind zone: Area where the wind speed is over 25m/s.  
The wind is so strong it is difficult to stand without support.
- Strong wind zone: Area where the wind speed is over 15m/s.  
The wind is so strong it is difficult to walk.
- \* Since the direction of typhoon winds are counterclockwise, storms are usually stronger on the right side (east side) of the course of the typhoon.



Note. From “Disaster Prevention Guidebook for Foreign Residents,” by Okayama Prefectural Government, 2009/2022 ([https://www.pref.okayama.jp/uploaded/life/771579\\_7154540\\_misc.pdf](https://www.pref.okayama.jp/uploaded/life/771579_7154540_misc.pdf)). Permission to reproduce these images has been provided by the Okayama Prefecture.

The other subcategory is labeled “Prerequisite knowledge for managing disaster risks,” and it accounts for approximately 16% of the content across the different materials. This subcategory is concerned with prerequisite knowledge that is helpful when practicing disaster management and recommended knowledge to engage in preventive measures or harm reduction behavior. For example, when explaining why it is important to prepare emergency supplies (e.g., water and dry food) at home in advance, the Okayama City YouTube video, “Actions to take when disasters happen”, states that “after a large-scale disaster, it may be difficult to use electricity, gas or tap water and get something to eat” (2:44).

### A Call for Proactive Actions

This category is concerned with calling the receivers of the materials to act proactively before or during times of disaster. As indicated by Table 2, this category generally contains the greatest

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amount of content, suggesting that the prefecture and city most strongly desire to communicate such content to their foreign residents.

This content was categorized in two ways: types of action and purposes of actions. Three types of actions were identified. First, preventive measures refer to actions prior to a disaster to prevent possible harm or damage. Approximately 20% of the content across the materials belonged to this category. For example, when urging action to prepare for a typhoon, the Okayama Prefectural Government's (2009/2022) booklet states, "Be prepared for blackouts, have a flashlight (torch) and radio ready" (p. 4). Similarly, the second type of proactive action, harm reduction behavior, is concerned with behavior that minimizes possible harm during a disaster. Approximately 34% of content across the materials fits into this type. For example, the Okayama City booklet advises that if one is driving when an earthquake strikes one should "hold the steering wheel tightly, gradually reduce the speed and park the car on the left of the road" (Risk Management Department of Okayama City, 2017, p. 2). The third type of proactive action, accessing information, is about accessing information to prevent or reduce possible harm related to a disaster. Approximately 5% of all content fits into this type. For example, "if a typhoon passes near western Japan [where Okayama Prefecture is located], damage can be expected. It is important to pay attention to typhoon information" (Okayama Prefectural Government, 2009/2022, p. 2).

The content of the call for these proactive actions was also categorized into two purposes: to protect oneself and to help others. Consisting of about 43% of the content across the different materials, proactive actions labeled as "Self-help," which refers to a call to protect oneself, were the most common items. For instance, during a flood, the Okayama City (2022) video urges its viewers to "evacuate to higher ground" (3:16). The relatively large proportion of content with this purpose suggests that the local governments generally expect foreign residents to be self-sufficient in times of disaster.

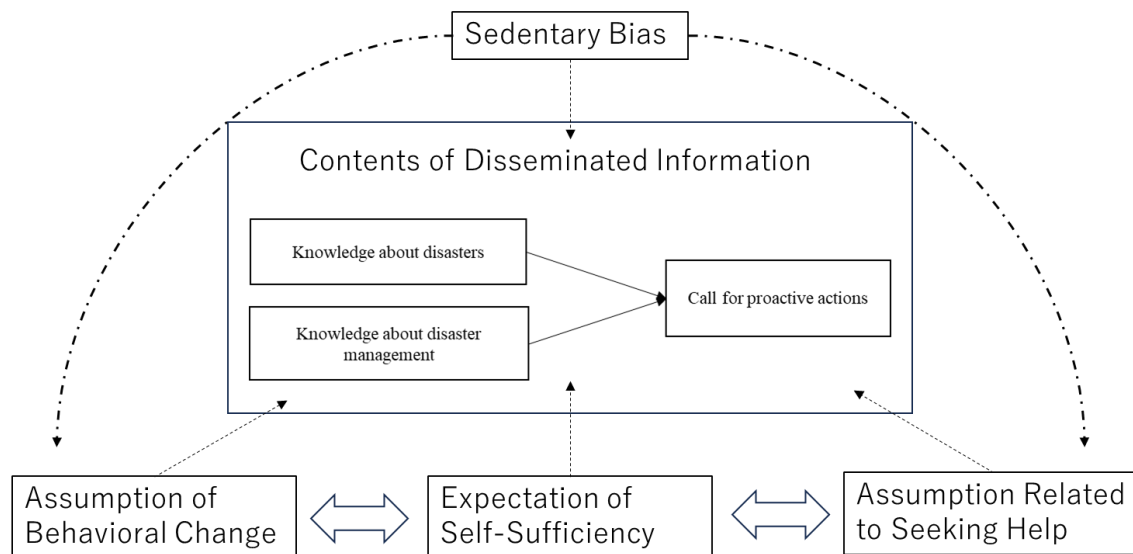
Meanwhile, proactive actions labeled as "Helping others" include content that urges one to help people around them. Approximately 6% of the content was categorized into this label. For example, in describing actions during an evacuation, the Okayama Prefectural Government's (2009/2022) booklet instructs foreign residents to cooperate with the evacuation of children and elderly people. Interestingly, some content also urges foreign residents to ask others for help to protect themselves when they are unsure (Okayama Prefectural Government, 2009/2022), which suggests the local governments assume foreign residents' neighbors or friends, who may or may not be majority Japanese, would assist them.

## Summary

The content of the materials providing disaster-related information disseminated by Okayama Prefectural Government (2009/2022) and Okayama City (Risk Management Department of Okayama City 2017) consists of (1) knowledge about disasters, (2) knowledge about disaster management, and (3) a call for proactive actions. Together, these categories indicate that migrants are expected to be proactive and engage in measures that prevent future harm or reduce harm in times of disaster, and it is assumed that knowledge about disasters (e.g., risks) and their management will encourage them to engage in these behaviors (see Figure 5). In the next section, we discuss the implications of these assumptions.

**Figure 5**

*Theoretical Map of the Content of Disseminated Information on Disaster Management and Underlying Assumptions and Expectations*



*Note. The image was created by the authors based on the findings of current research. The image visualizes the relationship between the contents of the disseminated information (i.e., knowledge about disasters, knowledge about disaster management, and call for proactive action) and their underlying assumptions and expectations (i.e., assumption of behavioral change, expectation of self-sufficiency, assumption related to seeking help, and sedentary bias).*

## Discussion

Focusing on the content of multilingual information on disaster management disseminated by Okayama Prefecture and Okayama City, we examined what the local governments aim to communicate to their migrant population. Based on the results, we categorized the content of the information as knowledge about disasters, knowledge about disaster management, and a call for proactive actions. These categories, along with the overall pattern of the content, convey underlying assumptions and expectations that the local governments seem to share in their understanding of how migrants process the disseminated information and their behavioral consequences, which we discuss below.

### Assumptions and Expectations Communicated in Disaster-Related Information

Our study revealed that most of the content was dedicated to the local governments' calls for migrants to be proactive in preparing for a future disaster and reducing harm in times of disaster.

Furthermore, the overall pattern of the content indicates the local governments' expectations that knowledge about disasters and their management will result in the desired behavior. Here, we further discuss underlying assumptions and expectations related to this content. As indicated by Figure 5, we believe not only that these assumptions and expectations inform the content of information disseminated by the Okayama local governments but that they are interrelated. In the next section, we discuss these relationships, along with the details of the assumptions and expectations.

### An Assumption of Behavioral Change

In health programs and disaster management education programs, the assumption that knowledge about risks and how to manage them will result in positive behavioral change is relatively common (Albarracín et al., 2005; Katsikopoulos, 2021; Lindell & Whitney, 2000). However, this assumption has been criticized in the fields of health psychology (Albarracín et al., 2005) and disaster management (Katsikopoulos, 2021). As discussed earlier, for example, focusing on communicating risks to induce fear has been suggested to be ineffective in generating behavioral change (Albarracín et al., 2005). Similarly, Katsikopoulos (2021) criticizes the assumption behind the *deficit model*—that the public is an empty vessel to be filled with information—arguing that it results in ineffective disaster education. However, it is still a common approach taken by various organizations, authorities, and agencies responsible for promoting the disaster preparedness of the public.

The issue behind this assumption of behavioral change associated with the deficit model is partly due to the normalcy bias of the general public, which results in an underestimation of the probability or extent of expected disruption, or risks caused by an emergency event such as a disaster (Katsikopoulos, 2021; Kikuchi, 2018; Omer & Alon, 1994). Meanwhile, research suggests that it is particularly unreasonable to apply this assumption to all migrants. For example, Huang (2017) revealed that some foreign residents (e.g., international students) in Japan find it especially difficult to perceive risks associated with a disaster owing to their relatively high mobility. Specifically, the idea that they could leave the country when a disaster occurs may prevent them from perceiving potential harms disaster could impose on them and from preparing for a future disaster.

Furthermore, related information (e.g., how to access information about risks to prevent harm) disseminated by the Okayama local governments (Okayama Prefectural Government, 2009/2022; Risk Management Department of Okayama City, 2017) was often based on normative assumptions about disaster management dominant in Japanese society. This is reflected in the preparation procedure of some of the multilingual materials summarized in Table 1. As a result, the information may not lead to the behavioral change desired by the local governments because of the inaccessibility of the content to part of the migrant populations (Kataoka, 2016). Using psychological theories such as the theory of planned behavior (Ajzen, 1991), Huang (2017) and others (Yong et al., 2020) argue that it is important to normalize disaster-related knowledge (e.g., participation in community evacuation drills) so that migrant populations realize the behavioral change necessary for disaster preparedness. This means that local DRR programs should be designed to be culturally sensitive to migrants' understanding of a disaster and its management (Kataoka, 2016), which would require more than simply translating information in Japanese into multiple languages. As recommended in 2015 by the *Sendai Framework for Disaster Risk Reduction 2015-2030* (Guadagno, 2016), a local government can design a culturally sensitive

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DRR program by inviting migrant representatives to join its DRR team when preparing materials for information dissemination targeting migrants.

### **An Assumption and Expectation of Self-Sufficiency**

Another characteristic of the content in the disaster-related information disseminated by the Okayama local governments is that migrants are expected to be proactive and engage in actions that prevent harm in a future disaster or reduce possible harm in times of disaster. This suggests that local governments assume that self-sufficiency should be a major part of disaster preparedness. That is, they expect migrants to be able to protect themselves in times of disaster by taking preventive or harm-reducing measures.

However, this assumption and expectation, which makes an individual responsible for the prevention of disaster-related harm, is unreasonable given how individuals often experience a disaster. That is, one's social standing (e.g., gender, class, immigration status) often informs the degree to which an individual can invest in disaster resilience measures—such as one's ability to stockpile emergency supplies and to house oneself in disaster-resilient accommodation—which in turn affects the degree of harm they experience in times of disaster and the process of their recovery (Duggal et al., 2022; Ikeda, 2019; Reid, 2013; Toda, 1998). Gladfelter (2018) criticizes a disaster management program in Nepal that makes community members responsible for information dissemination and their survival, arguing that relying on individual resilience can exacerbate the vulnerability of marginalized individuals by dismissing pre-existing inequalities. Thus, disaster preparedness should be promoted not by making it an individual's responsibility, but by addressing social inequalities to make resources for disaster preparedness accessible to everyone (Ikeda, 2019). This would require a social policy ensuring equal access to various resources and the public welfare system, along with ensuring equal access to information about this policy.

This expectation of self-sufficiency is also communicated through what was not included in the disseminated information (e.g., information related to disaster relief). Although no information on disaster relief was disseminated to foreign residents by local governments at the time of the Great Hanshin Awaji Earthquake, such information has been disseminated in subsequent major disasters, largely due to efforts by non-government or community organizations (Doi, 2012; EICFR, 1996). Note that the current study is the first to report the dissemination of information related to disaster relief (or its absence) in different languages by municipalities prior to a disaster. As discussed earlier, when this information is not available in other languages, it effectively prevents migrants from accessing the disaster relief they are eligible for (Tamura, 2021). Additionally, not informing migrants of their right to access disaster relief communicates the expectation that migrants need to be self-sufficient and able to protect themselves in times of disaster. In contrast, disseminating information related to disaster relief to migrants before a disaster will inform them of their right to access the programs, which could help them exercise their rights during a disaster (Darras & van der Heide, 2015; Hirsh & Kmec, 2009). Hence, including or excluding information related to disaster relief as part of disaster education efforts will likely make a critical difference in migrants' post-disaster community reintegration.

### **An Assumption Related to Seeking Help**

As reported in the results section, some of the information disseminated by the Okayama local governments encouraged migrants to seek help from others (e.g., neighbors and friends) if

necessary. This advice assumes that migrants would have no difficulties seeking help from others, including their Japanese neighbors or friends, and that these people will be willing to help them. This assumption is also worthy of examination. Help-seeking behavior is often understood to be a strategy taken when experiencing a stressful event (Greenglass, 2002), yet research has shown that marginalized individuals often find it difficult to ask for help (Progovac et al., 2020), particularly from dominant members of society (i.e., Japanese people). These difficulties stem not only from language barriers (Doi, 2012; Progovac et al., 2020) but also from social and psychological barriers. For example, the fear of experiencing prejudice or discrimination can discourage migrants from seeking help from dominant members or institutions (Progovac et al., 2020; Tamura, 2021), and they may prefer to rely on families or friends from their country of origin or with the same ethnic or cultural background (Shibagaki, 2019). This may result in the underutilization of public resources or services intended to provide support in times of disaster by isolated migrant or ethnic communities, particularly if they lack information about the resources (Shibagaki, 2019). Thus, migrants seeking help from others could result in a potential inequality in local DRR measures, as well as barriers in the post-disaster community reintegration of migrants.

Similarly, it is not guaranteed that dominant members of society will provide the support that migrants seek. For example, in Japan, there has been anecdotal evidence of migrants' experiencing discrimination at evacuation shelters in times of disaster, which resulted in their exclusion from those sites (Tamura, 2021). Furthermore, given the limited efforts by local governments in disseminating information on disaster relief in different languages in Japan (EICFR, 1996; Tamura, 2021), a migrant's effort to seek disaster relief could be unsuccessful. These examples also highlight issues in the assumption that migrants will seek help in times of disaster. Moreover, hurdles against help-seeking behavior could even erode their efforts to be self-sufficient during a disaster or post-disaster recovery. All these issues associated with help-seeking behavior suggest the importance for local governments and other dominant members of society to actively reach out to a migrant population to identify the support they need and ensure that critical information related to DRR policies is communicated to them (Ikeda, 2019; Tamura, 2021).

### **An Assumption Based on Sedentary Bias**

Lastly, the three assumptions discussed so far could be informed by the local governments' *sedentary bias*, which is the assumption that one is naturally immobile and stays in the same place for a long time (Bakewell, 2008). As illustrated in Figure 5, we argue that these assumptions are interrelated because they all share sedentary bias. For example, this bias is present in the assumption of behavioral change, which presumes a sufficient duration of stay in Japan/Okayama to understand the knowledge disseminated about disasters and their management, which is often based on nuances of cultural knowledge in the society, and for migrants to change their behavior accordingly. Similarly, the assumptions of self-sufficiency and help-seeking behavior also reflect sedentary bias, as they presume enough familiarity with Japanese social systems to navigate them in an emergency or a long enough stay in Japan to have reliable social networks in the country to seek help.

Such sedentary bias contradicts Japan's immigration policy and its local migrant integration policies, which often assume that migrants stay in Japan for a short period (Akashi, 2020; Shimoji, 2018). Indeed, Tamura (2021) points out that despite the increase in the number of migrants with permanent residency, local governments often do not provide them with multilingual

information on post-disaster programs intended to support those who are settled into communities (e.g., tax and loan exemptions). Meanwhile, because the multilingual information on disaster management that does exist is often merely translated from information in Japanese—whose target is intentionally or unintentionally assumed to be “Japanese” residents who are in Japan permanently and are reasonably familiar with its institutions and systems (Kataoka, 2016)—the disseminated information ends up communicating their sedentary bias. This issue related to translation is also reflected in some of the preparation processes of analyzed materials summarized in Table 1.

Thus, Okayama local governments may have had the assumption that a receiver of their multilingual information on disaster management is not a migrant who has recently moved to Japan. This is problematic because the assumption will communicate to a short-term migrant that the local governments will not provide support in times of disaster. Addressing the diversity of migrants (e.g., length of stay in Japan, language ability, and familiarity with Japanese systems) by inviting both long-term residents and newcomers to Japan to design local DRR programs is critical in challenging this assumption and making the programs more inclusive.

### Implications and Conclusion

By examining multilingual disaster-related information disseminated by the Okayama Prefectural Government (2009/2022) and Okayama City (Risk Management Department of Okayama City, 2017) as part of their disaster education programs, we demonstrated that their content was largely concerned with calling migrants to be proactive in taking preventive or harm reduction measures. The content also revealed the local governments’ assumptions of behavioral change (i.e., proactive actions will occur as a result of their information dissemination), as well as their understanding of migrants’ disaster preparedness as being their personal responsibility. As discussed earlier, these assumptions about migrants may be unrealistic and unreasonable and could result in local DRR programs excluding them from necessary disaster support. These findings indicate the need to design a local DRR program that is culturally sensitive to the needs of migrants and centers on their rights to access public resources for disaster relief.

This study has several theoretical and practical implications. First, its in-depth analysis of the assumptions behind the dissemination of disaster-related information in relation to migrant integration contributes to our understanding of why an authority may take a certain approach to information dissemination as part of its DRR policy targeting migrants, as well as its potential issues. Research on assumptions or issues in information dissemination targeting migrants has generally focused on health communications (Kreps & Sparks, 2008); thus, this study provides a novel approach to such research by focusing on disaster management. Furthermore, the identification of these assumptions has the practical implication of allowing us to observe how they are manifested in the information disseminated as part of an actual DRR program, which will be crucial in addressing any issues associated with such programs.

Second, by examining the issues behind disseminated information and its assumptions from an interdisciplinary perspective, this study contributes to an understanding of the consequences of disseminating or not disseminating certain information at both an individual level (e.g., a migrant’s difficulty in making sense of content due to a normative assumption associated with it) and a systematic level (e.g., inequality in accessing disaster relief).

There are limitations to this study. For example, the authors' positionality as Japanese dominant members and being relatively new to Okayama Prefecture could have biased the interpretation of the disseminated information; thus, the results may not necessarily reflect how a migrant in Japan or Okayama processes the given information. We hope to address this issue by conducting our follow-up study that aims to document migrants' experiences with multilingual information disseminated by a local government. Furthermore, given that the current study only focused on two local governments in Okayama, the generalizability of its findings is limited; the content of multilingual disaster-related information disseminated by local governments and the assumptions behind them may depend on the previous experiences of disasters or the proportion of migrants in a municipality (ISAFD, 2017). Thus, the findings from this study may not be generalizable to other local governments in Japan or to other countries. However, Okayama's experiences of an increase in foreign residents and natural disasters have been widely shared in Japan and elsewhere, and the formulation of more inclusive local DRR policies is an urgent task for many local governments. Hence, we believe that the findings of this study will be informative in initiating discussions on inclusive local DRR policies inside and outside of Okayama Prefecture.

### Endnotes

<sup>1</sup> The Immigration Control and Refugee Recognition Act was revised in 1990 to allow descendants of Japanese immigrants to legally work in Japan. Before this revision, foreign nationals were not allowed to work in Japan except in a limited number of occupations, thus this act is considered the start of Japan's official acceptance of migrant workers (Akashi, 2020).

<sup>2</sup> The Technical Intern Training Program was established in 1993 as a work training program. Its original purpose was to provide workers from developing economies with technical skills, but it has been criticized for essentially functioning as a way to recruit cheap foreign labor (Takaya, 2018). Meanwhile, the revision of the Immigration Control and Refugee Recognition Act in 2018 led to the establishment of the Specified Skilled Worker Program in the following year, whose official aim was to increase the number of foreign workers in specific occupations (Akashi, 2020).

<sup>3</sup> It has been reported by the Okayama Chinese Association that one Chinese national was killed by the 2018 disaster in the prefecture (K. Ryu, personal communication, October 4, 2022). Additionally, a phone consultation support program for disaster victims implemented in five different languages by Soja City in Okayama Prefecture at the time of the disaster reported a total of 56 cases of multilingual consultation across the prefecture (Soja City, 2020). No other municipalities in the prefecture implemented such a multilingual consultation program.

<sup>4</sup> Okayama City's disaster booklet is available in Easy Japanese, English, Chinese, and Korean (Risk Management Department of Okayama City, 2017), and the Okayama Prefectural Government's (2009/2022) booklet is available in these four languages, as well as Portuguese and Vietnamese. Okayama City's YouTube video "Actions to take when disasters happen" (Okayama City, @user-eq7yb4tc2j, 2022) is also available in Easy Japanese, English, Chinese, Korean, and Vietnamese.

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