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ARTICLE



Between science, religion, and politics: multi-layered communication responses to maritime disaster in Indonesia

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ABSTRACT

This article aims to analyze multi-layered communication responses to maritime disasters in Indonesia using two significant cases, namely the tidal flooding in Semarang and the tsunami in Banda Aceh. Reducing the risk of disaster is not only a technical matter but also strongly associated with communication issues. Therefore, there has been much research into disaster communication. However, research on multi-layered communication responses to diverse disasters must still be done. Data were collected through interviews with the people, journalists, and government officials in Semarang and Banda Aceh. These data were complemented by field observations and reviews of local media news and government policies. The results show that communication response in the two regions involved a complex triangle of science, religion, and politics. This means that the community, media, and government of these regions communicated these two types of disasters as involving science, religion, and politics to varying degrees. This article also finds that the local media was unable to optimally play its central role as an intermediary actor in disaster communication in the two regions.

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1. Introduction

Maritime disasters are a severe problem for the archipelagic nation of Indonesia. Of these various maritime disasters, this research focuses on two disaster cases: the tidal flooding along the northern coast of Java, particularly Semarang City, and the tsunami in Banda Aceh. Tidal flooding can be considered a slow-onset disaster, while tsunamis arrive quickly and cause extensive damage. Although these disasters have different characteristics, both can cause (and have caused) significant material and non-material damage to coastal areas (Daly et al., 2017; Hadi, 2017; Harwitasari &

Van Ast, 2011; Marfai et al., 2008). Many efforts have been made to manage and reduce maritime disaster risk in Indonesia, including in Semarang and Banda Aceh, yet several serious problems persist (Chang Seng, 2013; Mardiatno et al., 2017; Sufri et al., 2020; Wahyuni et al., 2018). These problems cover various mitigation and adaptation issues (Buchori et al., 2018; Harwitasari & Van Ast, 2011; Marfai & King, 2008; Mas et al., 2015; Muhari et al., 2007; Rachmalia et al., 2011; Thomalla & Larsen, 2010).

Disaster management and risk reduction depend on technical mitigation efforts as well as economic, political, and socio-cultural factors, including communication (Bush et al., 2015; Spialek & Houston, 2019; Veil, 2012). In disaster, communication issues are related to making sense of and understanding risks, constructing reality, producing and disseminating messages, using different media and technology, community interaction, and responding to developing discourses or narratives (Ewart et al., 2016; Nakamura et al., 2017; Spialek et al., 2016). How an environmental problem or disaster is communicated will determine the resonance of the social system and lead to workable solutions (Luhmann, 1989).

The communication of environmental issues has attracted increasing scholarly attention in recent decades (Comfort & Park, 2018). Research on disaster communication is likewise common, with a focus on various problems and disasters with diverse characteristics. Some research has dealt specifically with disaster communication in the cases of tsunamis and tidal flooding, separately (Linden, 2013; Oktari et al., 2014; Rahman & Munadi, 2019; Yulianto et al., 2020). Several studies have also used the two different cases and even investigated communication problems during disasters (Dougall et al., 2008; Ewart et al., 2016; Wahyuni, 2008). However, no research has compared the context of communication at three levels: the community, the media, and the government, especially in the cases of disasters with different characteristics (such as tsunamis and tidal floods). Such research refers to the concept of multi-layered communication responses, which is described as a form of simultaneous and mutually influential communication processes. By using this perspective, complex issues or problems can be understood thematically and comprehensively, rather than partially or episodically.

Tidal flooding threatens the northern coast of Java and all coastal areas in Indonesia (Abidin et al., 2013; Marfai & King, 2008), including Semarang City, which it has plagued in recent decades. This disaster, which is affected by a multitude of factors, has caused considerable damage to communities in Semarang and other parts of Java's north coast (Hadi, 2017; Harwitasari & Van Ast, 2011; Marfai et al., 2008). The following picture illustrates the conditions in an area that was severely affected by tidal flooding (see Figure 1).

Unlike tidal flooding, which can be considered a slow-onset disaster, tsunamis arrive quickly and cause extensive damage. Taking the example of the 2004 tsunami, in Indonesia it devastated Aceh and caused more than 100,000 deaths; more than 230,000 deaths were recorded in fourteen Asian and African countries. Fourteen years later, even after billions of dollars in aid and thousands of actors had been involved in reconstruction, serious problems remained with disaster mitigation and adaptation in Aceh. One crucial issue was how people returned to tsunami-prone areas without any effort to protect those living near the coast (see Figure 2).



Figure 1. An area affected by tidal flooding in North Semarang. Source: Personal documentation, 2018.



Figure 2. One of the areas affected by the 2004 tsunami in Banda Aceh, which has been resettled. Source: personal documentation, 2018.

This article aims to analyze multilayered communication responses to maritime disasters in Indonesia through two disaster cases: tidal flooding in Semarang and the tsunami in Banda Aceh. It does so by examining how the people, the media, and the government communicate about these disasters.

2. Literature review

2.1. Disaster communication and the multi-layered perspective

Disaster communication is a fairly popular concept, and much research has focused on several types of disasters, including maritime disasters. This concept is related to or often interpreted as almost the same scope as several other concepts, such as

environmental communication, ecological communication, crisis communication, risk communication, and crisis and emergency risk communication (Comfort & Park, 2018; Jurin et al., 2010; Luhmann, 1989; Lundgren & McMakin, 2013; Reynolds & Seeger, 2005; Seeger, 2006; Wahyuni et al., 2018). According to Gultom (2016), most literature on disaster communication focuses on constructing disaster messages to encourage effective disaster response, although disaster communication is broader in scope (Spialek et al., 2016; Tanner et al., 2009).

Disasters have been interpreted or communicated as natural, scientific, social, political, or even religious and metaphysical events (Bush et al., 2015; Drake, 2018; Guggenheim, 2014; Sherry & Curtis, 2017). Several studies have shown that disasters cannot be separated from political dynamics, including policies and regulations, electoral political interests, and the level of public trust in the government (Daniels, 2013; Handayani et al., 2019; Pelling & Dill, 2010; Sainz-Santamaria & Anderson, 2013). In some cases, governments and politicians use disasters as media for political communication or commodities in campaigning during elections (Ewart et al., 2016; Klomp, 2020). However, there is debate about whether natural disasters are always relevant to citizens' political decisions or election results (Acuña-Duarte & Salazar, 2021; Arceneaux & Stein, 2006; Gallego, 2018; Gasper & Reeves, 2011).

One significant problem lies in the challenge of communicating scientific explanations for disasters, including their causes, impacts, and handling (Rafliana, 2017; Rodríguez et al., 2007). According to Luhmann (1989), communicating disaster is not intended to spread fear but rationality. Science provides pathways for rational explanations of disasters that will be extremely useful in risk management and reduction. However, scientists and experts cannot play an optimal role due to several factors: including their communication capacity and strategy, the gaps in their language and terms, or their choice to focus solely on research activities (Nisbet & Scheufele, 2009; Somerville & Hassol, 2011). At this point, the mass media can also play an essential role by presenting the rationality of disaster to the broader public through the news or discourse produced.

The gap between scientists, the public, and the government can be bridged by the media working in accordance with principles such as science journalism (Guenther, 2019; Secko et al., 2013), knowledge-based journalism (Patterson, 2013), and data journalism (Doig et al., 2019). However, the relationship between scientists and the media cannot be called ideal, including in the context of disasters (Besley & Nisbet, 2013; Post, 2016). In addition, according to Olasky (2006), it is stated that the hysteria created by the media could lead to distorted measurements by different agents.

Within the context of communicating science, there are particular challenges when disaster events are connected or communicated in terms of religion and spirituality (Adiyoso & Kanegae, 2017; Gaillard & Texier, 2010; Lavigne et al., 2008; Schlehe, 2010). In Java, Indonesia, volcanic disasters are always associated with cultural beliefs (Lavigne et al., 2008; Schlehe, 2008), and several other catastrophic events—such as earthquakes and tsunamis—are linked to religion (Chester & Duncan, 2010; Merli, 2010). Over the last several decades, the scientific community has replaced the "acts of god" explanations for disasters with a view that disasters are actually "acts of nature" and, more recently, "acts of human behavior and decision-making" (Sherry &

Curtis, 2017). Nevertheless, a religious or spiritual approach is not entirely viewed negatively in the context of disaster (Adiyoso & Kanegae, 2017; Gianisa & Le De, 2018; Joakim & White, 2015).

Understanding how past and recent disasters are communicated in Indonesia, a highly vulnerable country, is crucial as this will improve the way we respond to and communicate about future disasters. Complex portraits can provide material for enriching disaster communication concepts by considering the different characteristics of disasters within the context of diverse social backgrounds.

Why is a three-layer analysis necessary? In his general system theory, Niklas Luhmann describes modern society as characterized by horizontal conflicts caused by the diversity of systems with different codes (Luhmann, 2001). Using the perspective of ecological communication, Luhmann (1989) writes that disaster phenomena will receive different responses from each system in society. Therefore, it is interesting to see how disasters cause resonance in the government system, amongst intermediary actors, and within the community. Obrist et al. (2010) suggest that resilience rates are determined by the interactions between enabling factors and capacities at different layers: the government, intermediate, household, and individual levels. These different layers consequently reinforce and strengthen each other. Multi-layer communication responses refer to the forms of communication at the three layers above.

According to Bott and Braun (2019), research into how households and communities respond to past, present, and future coastal hazards is crucial for understanding human-environmental systems. Meanwhile, according to Marfai et al. (2008), "understanding community and people's response to flooding is essential to addressing issues of concrete action in coastal hazard management." Spialek and Houston (2019) revealed that citizen disaster communication is an important part of the disaster response and recovery ecosystem.

The media (e.g., broadcast, print, online) play a significant role in several types of disasters because the public seeks information regarding the disasters that occur, including their causes, impacts, and actions that need to be taken (Tanner et al., 2009). Although the new media has rapidly developed and gradually become the public's primary source of information, traditional media—especially local media—remains important in disasters because of several factors, including trust, geographical proximity, relevance, and motives (Anthony & Sellnow, 2011; Ewart et al., 2016; Tanner et al., 2009). The government likewise plays a vital role when disasters occur because it is related to almost all dimensions of disaster problems, as well as every phase—before, during, and after (Cheong, 2011; Kusumasari & Alam, 2012; Pathak & Ahmad, 2018; Shi, 2012). According to Curtis (2015), disaster preparedness and mitigation depend on how governments and service organizations communicate and coordinate. Understanding government communications in disasters can provide perspective on how disasters are understood and what strategies the government might implement to deal with such problems and their various impacts.

Based on the review of the literature above, we formulated several research questions:

- RQ1: How do the people of Banda Aceh and Semarang communicate about the tsunami and tidal flooding disasters?

- RQ2: How do the (local) media in Banda Aceh and Semarang communicate or construct the reality of the tsunami and tidal flooding disasters?
- RQ3: How do local governments in Banda Aceh and Semarang communicate about the tsunami and tidal flooding disasters?

3. Method

This research is qualitative, using collective case studies. According to Stake (2009), a collective case study approach examines several cases with an instrumental interest in understanding the general issues—in this case, the problem of disaster communication. However, this research does not give up its intrinsic interest in seeing the unique facts of the disaster cases in Aceh and Semarang. In other words, these two disasters are placed as both instrumental and intrinsic interests. Both are used to understand the significant problems of maritime disasters in Indonesia, as well as explore more profound and unique communication problems related to these disasters. This research was conducted between April and November 2018 in two locations, namely Semarang, the capital of Central Java Province, and Banda Aceh, the Capital of Nanggroe Aceh Darussalam.

Personal and focus group interviews were the primary means of data collection. Semi-structured interviews were used to avoid limiting the possible answers from the informants and more flexibly explore the research questions and achieve the research goal. Informants in Semarang included government officials of Semarang City and Central Java Province, staff of the Regional Disaster Management Agency (BPBD), the village chiefs of Tanjung Mas, Kemijen, and Terboyo Kulon, residents of areas affected by tidal flooding, as well as local journalists from *Suara Merdeka* and *Tribun Jateng*. Meanwhile, informants interviewed in Aceh included staff of the Meuraksa Sub-District government, the head and staff of the Regional Disaster Management Agency (BPBA), legislative members, journalists (*Serambi*), researchers from Syiah Kuala University, and residents of Banda Aceh.

Further data were collected through observations in these two areas. In Semarang, the researchers observed Tambak Lorok Fishing Village (in Tanjung Mas Sub-District), as well as Kemijen Village and Terboyo Kulon Village (in Genuk Sub-District). Meanwhile, field observations in Aceh were conducted in the City of Banda Aceh and Kuta Raja, Baiturrahman, and Meuraksa Sub-Districts.

Data analysis was carried out using the three processes described by Huberman and Miles (2009): data reduction, presentation, and conclusion. Data from interview data, focus group discussions, and field observations were summarized, coded, and grouped in clusters related to the research questions described in the previous section. These clusters were: people/community communication, media communication, and government communication. The other two stages, namely the presentation of data and the conclusion, will be explained in the following section.

4. Result

4.1. How people communicate about disasters

In the case of tidal flooding in Semarang, the way people communicate shows signs of resignation as well as optimism. The discourse that stands out in the disaster

communication of the Semarang community is *making peace or coexisting with catastrophe*. This means that people continue to live in disaster areas and try to adapt to various conditions that worsen daily. One of the informants in Tambaklorok Village said that they remained in their homes with minimal mitigation efforts, such as raising their houses or building simple dams to block the tide. The narrative of living side by side with this disaster can strengthen communities' determination to stay in their neighborhood while continuing to survive as best they can.

Some communities on the coast of Semarang are aware that they will continue to face tidal flooding, which may worsen due to land subsidence and rising sea levels. Others, for example, in the Kampung Batik area, do not consider tidal flooding a disaster but rather an ordinary natural phenomenon (Semarang Resident, interviewee #1). However, people in areas severely affected by flooding have high hopes for technological interventions such as retention ponds and the normalization of rivers, pumps, and sea dikes to reduce the level and intensity of the disaster. The narrative communicated by the community is that the intervention of technology and science will reduce the impact or even solve the disaster problems they have been experiencing. Confidence in these two things (science and technology) makes them unwilling to fully consider moving to another area; However, some residents met during the field research stated that they would want to move if there was a better place available.

Some people also understand these disasters in the political-economic context. One informant in Genuk Sub-district said that the tidal flooding was deliberately not resolved by the government because, with the disaster, the amount paid in remuneration would be less when acquiring land for the construction of toll roads (Semarang Resident, interviewee #2). The view that disasters are political commodities, especially in local political contestations, is also evident in the daily discourse of citizens. Disasters are used as materials for political campaigns during electoral moments in Semarang. Several sources stated that during the legislative and executive elections, the candidates promised to resolve the tidal flooding once they were elected, yet they were unable to realize this goal (Local journalist, interviewee #5; Semarang Resident, interviewee #1).

Somewhat unlike in Semarang, the people of Aceh communicate about the tsunami in a strongly religious context. This cannot be separated from this region's socio-cultural background and sharia law system. The people of Aceh generally understand that a large earthquake triggered the tsunami in 2004. However, in the public's understanding, the earthquake itself was a test or punishment from God, as was the tsunami that followed. The tsunami commencement ceremony, held every December 26, is one disaster communication media used by the Acehnese people. Various activities are also conducted, including pilgrimages to mass graves and *dhikr* are the main activities.

Some studies have shown that more tsunamis may occur on the coast of Sumatra (McCloskey et al., 2008; Monecke et al., 2008), and thus communities face a severe threat. The people of Aceh are generally aware of this information, due to the various socializations and tsunami drills that have been frequently carried out by the government, international institutions, NGOs, and university research institutions (see Figure 3). However, the community thinks that the next tsunami will not happen in



Figure 3. Tsunami drill activities in Meuraksa, Banda Aceh. Source: personal documentation, 2018.

the near future; therefore, many people have returned to occupy vulnerable coastal areas. In addition, the community still doubts whether the evacuation buildings in Banda Aceh City are strong enough to protect them when the tsunami occurs (Banda Aceh Resident, interviewee #14).

4.2. Local media and the construction of disaster reality

Two prominent local media outlets in Semarang are *Suara Merdeka* and *Tribun Jateng*, both of which have large offline and online readerships. According to one journalist from *Tribun Jateng*, the local media in Semarang have not massively or continuously reported on the tidal flooding due to several considerations, particularly questions of news value. Meanwhile, a senior journalist with *Suara Merdeka* indicated that some local media are more focused on human interests over policy issues.

The choice of making tidal flooding a main story or headline is determined by the extent of the impact; "if the impact is only in a limited area or the duration is not long; the news will not be published on the first page, let alone as a headline" (Local journalist, interviewee #5). In addition, other considerations include the area where it occurs; for example, if economic centers such as the Tawang train station, Johar Market, or Terboyo Bus Terminal are affected by tidal flooding, no matter how much, it will have more news value than in other places (Local journalist, interviewee #5). It is impossible to produce news about flooding every day; if newspapers were to carry such stories, they would not sell, as the people of Semarang consider flooding to be business as usual (Local journalist, interviewee #6, *Tribun Jateng*).

According to an informant who has lived in an area affected by flooding for four decades, they have not received any information from the media confirming that tidal flooding is a disaster (Semarang Resident, interviewee #1). One journalist confirmed that the media did not construct the tidal flooding as a disaster because there no authorities (in this case, local government officials) have firmly described it as such.

The media is passively waiting for an expert or government official to describe the tidal flooding as a disaster before announcing it as such on their pages.

In Aceh, *Serambi*—part of the large media network, Kompas Gramedia—is a leading local media. As one of the primary references and sources of information for the people of Aceh, this daily plays an essential role in constructing the reality of disaster in Aceh, especially concerning the 2004 tsunami. According to the Editor-in-Chief, *Serambi* covered this disaster with an approach that emphasized the psychological and social recovery of the Acehnese, who were shaken by the devastating tragedy. In the early post-tsunami period, this local media focused on efforts to relieve the sadness and trauma of the community and took a policy of not focusing on their suffering (Local journalist, interviewee #20).

Shortly after the tsunami, *Serambi* served as a media for connecting tsunami victims who lost their families (Local journalist, interviewee #20). At the time, newspapers were full of information on wanted or missing persons, including pictures of people separated from their families; this went on for about a year (Local journalist, interviewee #20). This newspaper worked closely with the Rehabilitation and Reconstruction Agency (BRR) and several involved parties, such as NGOs, publishing a bulletin—distributed as a newspaper supplement—on the disaster and recovery process in post-tsunami Aceh. According to one senior *Serambi* journalist, this outlet has routinely covered the tsunami, especially during the first three years after the tsunami (Local journalist, interviewee #21). After that, news about the tsunami was published annually in a special issue, commemorating the tsunami.

The relationship between the media and academics/experts/researchers will determine the media's construction of disasters. In the context of tidal flooding in Semarang, the media is not communicating enough with experts, let alone using disaster experts as news sources. One journalist stated that they rarely have contact with experts—for example, from the Center for Coastal Disaster Mitigation and Rehabilitation Studies (CoREM) at Diponegoro University—when reporting on tidal flooding. Meanwhile, in Aceh, *Serambi* has a good relationship with academics from Tsunami and Disaster Mitigation Research Center (TDMRC) at Syiah Kuala University.

4.3. Government communication of disasters

There are different perspectives on tidal flooding between the Central Java Provincial Government and the Semarang City Government. This difference is fundamental because it relates to how the two governments grasp the problem. The provincial government has not defined tidal flooding as a disaster, referring to existing regulations (Local Government Staff, interviewee #7). Meanwhile, the municipal government has taken the opposite position, as tidal flooding has caused extensive and prolonged losses to the people in Semarang and the surrounding area (Local Government Staff, interviewee #8). The fundamental differences between these governments have impacted their disaster communication.

The Semarang City Government has intensively communicated policies and solutions for tidal flooding, ranging from river normalization efforts, construction of polders/retention ponds, pump houses, relocation, road elevation, and toll roads as sea

embankments. The government has also communicated the causes of tidal flooding through face-to-face communication with community members as well as through new and conventional media (Village Government Staff, interviewee #10). The discourse of living side-by-side with disaster is also constructed by the city and provincial governments. In severely affected areas, such as Tambak Lorok Village, the government has communicated the plan to develop marine tourism (Village Government Staff, interviewee #9). Meanwhile, in Terboyo Kulon Village, the government discussed relocating residents to flats. However, most refused because they feared losing their livelihood as fishpond workers (Village Government Staff, interviewee #10).

In Aceh, the government's communication about the tsunami is not only in the context of religion but also science and development. The government has communicated the disaster through socialization and tsunami drills. The government carries out regular tsunami drill activities, both at the sub-district level and higher (Local Government Staff, interviewee #16). Tsunami commemoration activities, held every December 26, are also centers of disaster communication in Aceh. In these annual events, the government focuses on certain topics; this shows how the government communicates disasters, especially tsunamis, using a combination of psychology, religion, development, and disaster preparedness. For example, in 2017, the topic was "refuse to forget, build public awareness towards a culture of disaster preparedness."

During the rehabilitation and reconstruction period (2005–2009), government communication regarding disasters was done by publishing bulletins in collaboration with local media such as *Serambi* (Local journalist, interviewee #20). Further communication was conducted through various outreach activities and tsunami drills, which are carried out by the government alone and in collaboration with many other agencies. One of the problems of disaster communication faced by the Aceh government after the tsunami was the issue of relocation. The government has had difficulty communicating its relocation efforts to people living in disaster-prone areas. Many residents have returned to live in tsunami-prone areas on the coast, driven primarily by economic and livelihood factors (Local Government Staff, interviewee #17).

Since 2009, the Acehese government has used the Tsunami Museum as a disaster communication medium for locals and tourists who come to Aceh. In many disaster cases, governments use monuments as a medium for disaster communication (Boret & Shibayama, 2018; Zavar & Schumann, 2019). In Aceh, this is a part of the government's efforts to develop tsunami tourism destinations in Aceh. In 2016, while commemorating the twelfth anniversary of the tsunami, the tsunami museum was the center of activity, with the theme "Night at Museum." Several other sites have become tourist destinations: the Baiturrahman Mosque, the PLTD Floating Ship, and Gampong Lampulo, which have special stories and memories of the devastating events in 2004.

5. Discussion

The specific character of disasters determines the main characteristics of disaster communication in Aceh and Semarang. Communicating/reporting ongoing events (tidal flooding) is undoubtedly different from sudden events that may be repeated (i.e., tsunamis). The slow onset of tidal flooding has created debate within the

government, local media, and community, as to whether or not it is a disaster. The tsunami, meanwhile, has primarily stimulated discussion about its causes—primarily the relationship between human beings and God. According to Bankoff and Hilhorst (2009), what constitutes vulnerability to one person is not necessarily perceived as such by the next. There is a difference in viewing tidal flooding and tsunami by the multi-layered actors in the two regions. The multi-layered communication approach allows the cross-checking of data at the society, media, and government layers.

Our results show three contexts of multi-layered communication responses to disaster in Aceh and Semarang: science, politics, and religion. While other contexts may exist, these three contexts emerged prominently in our findings at both locations. The definition and communication of disaster are determined primarily by these and the specific characteristics of the disasters, as mentioned above. In Aceh, the way the government, media, and community define and communicate disaster shows not only a substantial religious influence but also—at some points—a scientific influence. The scientific perspective has influenced the rise of preparedness and resilience messages. On the other hand, religious messages have not influenced communications about tidal flooding in Semarang have not emerged. What appears in Semarang in the communication of tidal flooding is a combination of science and politics.

Science communication is one aspect that prevents the people, the media, and the Acehnese government from turning to fatalism. The production of disaster messages that combine religious and scientific messages in Aceh shows an attempt to communicate science as the reason for disasters without abandoning the dominant and developing social context. These efforts are primarily driven by the academic community, such as the Tsunami and Disaster Mitigation Research Center (TDMRC). Another essential aspect is the role of state and foreign institutions in the context of disaster mitigation in Aceh. Meanwhile, from tidal flooding public discussion and knowledge have emerged that this disaster was triggered by land subsidence and rising sea levels. This, of course, did not appear immediately; it resulted from ongoing interactions between science, media, government, and society in areas where disasters have occurred. Science communication is essential in the context of disasters, but it cannot be driven solely by the academic community; it must also involve the community and their local knowledge of their area, the media through the practice of knowledge-based journalism, and the government through policies that favor the code of science, namely the use of scientific methodology to determine the truth.

In the political context, especially local political contestations, the tsunami has not become a political commodity in Aceh. Meanwhile, in Semarang, the issue of tidal flooding is always used by politicians in executive and legislative elections; this supports similar arguments from Ewart et al. (2016) and also Klomp (2020). This has occurred due to the disaster's characteristics, rather than the two regions' political context. The tsunami has not become a political commodity because it happened in the past, and any potential re-occurrence cannot be predicted, while tidal flooding occurs continuously. Meanwhile, political interests are more often associated with short-term or immediate interests.

In the cases of Aceh and Semarang, it appears that intermediary actors such as the media cannot promote better disaster communication by the government and the community. The media in Semarang, for example, are still debating the identification

of tidal flooding as a disaster amidst the deleterious environmental conditions and communities that have to deal with flooding every day. Meanwhile, in Aceh, the role of the media has not been optimal due to organizational problems and human resource limitations. Editorial policies, such as focusing only on the human-interest aspects of disasters, may potentially provide an episodic and limited understanding of the disaster. However, such an approach is not entirely useless, as the focus on the household domain can be considered a starting point for systematically understanding the root of communication problems in times of disaster. Placing disasters and their problems in a thematic and multi-dimensional context is needed to generate comprehensive solutions and understandings.

From the System Theory perspective, the media—which is seen as a constructor of reality (Luhmann, 2000)—cannot optimally perform its role as an observer of society. The media has not succeeded in irritating social systems to respond to the complexity of the disasters that have occurred in Semarang and Aceh. Meanwhile, from a practical perspective, e.g., the practice of journalism in Semarang and Aceh, it does not appear that knowledge-based journalism, science journalism, or data journalism have been practiced ideally. Even though the situation in Aceh is slightly different than in Semarang, local media institutions in these two areas have not shown adequate differentiation in their response to disasters (in particular) and environmental issues (in general). This may provide an early picture of how Indonesia's media system deals with disasters, but more investigation is needed to get a complete picture and understanding. Disasters in the two regions received different responses, showing an interesting dialectic process of stimulus and response. Communication energy in information processing will determine the resonance and differentiation of each community system in finding specific solutions in responding to disasters.

The other interesting finding is the similarities between Aceh and Semarang: both governments have planned to use disaster areas as tourist destinations, albeit with different details. The act of turning disaster areas into tourist destinations is commonly known as dark tourism or disaster tourism (Lennon & Foley, 2000; Martini & Minca, 2021; Tucker et al., 2017). This effort will undoubtedly affect the government's communication about disasters. How this impacts disaster communication may need to be investigated further using comparative cases and disasters with more diverse characteristics.

How does a cohesive analysis construe communities, media, and government communications regarding disasters in Aceh and Semarang? Disaster communication at these three layers shows that its meaning and how it is collectively constructed is the epicenter of a differentiated society. The meeting of the interests and information choices of the public, the media, and the government influences how the tsunami and tidal flooding have emerged as complexities that, although undesirable, still occur. It is essential to place disasters that have been, are, and will occur within a framework of complexity or change that requires the response of all parties and systems. The emphasis on the role of the media in disaster communication makes it a communication issue that involves the construction of meaning through the dynamics of the relationship between systems in society. The cases of Aceh and Semarang have the theoretical implications of strengthening some of the previous literature and showing that combinations of different cases will show a variety of meanings and responses to disasters.

6. Conclusion

Based on data collected through field research in Aceh and Semarang, disaster communication is primarily determined by how it is understood or defined. An event or natural phenomenon can be communicated as a disaster not only because it happened but also because it has been constructed as such by the government, the media, or the community. This article has dealt with three contexts of multi-layered communication responses to disaster: science, politics, and religion. While other contexts may exist, these three contexts emerged prominently in our findings at both locations. Disaster characteristics, government knowledge and motives, and internal conditions—including media editorial policies and socio-cultural conditions within the community—are some of the aspects determining disaster communication in Indonesia.

In answering RQ1, the people of Banda Aceh and Semarang have communicated about the tsunami and tidal flooding differently according to the specific character of the disaster itself. The tsunami that shook Aceh created great resonance within the religious community. Meanwhile, the people of Semarang do not view tidal flooding as a disaster because of the lengthy process involved and the continuous presence of this disaster. This narrative will affect how communication is carried out

In answering RQ2, it was shown that local media in both Banda Aceh and Semarang have been unable to raise the spirit of disaster awareness. The media does not play a sufficient role as an irritant stimulating greater awareness of the potential for disaster. In Aceh, the media felt the pain of the community and chose not to explore the disaster. Meanwhile, the media in Semarang chose not to explicitly identify tidal flooding as a disaster. This narrative has also caused differentiation in Semarang society, including in responses to the disaster.

Answering RQ3, local governments in Banda Aceh and Semarang communicate about the tsunami and tidal flooding in different manners. The Banda Aceh government has even developed Sharia law to protect the religiosity of its citizens, which is believed to protect residents from potential future tsunamis. Meanwhile, the local government in Semarang is taking technical steps to respond to the tidal flooding.

The portraits of these two regions may not adequately describe the complexity of the disaster and communication problems in Indonesia today and (perhaps) in the future. For this reason, some understandings of disaster communication can potentially be realized through more in-depth research, involving the analysis of media content, development and construction of disasters on social media, and critical comparison of disaster communication between governments at various levels. It is also possible to address some of the limitations of this research, for example regarding the role of local media—such as community radio, which plays a key role in disaster communication in much of Indonesia. Comparing different disaster contexts also needs to be done in the future.

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