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Communication Strategies for Climate Change Disaster Mitigation in Kota Lama Semarang

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Abstract

Kota Lama Semarang, rich in cultural and architectural heritage, is vulnerable to disasters like Rob Floods and rising sea levels due to climate change. This research aims to describe recommended communication strategies for increasing awareness and community involvement in climate change disaster mitigation. Through analysis of the news text, data analysis, and literature review, this study provides valuable insights for stakeholders. The communication strategy utilizes storytelling through social media, awareness campaigns, and educational programs. Effective communication is crucial in facing disasters in Kota Lama Semarang. The recommended strategy emphasizes community-based approaches with active participation. Dialogues with the government, NGOs, and relevant institutions strengthen community adaptation. Challenges include accessibility and technology limitations in the area. Cultural and linguistic diversity should be considered in communication strategies to enhance message reception. Ongoing evaluations are necessary to enhance communication strategy effectiveness. In conclusion, effective communication strategies are vital in addressing climate change disasters in the Kota Lama Semarang. This strategy promotes community awareness, involvement, and adaptation. Challenges such as technology accessibility and cultural diversity should be wisely managed. By overcoming these challenges and conducting continuous evaluations, communication strategies can reduce disaster risks and build community resilience.

Keywords: *Communication Strategy; Disaster Mitigation; Climate Change; Kota Lama Semarang; Cultural Heritage.*

Introduction

Climate change has become one of the most talked-about topics of the 21st century. Climate change is not only felt on a global scale, but also very significantly at the regional level (Lörcher & Neverla, 2015). One of the visible effects is the increase in the frequency of natural disasters in several cities in Indonesia, including the city of Semarang, especially in Kota Lama Semarang also experiencing the threat of disasters due to climate change (Dewi, 2007). The historical district of Semarang, known as Kota Lama Semarang, situated near the sea, is prone to various disasters like floods, rising sea levels, and severe weather conditions. Hence, significant efforts are necessary to mitigate these risks and manage the consequences of climate change in this region. Positioned on Java's north coast, Kota Lama Semarang faces considerable peril from flooding, a situation exacerbated by the impacts of climate change, which escalate water-related hazards. Semarang City

ranks as the second-highest contributor to disasters in Central Java, standing sixth in terms of flood occurrences.

According to BNPB data, the percentage of flood events in Semarang City was 22.5% in 2018, decreased to 14.7% in 2019, but rose again in 2020 to 16.3%. Flooding occurrences in Semarang City stem from various factors, including land subsidence at a rate of 7.7cm per four years as indicated in the RTRW Kota Semarang report of 2021. Additionally, the city faces heightened flood risks due to factors such as elevated tides, sea level rise linked to global warming, inadequate drainage infrastructure, and insufficient environmental conservation efforts by the populace (Dewi, 2007). The Regional Disaster Management Agency notes that the expansion of residential and industrial zones has further increased the vulnerability of various areas within Semarang City to flooding. Data from BPBD reveals that Semarang City can be categorized into three risk levels: 221.98 km² (59%) classified as low risk, 54.0713 km² (14%) as medium risk, and 101.65 km² (27%) as high risk. The process of assessing disaster risks involves evaluating threat, occupation, loss, and capacity indices. The capacity index's specialization varies according to the focus of the study, with particular attention given to governmental institutions within the study area, as outlined in the RTRW Kota Semarang report of 2021.

Pemendagri No. 22 of 2006 concerning General Guidelines for Disaster Mitigation which serves as a guideline in the implementation of the disaster system in the State of Indonesia. This guideline has three aspects, namely policy, strategy, and management with 19 policy indicators including prevention, training, information dissemination, socialization and counseling, training/education, early warning, strengthening disaster management institutions, improving emergency response capabilities, increasing community awareness and readiness, increasing infrastructure and utility security, increasing strategic and important security, increasing the security of housing and public facilities, increasing the security of buildings and industrial areas, increasing the security of buildings and school children, increasing security in dealing with disasters in construction, increasing expert knowledge, having disaster risk assessment procedures, and increasing community recovery capabilities (Susanto et al., 2018).

Furthermore, according to Law number 24 of 2007, disasters encompass events or sequences of occurrences that jeopardize and disrupt human lives and livelihoods, caused by natural, non-natural, or human-related factors, resulting in human casualties, environmental degradation, property damages, and psychological impacts. Effective disaster risk reduction entails a communication process, wherein communication serves as a social radar that informs other parties about the occurrence of disasters in a particular area (Meliana et al., 2020). Communication in this context is geared towards pre-disaster activities such as preparedness, early warning, and mitigation. Its purpose is to disseminate information to communities regarding necessary preparedness measures and actions to take when a disaster strikes (Que et al., 2022), all aimed at minimizing loss of life and property. Despite existing research on disaster communication, there remains a lack of comprehensive references within communication studies to address communication challenges in disasters, including a dearth of disaster communication models that could serve as a framework for implementing appropriate communication processes during disaster events, particularly natural disasters (Alipour et al., 2020).

Disaster mitigation communication plays a crucial role in educating communities. Several studies indicate that socialization efforts remain an essential strategy to support the primary goal of educating the population in Banten Province. Utilizing traditional arts for disseminating disaster awareness culture, along with modern communication channels like theater facilities, mass media, and social media, enhances the effectiveness and efficiency of the mitigation communication activities conducted by BPBD Banten Province (Agustin Rustam, 2015). While the government, as a formal institution, bears responsibility for ensuring the safety and survival of disaster-affected communities, active community involvement is necessary to reduce disaster risk, as highlighted in research findings by Roskusumah. Increasing community participation and the role of local caretakers represent initiatives undertaken by the Geological Agency to promote Disaster Mitigation Communication.

In the realm of communication, the communicator or sender assumes a central role in determining the effectiveness of a message. Particularly concerning natural disasters, such as the flooding incidents in Kota Lama Semarang, both central and local governments hold the responsibility of crafting informative and compelling messages related to these events, given their stakeholder role in ensuring the safety of citizens (Passarella et al., 2018). Consequently, the author aims to delve deeper into Disaster Mitigation Communication strategies, specifically addressing natural disasters induced by climate change, such as flooding, as managed by the Semarang City Environment Agency and the Central Java Province Regional Disaster Management Agency. Additionally, effective communication is crucial for ensuring that information regarding disaster risks, mitigation measures, and emergency responses is clearly and promptly conveyed to all relevant stakeholders. This research aims to investigate the communication strategy of disaster management due to climate change in Kota Lama Semarang. Other. The need to identify the characteristics of climate change-induced disasters that affect the effectiveness of communication in the context of disaster management, by formulating recommendations on better communication approaches to improve understanding of knowledge in disaster management efforts caused by climate change.

Literature Review

The literature on disaster management emphasizes several critical assumptions that underpin effective disaster mitigation strategies. These assumptions are outlined by scholars such as Haddow & Haddow (2008) and include elements such as customer focus, leadership commitment, inclusion of communication planning and operation, situational awareness, and media partnership. Customer focus entails understanding the needs of the public and tailoring communication mechanisms to deliver accurate and timely information (Haddow & Haddow, 2008). Leadership commitment emphasizes the active involvement of leaders in effective communication processes during disaster management operations (Haddow & Haddow, 2008). Inclusion of communication planning and operation underscores the importance of integrating communication strategies into disaster planning and operational frameworks to ensure coherence and effectiveness (Haddow & Haddow, 2008). Situational awareness involves maintaining a thorough understanding of the evolving situation during a disaster to inform decision-making and response efforts (Haddow & Haddow, 2008).

Finally, media partnership highlights the collaborative role of media organizations in disseminating critical information and facilitating public awareness and response during disasters (Haddow & Haddow, 2008). Previous research has shown that effective disaster mitigation relies heavily on the implementation of these critical assumptions. For instance, studies have demonstrated that a customer-focused approach enhances community engagement and promotes proactive disaster preparedness (Haddow & Haddow, 2008). Moreover, leadership commitment has been identified as a key determinant of successful disaster management, with active involvement from leaders facilitating coordinated response efforts and resource allocation (Haddow & Haddow, 2008). Additionally, research underscores the importance of integrating communication planning and operation into overall disaster management strategies to ensure sea.

Methodology

The research methods to be used include collecting and analyzing secondary data and literature review in the form of reports on disaster characteristics due to climate change in Semarang. The collected data will be analyzed qualitatively to gain a comprehensive understanding of the characteristics of disasters due to climate change. According to Yin (Rahardjo, 2017) it is not enough if Case Study questions only ask "what",, but also "how" and "why". Yin emphasizes the use of "how" and "why" questions, because both questions are considered very appropriate for obtaining knowledge. Then in providing an explanation of an effective disaster mitigation communication strategy, this research uses Haddow & Haddow's (Haddow & Haddow, 2008) critical assumptions consisting of Customer Focus, Leadership Commitment, Inclusion of communication planning and operation, Situational awareness, and Media partnership. Thus, a discussion of disaster mitigation according to previous researchers is needed to pave the way for further relevant research.\

Result and Discussion

Characteristics of Climate Change Disasters in Kota Lama Semarang

Kota Lama Semarang sits proximate to the northern coast of Java, precisely positioned at 6.9681° N, 110.4279° East. The city's elevation ranges from 0.75 meters to 348 meters above sea level. It encompasses coastal regions across six sub-districts: Tugu, West Semarang, North Semarang, Genuk, Gayamsari, and East Semarang. Four of these sub-districts directly border the Java Sea: Tugu (31.78 km2), West Semarang (21.74 km2), North Semarang (10.97 km2), and Genuk (27.39 km2). Kota Lama Semarang specifically lies within the North Semarang District, situated in Tanjung Mas Village (RTRW Kota Semarang, 2021).

Examining its geographical context, Kota Lama Semarang exhibits characteristics of potential disasters stemming from sea level rise. Data indicates that sea levels along the north coast of Java Island are rising at a rate of 6-10 mm per year. Consequently, this poses a similar threat of sea level rise, ranging between 6-10 mm annually, to the coastal city of Semarang. Utilizing contour analysis via DEM and assuming an average sea level rise of 8 mm/year, it is projected that several areas within Semarang City's coastal zone may become submerged by seawater. Predictions derived from various studies suggest that sea levels could rise by 16 cm over the next 20 years, potentially inundating an estimated 2,672.2 hectares of the city's coastal area. Sea level rise is anticipated to escalate twofold every 20 years. Projections indicate that within the next 40

years, the area submerged by seawater could reach 3,462.7 hectares. Looking ahead to a century from now, with a sea level rise of 80 cm, it is estimated that the inundated area could expand to 5,423.1 hectares (Widyastuti, 2021). Moreover, eight sub-districts in Semarang City are grappling with land subsidence, with five of them situated in the city's coastal zone. This presents a significant challenge for the development of Semarang City's coastal areas, as these issues pose constraints. The five affected sub-districts are Gayamsari, Genuk, East Semarang, West Semarang, and North Semarang. Flooding and Rob in Semarang City are significant problems. These problems often disrupt urban activities in Semarang City. Given the prevailing field conditions, the challenges of flooding and tidal issues are notably severe within the coastal regions of Semarang City. This is attributed to the geographical layout of the coastal area, which serves as the hydrological estuary for the upper Semarang region. Consequently, intense water runoff from the upper areas of Semarang City towards the coastal zones can lead to flooding. Furthermore, with ongoing land subsidence and sea level rise affecting the coastal areas, the scope of tidal inundation in Semarang City is expanding. Field surveys and the Semarang City Hydrology Map from the 2010-2030 Regional Spatial Plan reveal that several coastal areas in Semarang City are grappling with issues of seawater intrusion.

In this study, data from North Semarang Subdistrict is taken only, which includes productive aquifers with an area spread of 3-10 liters/second (Tanjung Mas, Bandarharjo and Kuningan Villages). This condition has the potential to cause inundation of seawater/rob, average well water depth of 3-10 meters, average height of 20-60 cm inundation duration of 2.5-7 hours, seawater penetration reaches 11-15 meters at 3.5 km from the coastline with brackish water depth of 1-10 meters. This situation is associated with the land composition characteristics in Semarang City's coastal area. Here, the soil composition typically features a gentle slope ranging from 0 to 2%, consisting of fine-textured sandy loam that is easily excavatable, with an effective soil depth of 9 cm or more. Geologically, the area is characterized by lowland formations comprising sedimentary rock structures, primarily alluvium derived from river deposits, thus containing sand and clay (RTRW Kota Semarang, 2021). The hydrological setup encompasses both surface and subsurface components. Surface hydrology in Semarang City is shaped by the presence of rivers and drainage channels. However, a notable issue with these waterways is the inadequate discharge capacity relative to water volume (RTRW Kota Semarang, 2021). Conversely, underground hydrology is predominantly represented by a locally productive aquifer system, accounting for approximately 24.89% of the hydrological composition. This underscores the groundwater conditions in Semarang City's Coastal Area.

Examining disasters, which are phenomena requiring the mitigation of their impact on human life, they encompass events or sequences thereof that pose threats and disrupt the lives and livelihoods of individuals. These events stem from natural, non-natural, and human-related factors, resulting in casualties, environmental degradation, property damage, and psychological repercussions (Law No. 24 of 2007). Currently, disaster management is a collaborative effort between the government and the community. The government plays a crucial role in implementing disaster management measures, aligning with its function as a facilitator and primary overseer. National disaster management institutions have been established, starting from the central level coordinated by Bakornas PBP, to the provincial level with Satkorlak and Satlak at the regional government level. Given the roles and responsibilities of each stakeholder in disaster management, a

dynamic process is imperative, encompassing preventive measures, mitigation, preparedness, emergency response, recovery, and development efforts (Agustien et al., n.d.). The disaster management cycle is illustrated in the following figure. Disaster management encompasses a spectrum of activities involving planning and coordination before, during, and after a disaster, constituting what is known as the disaster management cycle. This cycle, as outlined by Widyastuti (2021), aims to achieve several key objectives:

- Preventing loss of life
- Alleviating human suffering
- Disseminating information to the public and authorities regarding risks
- Minimizing damage to critical infrastructure, property, and economic resources

In the realm of climate change disaster management, strategic measures are imperative. These measures must carefully assess the realities of the impacts, formulate responsive actions, implement mitigation strategies, and incorporate adaptive measures to harmonize with or mitigate the effects of occurring disasters. According to the explanation, effective disaster management strategies addressing climate change issues necessitate an initial step of analyzing the climate change patterns and variations within the region. For instance, in coastal areas, one significant impact of climate change is the rise in sea levels, leading to the inundation of several coastal areas. Addressing this situation entails a dual approach of disaster mitigation and adaptation. Disaster mitigation involves evaluating the potential risks of disasters and implementing measures to reduce their impact.

Meanwhile, adaptation efforts focus on adjusting to climate change, enabling coastal communities to coexist harmoniously with the changing climate conditions. The vulnerability of a region is intricately linked to various factors encompassing biological, geographical, social, economic, political, cultural, and technological elements inherent within a community over a specific period. These factors collectively influence the community's capacity to prevent, mitigate, prepare for, and respond to the effects of specific hazards (Miladan, 2009). Community capacity, in essence, revolves around the knowledge, perceptions, and behaviors of individuals within the community in recognizing and addressing disaster threats. The complexity of disaster vulnerability implies that criteria for vulnerability can be delineated based on the impacts on specific entities. Vulnerability levels may be assessed in terms of physical (infrastructure), social, demographic, and economic aspects. In this context, the categorization of variables pertaining to disaster vulnerability can be outlined following the GLG Central Java framework.

Physical Vulnerability

Physical vulnerability, particularly concerning infrastructure, refers to the susceptibility of physical structures to specific hazard factors (Badan Koordinasi Nasional Penanggulangan Bencana, 2007). It is associated with the presence of infrastructure within areas prone to disasters. Generally, physical vulnerability pertains to the residential infrastructure of individuals or communities situated in hazard-prone regions. This vulnerability assessment can be evaluated through various indicators, including Proportion of built-up area, Distribution of building types, Availability and coverage of electricity network, Ratio of road length,

Accessibility and coverage of telecommunication network, and Availability and coverage of water supply network.

Economic Vulnerability

Economic vulnerability refers to a state of economic fragility when confronted with hazards (Badan Koordinasi Nasional Penanggulangan Bencana, 2007). It influences individuals' decisions in responding to such hazards. On an individual level, economic vulnerability is linked to the welfare status of the population, often measured by the prevalence of poverty within a given area. The higher the poverty rate among those residing in disaster-prone regions, the greater their vulnerability. Economic constraints within the community inevitably impact the ability to meet safety standards in preparing for disasters. These economic limitations, or poverty, significantly influence decisions regarding residence choices, infrastructure development, and disaster response strategies.

The choice of individuals to reside in areas such as riverbanks, landslide-prone regions, or cliff edges, as well as constructing houses without proper permits (IMB) or adherence to building quality standards, has become increasingly common and is often attributed to poverty (Widyastuti, 2021). Moreover, economic vulnerability can be gauged by the economic losses incurred from the potential loss or threat to business or production sites within an area (Badan Koordinasi Nasional Penanggulangan Bencana, 2007). Difficulty in accessing these business or production sites due to disasters can lead to disruptions in their operations. Consequently, the cessation of these activities can significantly impact the local economy and, subsequently, the regional economy as a whole. Considering these primary vulnerabilities, the following economic vulnerability indicators can be outlined: Percentage of poverty rate and Presence of business or production sites.

Social Vulnerability

Social vulnerability refers to the degree of susceptibility within a community when confronted with hazards, wherein vulnerable social conditions increase the likelihood of significant loss in the event of a disaster (Badan Koordinasi Nasional Penanggulangan Bencana, 2007). This vulnerability is intricately linked to demographic factors and the population composition within a given area. Some indicators of social vulnerability include population density, percentage of old age population, percentage of under-five population, and percentage of female population. Community understanding and disaster management institutions. Cities in Indonesia have high social vulnerability because they have a high percentage of these indicators. The quality of community understanding of existing disaster risks is also an important factor. Community understanding is also related to the spirit of togetherness, social responsibility of the community in minimizing the impact of disasters. In addition, institutions are also an important factor in assessing social vulnerability because the presence or absence of institutions that handle disaster risk will have an influence on the community in anticipating the impact of disasters that will occur.

Environmental Vulnerability

This vulnerability pertains to the environmental state of an area prone to disasters. Here, humans and nature form an integrated ecosystem, highlighting that the physical environment vulnerability directly impacts

regional development sustainability. Damage inflicted upon the natural environment by human activities can consequently jeopardize human well-being. Environmental vulnerability, in this context, concerns the physical condition of nature crucial for the inhabitants' survival in the area. Indicators of environmental vulnerability include the presence of strategic areas such as: Protected Forest cover or water catchment area, Mangrove Forest cover, Coral Reef cover, the existence of a historical area, and Existence of trade and service areas.

Communication Strategy of Climate Change Disaster Mitigation in Kota Lama Semarang

Following an understanding of the Climate Change-induced Disaster Characteristics in Kota Lama Semarang, which will be pivotal in this study, the researcher employs Haddow & Haddow's (2008) five fundamental assumptions – namely, Customer Focus, Leadership Commitment, Integration of Communication in Planning and Operations, Situational Awareness, and Media Partnership – as an analytical framework to scrutinize the communication strategy for climate change-induced disaster mitigation in Kota Lama Semarang.

Customer Focus

Eko Yunianto, Head of the Central Java Water Resources and Spatial Planning Public Works Agency, said the tidal phenomenon is caused by the moon's gravity. However, his party has been preparing since November 2023. This is evidenced by the existence of a rainy season disaster alert post that has been created during the rainy season.

> "*Our preparedness has been carried out by establishing a flood alert post, last November 2023. With this BMKG prediction, we certainly remind our friends in the PSDA ranks to be more prepared. Moreover, the peak of the flood season is expected in January to February 2024*," (Interview Eko to the media).

This is inseparable from the understanding of Haddow & Haddow (2008), focusing on customers means understanding the needs of public information and building communication mechanisms that can provide accurate and timely information with this can be seen by the Semarang government building a flood alert post due to the increase in rob and the rainy season. In this context, of course, the Semarang city government formulates policies related to flood disaster management or mitigation of land subsidence due to climate change by asking for input from the results of research conducted by experts who study the Old City of Semarang area, as the Semarang city government collaborates with stakeholders, such as, BPBD Central Java, PMI, RAPI, and the surrounding regency/city government.

It certainly creates a forum that includes representatives from various sectors in the pentahelix concept, which consists of Government, Education, Business, Community, and Media, as mandated by Presidential Instruction No. 7 of 2018. After the data and information were collected, the Semarang city government has prepared a contingency plan document. As outlined by the National Disaster Management Agency (Miladan, 2009), Contingency Planning is a proactive planning process conducted under conditions of uncertainty, where scenarios and objectives are set, technical and managerial actions are outlined, and response systems and resource deployment strategies are agreed upon to prevent or better manage emergency or critical situations. Through contingency planning, the adverse impacts of uncertainty can be minimized by developing scenarios and making assumptions regarding anticipated emergency response needs. Flood and Climate Change

Contingency Plans can be a framework for communication strategies in the event of a disaster. Mitigation programs then become the responsibility of district or city governments in areas vulnerable to disaster risks.

Leadership Commitment

The Mayor, Hevearita Gunaryanti Rahayu, is considered successful in handling the flood problem. This can be seen during the rainy season. On the official website of the Semarang city government, it is explained that Purnomo, a head of RT RT 09 RW II Sendangmulyo Village, Tembalang District, appreciates the flood management efforts made by the Semarang City Government under the leadership of Mbak Ita, Hevearita Gunaryanti Rahayu's nickname. In her area, during the rainy season, flooding becomes a scourge for residents, even though the Tembalang area is a highland in Semarang City.

> "*Flooding has been caused by waterways that are unable to accommodate water discharge during heavy rains, so that it overflows into settlements. In 2023, the Semarang City Government built a channel in our area. Alhamdulillah, the flooding problem in our area has been slightly resolved. However, we still hope that the Semarang City Government will build a road drainage on Jalan Raya Sendangmulyo, to overcome flooding as a whole,"* (Purnomo's statement).

In line with Haddow & Haddow's (2008) understanding, leadership commitment requires that emergency operations leaders are dedicated to effective communication and fully participate in the communication process. In terms of disaster mitigation communication, this is one of the commitments of the Disaster Resilient City of Semarang, which consists of (1) Resilient Citizens, namely: realizing a community that is aware of disaster risks, has preparedness, is resilient, and is able to recover immediately when exposed to disasters; (2) Resilience Knowledge, which is reliable disaster science and technology while still integrating local wisdom and social values that exist in Central Java. (3) Resilience Infrastructure, namely creating resilient infrastructure and development facilities and as a mitigation tool; (4) Resilience Institution and Policy, namely the regulatory and institutional framework that is able to organize disaster management. 5) Resilience Ecology, namely forming a good environmental carrying capacity, capable of reducing disaster risk and maintaining development sustainability; and (6) Resilience Financing, namely the ability of financial resilience in the implementation of disaster management to maintain investment risk in development.\

Inclusions of communication in planning and operations

A hydrologist at the University of Semarang (USM), Edy Susilo, believes that the Semarang City Government's efforts to prevent flooding have begun to show with the decline in inundation areas. This includes channel control and water pumps at a number of points. Edy said that the monitoring, led by Semarang Mayor Hevearita Gunaryanti Rahayu, showed a symbol of leaders being present in the community.

> "*Indeed, I noticed that ahead of the rainy season, the pumps have been activated, the channels have been cleaned before the rainy season comes, the drainage has been improved, and these efforts have reduced the occurrence of flooding*," (Edy's Written Statement).

This is certainly part of a communication strategy to serve as a roadmap for planning and managing communication activities to achieve specific goals. In the context of disaster mitigation communication, comprehensive planning is essential, involving all relevant stakeholders. Communication experts should be actively involved in emergency and operational planning activities to ensure timely and accurate information dissemination, facilitating the right decision-making process (Haddow & Haddow, 2008). In particular, in this

case the establishment of a Communications Team dedicated to managing the communications aspects of disaster mitigation is essential as it has already been done. Future efforts should focus on setting targets for mitigation programs in Semarang's Old Town area, aligned with the objectives outlined in the contingency plan document. This could involve strengthening socialization efforts through various educational initiatives.

Situational Awareness

Flood control in the old city of Semarang is currently included in the regional medium-term development plan (RPJMD), and the regional long-term development plan (RPJPD). In addition, the Semarang City Government (Pemkot) stated that it is open to flood control strategies. This includes involving experts and academics in flood control efforts. One of them is through the horizontal infiltration pipe (PRH) innovation created by hydrologists at the University of Semarang (USM). Efficient communication depends on the process of data collection, analysis and distribution (Haddow & Haddow, 2008). Holders of the responsibility of conducting research related to the potential for flooding or tidal flooding due to climate change in the Old City of Semarang, simply by obtaining data from previous research on the characteristics of disasters in the Old City of Semarang caused by climate change which can later be brought and analyzed to make a policy that is socialized to the community regarding steps in disaster management.

Media Partnership

Haddow & Haddow mentioned mass media as the most effective medium for timely and accurate communication with the public. Disaster mitigation communication includes efforts that aim to prevent disasters (Haddow & Haddow, 2008). This was done by the old city government of Semarang, as Pusdataru Central Java mentioned that they established communication with five River Basin Councils (BBWS), namely Cimanuk Cisanggarung, Pemali Juana, Bengawan Solo, Serayu Opak, and Cintaduy. There are also six PSDA centers under the control of Pusdataru Central Java, namely BPSDA Pemali Comal, BPSDA Bodri Kuto, BPSDA Seluna, BPSDA Bengawan Solo, BPSDA Probolo, and BPSDA Serayu Citanduy and several local media.

Discussion

In this research, it can be said that the communication strategy described earlier will serve as a blueprint for planning and supervising communication activities aimed at disaster management in Kota Lama Semarang. According to Rogers, as cited in Cangara (2013), communication strategy is limited by its definition as a framework created to produce significant behavior change by spreading new concepts on a wide scale. Middleton, as cited in Cangara (2013), defines communication strategy as the most effective combination of all communication components, including communicator, message, channel (media), receiver, and impact, tailored to achieve optimal communication objectives.

This research can also be said to be a form of deepening the field of Disaster communication an emerging field of study that is currently attracting the attention of communication academics and professionals due to its pivotal role in assisting communities in dealing with disasters. Despite the importance of this field, there is still a dearth of established theories that specifically focus on disaster communication. Nevertheless,

the essence of communication, which emphasizes the communication process itself, remains fundamental. Lestari (2018) defines disaster communication as the process of creating, sending, and receiving messages by individuals or groups, either directly or through the media, at various stages of disaster management-pre-disaster, during a disaster, and post-disaster-to obtain responses or feedback.

According to Haddow & Haddow (2008), an effective disaster communication strategy aims to provide timely and accurate information to the public throughout the four phases of emergency management. This series of actions taken by the Semarang city government is in line with the goal of preventing disasters through organizing and preparing appropriate and effective measures stipulated in Law No. 24 of 2007. Moreover, as outlined by the National Disaster Management Agency (BNPB) (2017), mitigation yields significant benefits across a range of disaster scenarios, emphasizing the following key mitigation efforts:

- Understanding local hazards
- Familiarity with the local early warning system, evacuation routes, and plans
- Possessing the ability to swiftly assess situations and take proactive measures for self-protection
- Formulating a family disaster preparedness plan and conducting drills
- Diminishing the impact of hazards through mitigation exercises
- Engaging in training and skill-building activities

Typically, the sequence of disaster mitigation endeavors constitutes an interconnected cycle of core activities, encompassing hazard analysis, disaster mitigation, development of early warning systems, emergency response, and rehabilitation and reconstruction efforts (Susanto et al., 2018). These mitigation initiatives serve as an educational process for the community, imparting knowledge about disaster risks in various forms such as threats and vulnerabilities within the region, methods to mitigate these risks, and enhancing the community's capacity to address and alleviate existing vulnerabilities.

Mitigation serves as both a preventive and preparatory measure in anticipation of disasters. It encompasses both structural and non-structural approaches. Structural mitigation involves employing artificial and natural protective methods. Conversely, non-structural mitigation entails activities such as providing maps of disaster-prone areas, relocating vulnerable communities, managing land use, offering public information and counseling, and enforcing laws (Lörcher & Neverla, 2015). Structural mitigation efforts focus on fortifying buildings and infrastructure vulnerable to disasters. This includes implementing building codes, engineering designs, and construction practices to enhance resilience against disasters, such as constructing landslide retaining structures and coastal walls. Meanwhile, non-structural mitigation strategies involve avoiding disaster-prone areas through spatial and regional planning, as well as empowering local communities and governments (Haßler et al., 2014). Disaster mitigation considerations have increasingly become integral factors in regional planning strategies and programs. This integration is crucial as disaster mitigation assessments indirectly contribute to the sustainability of an area or city. For instance, coastal regions and cities implement preventive measures as part of their mitigation efforts to address disaster issues and ensure the

continued sustainability of these areas. Therefore, mitigation is closely linked to the principles of sustainable development in the urban and coastal development contexts.

According to the United Nations International Strategy for Disaster Reduction (UNISDR), an efficient communication strategy within disaster management should encompass prevention, preparedness, early warning, response, and recovery phases. It must be inclusive, addressing the requirements of all stakeholders, including communities, governments, and non-governmental organizations. Moreover, communication should be clear, affordable, and accessible to everyone. The World Health Organization (WHO) underscores the significance of health communication in disaster management, advocating for an approach that prioritizes the health needs of the community. This involves educating the populace on health-related matters, infectious diseases, and preventive measures. Effective health communication necessitates taking into account the cultural, linguistic, and literacy aspects of the target audience. In addition, according to some previous studies, effective communication has a very important role in disaster management. In emergency situations, proper strategic communication can help save lives and reduce losses caused by disasters. In this discussion, we will review several studies related to strategic communication in the context of disaster management.

In a study entitled Effective Communication Strategies for Disaster Mitigation: A Systematic Review (Bassar et al., 2018), conducted a systematic rehabilitation of the literature review focusing on effective communication strategies in disaster management. The results showed several important findings. The text highlights several key points. Firstly, it emphasizes the significance of structured and focused proactive communication to ready the community for potential disasters. Secondly, it underscores the importance of enhancing communication abilities and community awareness regarding disaster risks, suitable responses, and recovery strategies. Thirdly, it stresses the utilization of mass media platforms, including television, radio, and social media, to disseminate pertinent information broadly among the populace. Another academic study titled "Community-Based Disaster Risk Reduction: A Systematic Literature Review" also explores similar themes (Iqbal et al., 2021). The research emphasizes to conduct a systematic recovery of literature reviews that focus on community-based approaches in disaster management. The results showed that strategic communication that actively involves communities in planning, decision-making, and implementation of disaster management actions can increase the effectiveness of management efforts. Participatory communication involving local stakeholders, including communities, local governments and non-governmental organizations, strengthens engagement and a shared understanding of disaster threats and measures to be taken. There is research related to disaster mitigation through social media entitled The Role of Social Media in Disaster Communication: A Systematic Literature Review (Lörcher & Neverla, 2015). This study conducted a systematic completion of a literature review that examined the role of social media in disaster communication. The results showed that social media has great potential in delivering disaster information quickly, accurately and thoroughly to the community. Social media also facilitates community participation in sharing information, experiences and assistance requests. However, it is important to consider the authenticity and softness of information disseminated through social media and address challenges such as information overload and disinformation.

Conclusion

The disaster mitigation communication strategy carried out by the institution responsible for handling climate change-induced disasters such as floods and tidal floods in the Old Semarang city, namely the Semarang City Government, has done what it should do efficiently and optimally. This is particularly important because it is a top priority to establish a clear framework for disaster mitigation communication. This includes implementing mitigation programs such as: 1. Educating the public about disaster-prone areas 2. Providing training for disaster response Installing evacuation route maps and signs with the help of community/disaster volunteers Developing educational materials for school children Building disaster preparedness villages. These initiatives should be undertaken extensively by stakeholders such as the Semarang city government. In addition, it is crucial to have a dedicated team focusing on disaster mitigation communication to raise public awareness of flood risks due to climate change in Semarang's Old Town. In addition, the creation of an academic paper on disaster mitigation communication is expected to facilitate an effective and sustainable communication process in dealing with disasters caused by climate change in the future.

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