Disaster Mitigation Communication Model Using Folk Media

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ABSTRACT

South Central Timor is the most disaster-prone district in East Nusa Tenggara, Indonesia. The two sub-districts that are prone to floods, landslides and droughts are Kualin and Amanuban Selatan. On the other hand, the communities in these two sub-districts have local wisdom such as *koa* (an iterative concatenation of acoustic messages diffused successively) and *natoni* (expressive expositions couched in customary poetic cadence) conduits, which manifest latent potential as tools of traditional communication germane to disaster mitigation. The research aims to find a model of disaster mitigation communication through the use of folk media that can be used as a means of strengthening indigenous peoples' disaster information literacy. The theory used is situational crisis communication theory. Data collection techniques included in-depth interviews, focus group discussions and participant observation. The 26 informants consisted of community members, village officials and local disaster management agencies. Data analysis used thematic analysis techniques with 6 stages of analysis. The research found that the people of South Central Timor utilize *koa* and *natoni* as folk media for disaster mitigation purposes. The communication model for disaster mitigation in indigenous communities is to take advance of the responsiveness of folk media to strengthen disaster information literacy. This communicative model, effectuated through grassroots channels, is most compatible with the rustic terrain, which is hampered by circumscribed access to cutting-edge communication technology. Further research is recommended to quantitatively assess the effectiveness of community media use in disaster mitigation.

Keywords: *Timor Tengah Selatan, folk media, disaster communication, communication model, indigenous community.*

INTRODUCTION

Indonesia emerges as a nation conspicuously predisposed to an assorted spectrum of natural cataclysms (Lestari et al., 2020). The cumulative tally of cataclysmic occurrences within Indonesia during the temporal confines of the year 2022 culminates at an impressive 3,544 (Adi et al., 2022). Enshrined within this disconcerting panorama is the demesne of South Central Timor Regency, ensconced within the North Timor, Province of East Nusa Tenggara, where the parameters of disaster susceptibility, as quantified by the National Disaster Management Agency, ascend to the echelons of pronounced vulnerability, resonating notably at an index quantum of 155.57 (Adi et al., 2022). Within the temporal purview spanning from 2018 to 2020, the South Central Timor district ranked first in East Nusa Tenggara Province, Indonesia, in terms of the number of victims of natural disasters, with 83,493 people affected and displaced (Anonymous, 2020a). The annals of the year 2020 divulge a lugubrious tableau, as the South Central Timor Regency grappled with inundation, culminating in the displacement of 5,437 souls (Anonymous, 2020b). The sub-districts of Kualin and South Amanuban within the South Central Timor Regency manifest as poignant microcosms, bearing heightened predispositions to the onslaught of inundation, landslides, and arid spells.

The results of the problem identification revealed that, firstly, the people in these two sub-districts experience repeated disasters, particularly floods, droughts, and landslides. Secondly, community participation in disaster mitigation in the South Central Timor District is still low. In fact, the community, as one of the pillars of disaster management alongside government and the private sector, must also be actively involved, especially in efforts to reduce disaster risk in the environment in which they are located. Third, the community's understanding of disaster mitigation is very limited. This is due to the low exposure to disaster information. The upsurge in disaster casualties can be attributed, in part, to the paucity of comprehensive understanding pertaining to disaster preparedness. This informational void regarding disaster mitigation compounds community distress during catastrophic occurrences (Priyowidodo & Luik, 2013).

The critical importance of catastrophe communication, especially when directed through traditional media anchored in local knowledge, aligns well with the guidelines established in Government Regulation (PP) No. 64 of 2010, Articles 14 and 16. These provisions emphasise that disaster mitigation should encompass not only tangible interventions but also immaterial facets encompassing communication and disaster pedagogy within the societal matrix, as stipulated within the rubric of the Government of the Republic of Indonesia (Pemerintah Republik Indonesia, 2010).

In rural settings, particularly among indigenous communities, inhabitants consistently engage in various traditional communication channels to facilitate interpersonal discourse (Madhubhashini, 2021; Safitri et al., 2022). These grassroots media outlets commonly embody a diverse spectrum of indigenous wisdom that has been transmitted through generations. The local sagacity prevalent within indigenous societies is harnessed as a conventional media conduit (Azubuike & Aji, 2021). Some scholars have noted that local wisdom summarizes the worldview of communities in a particular region and demonstrates their understanding of the natural environment in which they live. This worldview is deeply rooted and has persisted among communities for decades or even centuries. Considering its longstanding nature, local wisdom becomes deeply ingrained and inseparable from the communities inhabiting the region (Ndiritu, 2021).

As noted in research on the Baduy indigenous community in Indonesia, local wisdom on disaster mitigation for the Baduy community was found to be based on "*pikukuh*" (customary provisions) as a guide to thinking and action. *Pikukuh* is the basis of wisdom and wise traditional knowledge, including disaster prevention (Permana et al., 2011). A similar study conducted in Rote Ndao Regency, Indonesia, found that people rely on myths in earthquake situations. Therefore, the experience of the people of Rote Ndao in dealing with earthquake disasters, using local wisdom, when the earthquake occurred, shouting "*ami nai ia o...*" (Thene, 2016). Other research in northern Ghana has revealed the use of local wisdom by rural communities to manage disaster risks. The research highlights the importance of integrating traditional disaster risk reduction with modern knowledge to reduce local vulnerability (Ngwese et al., 2018). However, the inquiry by Ngwese and colleagues refrains from charting a trajectory into the domain of disaster communication. Nevertheless, its findings pave a fertile avenue for the present study, particularly in terms of underscoring the cardinal significance of scrutinizing the robustness of ethnic wisdom as a time-honored conduit for disaster mitigation.

Various preliminary studies have shown the success of using local wisdom in Disaster Risk Reduction (DRR) efforts, particularly in the Indonesian context. Research conducted in Yogyakarta found that the use of local wisdom such as "*titen*" was successful in raising public

awareness of the threat of the Mount Merapi eruption disaster (Ragil et al., 2020). Other research explains the successful DRR experience of the Kasepuhan Ciptagelar as the indigenous community in West Java province. It found that they used local wisdom to build houses on stilts that are earthquake-resistant, to zone forests to preserve the environment and prevent landslides, and to enact customary laws prohibiting the buying and selling of food to prevent crop failures (Putri et al., 2024). However, the use of local wisdom for disaster mitigation faces the challenge of technological progress. Technological advances have the potential to displace local wisdom in rural communities (Fajarini & Handayani, 2020).

Based on similar study assessments, the perspective of local knowledge within the context of catastrophe management is a significant contemporary and reverberates as a key research axis, both domestically and internationally. Unfortunately, comparable studies have yet to infiltrate catastrophe communication, which is steeped in community-derived expertise. Similarly, the discourse surrounding the use of ethnic wisdom in disaster mitigation as a medium for traditional communication aimed at augmenting disaster literacy among citizens—an important aspect of disaster mitigation efforts—remains conspicuously absent from such parallel inquiries. Therefore, the aim of the research is to find a model of disaster mitigation communication through the use of folk media that can be used as a means of strengthening indigenous peoples' disaster information literacy.

LITERATURE REVIEW

Communication and Disaster Mitigation

The term disaster communication, as expounded by Haddow and Haddow (2009) refers to a purposeful transmission of information strategically geared towards elevating public alertness and preparedness, with the overarching objective of galvanizing proactive activities aimed at curtailing the specter of calamitous risks (Lestari et al., 2021). This intricate facet of communication engenders a comprehensive conduit for diffusing disaster-related insights throughout the spectrum of pre-, during, and post-disaster junctures, facilitated through a diverse array of modalities, including social media platforms (Yuliana, 2023). Evidently, the domain of disaster communication assumes a cardinal and strategic mantle in amplifying the cognitive bandwidth of society, thereby engendering a setting that is conducive to the avoidance of the deleterious toll precipitated by disaster victims (Lestari et al., 2020).

In essence, disaster mitigation constitutes a concerted endeavor directed towards minimizing the proclivity for risk and the amplitude of repercussions stemming from these calamitous events, encompassing both the corporeal and immaterial domains. The domain of disaster mitigation encompasses an intricate interplay of the corporeal and ethereal, where the non-physical realm, spanning disaster pedagogy and the enhancement of communal acumen, assumes a pivotal role in the overall effort (Jusivani et al., 2023).

The organization of disaster mitigation operates upon the collaborative triad of three principal actors: government, society, and the corporate sector (Wahyuli et al., 2023). Within this tripartite framework, the active and substantive participation of the community, positioned as a pivotal protagonist, assumes a vital role in expediting the course of societal metamorphosis amidst disaster management actions (Sjuchro & Andung, 2020).

Disasters are not only about technical management issues but also intersect with communication paradigms (Wahyuni et al., 2023). Communication emerges as an indispensable lynchpin that threads through the intricate fabric of virtually every phase of the disaster management continuum. Ineffective communication, in this context, resonates as a

pivotal determinant that can undermine the overall efficacy of disaster management undertakings (Putra & Cangara, 2023).

The Roles of Indigenous Knowledge in Disaster Management
Local wisdom such as traditional performing arts, folklore, traditional sounding devices, and traditional games can be useful as a traditional communication tool for disaster mitigation. Local wisdom in the form of folk performing arts can contain awareness and educational messages for the community to undertake DRR efforts (Permana et al., 2011). Therefore, the existence of local wisdom in the context of disaster management can play a role in communicating disaster information. Folk media have the capacity and resilience to convey different messages, including educational messages (Manurat et al., 2020). Local wisdom in the form of sounds is often used by rural communities to inform the community during disaster emergencies so that they can be prepared for disasters (Rahmawati, 2014). Folk media in conveying symbolic messages in the form of sounds is effective in providing information about the disaster threat situation (Istiyanto, 2013). The next role is to educate the public on disaster preparedness by inserting disaster mitigation messages through traditional games (Syarifuddin et al., 2023). Thirdly, local wisdom is used as an entertainment tool to heal post-disaster trauma, especially for children who are disaster victims (Cabella & Rasminto, 2022).

The role of local wisdom in community life is strongly linked to the fact that indigenous peoples are more likely to trust and follow traditional information, including traditional elders and informal leaders (Wardyaningrum, 2018). Because it is based on cultural values, the use of folk media with cultural nuances is more effective in providing information to local communities than conventional media (As'adi, 2020). This is in line with what Geertz (1983) said that mystical experiences and myths related to nature determine the communication behavior of the Javanese people in Indonesia. The Javanese people's belief in this mythical experience is the basis for their efforts to reduce the risk of natural disasters (Wardyaningrum, 2019).

The Theory of Situational Crisis Communication
The Situational Crisis Communication Theory (SCCT), propounded by Coombs, underscores the imperative of nuanced strategies for engaging with crisis scenarios (Matías & Cardoso, 2023). At its core, SCCT posits the fundamental notion that crises embody adverse situations, thereby eliciting responsive actions or crisis management from vested stakeholders. Coombs' theoretical construct unfolds in a tripartite manner, comprising the pre-crisis, crisis, and post-crisis phases. The antecedent phase involves a suite of preemptive measures, inclusive of crisis communication, tailored to temper risks. Subsequently, during the crisis phase, the response entails the dissemination of pertinent information, serving as a compass for maneuvering the multifaceted dimensions of the crisis—ranging from the tangible to the psychological — thus affording a framework for restorative initiatives and corrective events spanning the spectrum of involved parties. The denouement of the crisis ushers in the post-crisis phase, characterized by communicative accomplishments aimed at retrospective introspection, encompassing the evaluation of organizational actions and a discerning appraisal of crisis antecedents, coupled with an astute search of the composed crisis management strategies (Sulistyanto et al., 2020).

The complicated tapestry of comprehensive crisis comprehension, a prerequisite to prudently identifying and executing the most appropriate remedies, is inextricably linked to the success of communication methods. As a result, SCCT produces an integrative framework

that incorporates an erudite assimilation of comprehension, explanation, and prescriptive actions, so shaping the contours of crisis communication (Alshoaibi, 2021).

METHODOLOGY

This research adheres to the interpretive paradigm to gain an understanding of social phenomena in accordance with the subjective experiences of the community being studied. Aligned with this paradigmatic orientation, the most judicious methodological trajectory crystallizes as a qualitative exploration. Anchored within this methodological framework, the present study is underpinned by a case study design. Case studies are common in qualitative interpretive or narrative research (Krampen & Krampen, 2016). The decision to use the case study method is supported by its congruence with the research questions to address the "how" and "why" facets (Nur'aini, 2020).

The research was conducted in four villages with different types of hazards, namely Kualin and Toineke in the Kualin sub-district (threatened by floods and landslides) and Noemuke and Oebelo villages in Amanuban Selatan sub-district (threatened by drought). The prudent curation of these four villages was guided by a careful assessment of their vulnerability to disasters.

The 26 informants involved in this research range from community members, village DRR team, women's and youth groups, community leaders and government officials at both village and district levels, to representatives of respected community figures from the four vulnerable villages. The meticulous selection of informants adhered to strict criteria, including residents of the four specified villages and adults over the age of 18, while ensuring a sophisticated interplay of gender, age, occupation and social status, resulting in a rich source of data. Demographic characteristics of the participants are presented in Table 1.

Table 1. The demographic characteristics of the participants

Code	Gender	Age	Occupation	Position in the community	Types of disaster experienced
P1	Male	70 years	Farmer	Community leader	Flood and drought
P2	Male	37 years	Farmer	Youth leader	Flood and drought
P3	Male	21 years	University student	Youth member	Flood and drought
P4	Female	34 years	Farmer	Village officials	Flood and drought
P5	Male	67 years	Farmer	Head of the village	Flood and drought
P6	Male	51years	Civil servant	Disaster Management Agency	Flood, Landslides, and drought
P7	Male	41 years	Civil servant	Village officials	Flood, Landslides, and drought
P8	Female	48 years	Farmer	Community member	Flood, Landslides, and drought
P9	Female	52 years	Farmer	Community member	Flood and drought
P10	Male	63 years	Farmer	Community leader	Flood, Landslides, and drought
P11	Male	38 years	Farmer	Youth leader	Flood and drought
P12	Female	47 years	Farmer	Community member	Flood and drought
P13	Female	40 years	Teacher	Community member	Flood and drought
P14	Female	34 years	Farmer	Village officials	Flood and drought
P15	Male	57 years	Farmer	Community leader	Flood and drought
P16	Male	57 years	Farmer	Community leader	Flood and drought
P17	Female	34 years	Farmer	Village apparatus	Flood and drought
P18	Male	63 years	Farmer	Head of village	Flood and drought

P19	Female	37 years	Farmer	Community member	Flood and drought
P20	Female	25 years	Farmer	Youth member	Flood and drought
P21	Male	58 years	Farmer	Community member	Flood and drought
P22	Female	37 years	Farmer	Village DRR Team	Flood and drought
P23	Female	44 years	Farmer	Community member	Flood and drought
P24	Male	60 years	Farmer	Community leader	Flood and drought
P25	Male	53 years	Farmer	Village DRR Team	Flood and drought
P26	Female	44 years	Farmer	Women group leader	Flood and drought

Data collection was conducted from 1 November 2023 to 30 April 2024, using in-depth interviews and focus group discussion techniques. In-depth interviews were conducted with 26 informants to explore their individual perspectives on disaster mitigation efforts using folk media. Each of the informants was interviewed for an average of 50 minutes. Meanwhile, an FGD was conducted to find out the group's views on local wisdom in society related to disaster mitigation. There were 4 focus group discussions conducted separately between the women's group and the youth group. The key questions in this research are: (1). What and how are folk media used as a traditional means of communication? (2). How is disaster mitigation communication taking place? (3). What are the experiences with disaster mitigation communication using folk media? (4). What is the use of folk media in the context of a disaster?

The amassed data underwent a rigorous analytical process, characterized by the nuanced technique of thematic analysis, encompassing a methodical progression through six distinct phases. These encompassed the preliminary immersion into the data realm through the transcription of research outcomes, followed by a systematic process of coding, judiciously unveiling themes, subsequent refinement of identified themes, and meticulous categorization, culminating in the eloquent articulation of research findings within a comprehensive report (Xu & Zammit, 2020).

RESULTS AND DISCUSSION

Koa as a Medium for Disaster Mitigation Communication

The term *koa*, as per the account of P1, P2, P12, P13, and P14 carries a literal implication of a sequential message relayed through resounding vocalizations, evoked with utmost vigor in response to imminent disaster perils. Within the cultural tapestry of Timor Tengah Selatan Regency's populace, the concept of *koa* embodies a timeless bequest, reverently transmitted across ancestral lineages. It emerges as a pivotal manifestation of the community's ethnic perceptiveness, strategically harnessed for the supreme purpose of forewarning fellow inhabitants regarding looming calamitous predicaments.

An individual hailing from Toineke Village recounted their experiential engagement with the implementation of the *koa* tradition in response to an imminent flood hazard within their locality. Describing the scenario, they elucidated that during periods of intensified rainfall, marked by indications of water surging towards residential settlements, a designated group within the community responsible for executing the *koa* protocol initiates preparatory measures. The following excerpt encapsulates the verbatim excerpt extracted from the conducted interview.

…The community members undertake the act of *koa* with the vocalized directive of *Noe nemen* (indicating the onset of flooding). Consequently, individuals positioned at the forefront of the flood ingress commonly initiate the *koa* communication to apprise those situated at a distance. Subsequently, the relay of this information ensues, perpetuating a contiguous vocal cascade of *Noe nemen* messages"… (P4).

According to the informants, *koa* manifests as a quintessential folkloric medium convolutedly interwoven into the cultural tapestry of Timor Tengah Selatan's populace. Functioning as a sophisticated conduit, *koa* assumes a specialized role in coordinating the relay of cascading messages, thereby constituting a concerted striving aimed at the reduction of disaster-related vulnerabilities. In this vein, *koa* emerges as a prominent traditional communicative instrument poised to facilitate the intricate landscape of natural disaster mitigation within the societal scene.

Disaster Communication Model Through Utilization of Koa
According to P3, P5, and P13 in the background of Toineke Village, situated within the Kualin Sub-district of Timor Tengah Selatan Regency, the local administration, in collaboration with the Regional Disaster Management Agency, has undertaken a strategic venture to harness the full potential of *koa* as a tool for disaster mitigation. In this context, an assemblage of community influencers, young individuals, and village officials have been duly tasked with the meticulous execution of the *koa* practice, poised to be enacted whenever diverse disaster contingencies arise, encompassing the spectrum from floods to seismic events, and beyond.

Subsequent to this, the individuals designated within the community to execute the *koa* practice, predominantly composed of male members, exhibit a discerning awareness of the optimal junctures for the dissemination of sequential messages. The informational content conveyed through the conduit of *koa* resonates in direct consonance with the distinctive nature of the imminent peril at hand. Given the geographical context of Toineke and Kualin Villages, characterized by proneness to flooding, the relayed messages encapsulated within the *koa* tradition serve as preemptive cautionary advisories, compelling expeditious preparatory measures aimed at averting potential disaster. Linguistically, this communicative orchestration is represented by the articulation "*Noe Nemen*," which encapsulates the forewarning of encroaching waters (P8, P9, P12, and P14).

The modality of message transmission within the *koa* tradition is activated during episodes of protracted and heightened rainfall. Individuals assigned with the responsibility of controlling the *koa* protocol embark on vigilant observation along the riverine confines. Upon discerning the onset of river overflow, the initiation of the *koa* sequence is heralded by the vocal enunciation of "*Noe Nemen*." Subsequently, upon auditory reception of the resonant utterance "*Noe Nemen*," a ripple effect takes form, as successive individuals seamlessly echo the identical message, propagating a harmonious continuum of vocal articulation.

Upon auditory reception of the *koa* acoustic cue featuring the encoded message "*Noe Nemen*," the resident populace of both the focal village and its proximate settlements promptly engage in arranged preparatory actions. These preparative endeavors predominantly encompass the strategic provisioning of essential sustenance, including victuals and potables, alongside the procurement of appropriate garments. Furthermore, those individuals within the community endowed with possession of substantial livestock,

such as bovine and caprine species, diligently undertake preparative measures aimed at facilitating their timely and orderly relocation to safer neighborhoods.

In a proactive stance towards potential displacement due to imminent inundation, the local administrative authorities deftly foster collaborative arrangements with neighboring communities situated atop elevated terrains, thus immune to flood susceptibilities. It is worth highlighting that the inhabitants of Kualin and Toineke routinely opt for a strategic migratory trajectory towards the secure confines of Kiufatu Village. Elucidating this practice further, a knowledgeable informant expounds, "In the eventuality of a flood event, our customary response entails arranging a relocation to Kiufatu. Notably, we judiciously disseminate communication once Toineke succumbs to inundation, thereby facilitating our well-coordinated migration to the designated haven" (P16).

The typical duration of community displacement spans approximately seven days. Reintegration into their respective home villages is thoroughly coordinated through a symbiotic liaison between the community and village administrative authorities. This process is further facilitated by a harmonious partnership between the village administration and the Timor Tengah Selatan Regional Disaster Management Agency, which serves as a guiding authority. Noteworthy is the indispensable role played by the Regional Disaster Management Agency (BPBD) during flood-related crises, facilitating a comprehensive operational continuum encompassing evacuation operations, post-disaster rehabilitation, and reconstruction efforts, addressing potential structural deficiencies in dwellings, edifices, and public infrastructure.

Illustrating the intricacies of the disaster mitigation communication model as observed in Toineke and Kualin Villages, Figure 1 provides a visual representation of these dynamics.
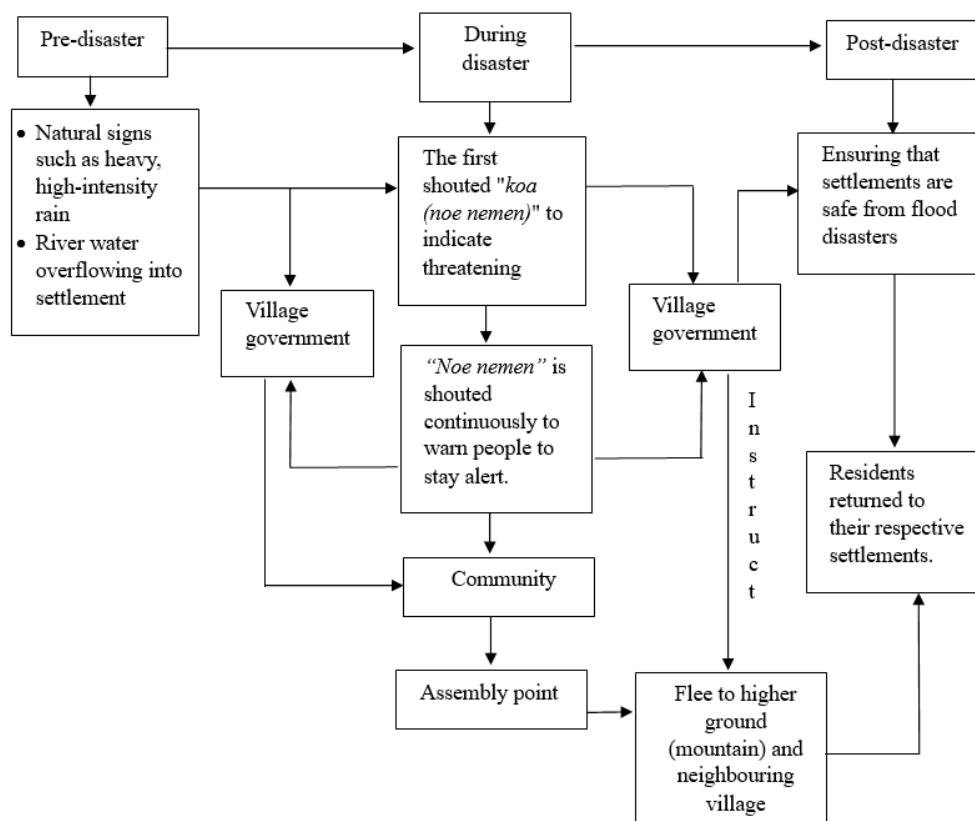

Figure 1. *Koa*-based communication model for disaster preparedness
Source: author's own work

As shown in Figure 1, *koa* is still maintained as an ancestral heritage for traditional communication purposes. The role of *koa* is still practiced today by communities in the South Central Timor District as a traditional communication tool to inform fellow residents that the environment is in danger so they must be prepared for disasters.

Koa is also one of the critical response strategies. From the perspective of Situational Crisis Communication Theory (SCCT), the use of *koa* can be seen as one of the community's efforts to respond to crisis or disaster situations (Matías & Cardoso, 2023). However, the use of *koa* only responds to one phase of the three approaches highlighted in the SCCT, namely the crisis phase. *Koa*, according to the experience and recognition of the community, plays a role in providing useful information in a crisis situation. Using *koa*, the people will be able to rescue and avoid impeding crises (Sulistyanto et al., 2020).

Natoni as a Community Medium for Disaster Information Literacy
Natoni represents a quintessential expression of ethnic artistic heritage, enacted through a collaborative discourse characterized by allegorical linguistic conventions. This cultural tradition is deeply interwoven into the fabric of social customs within Timor Barat, notably Timor Tengah Selatan, finding resonance in both administrative and cultural ceremonial contexts.

In practical application, *natoni* delineates two distinctive dimensions, each serving as an avenue for nuanced communication. The first dimension engages in a profound dialogue between the natural environment and ancestral legacy, while the second dimension, identified as *natoni lasi*, assumes a purposeful role in addressing contemporary sociocultural dynamics within the community (Andung, 2010).

In the context of disaster-related discourse, the indigenous artistic expression known as *natoni* finds application within the socio-cultural fabric of Timor Selatan, particularly manifesting as *natoni lasi*. Serving as the communicative conduit, the *atonis* or orator pedantically orchestrates the core thematic elements that are intended to be conveyed during the performative rendition of *natoni*. An intrinsic facet of the *natoni lasi* convention encompasses the incorporation of messages, notably characterized by exhortations and entreaties aimed at fostering environmental consciousness and ecological equilibrium. These articulations frequently echo the clarion call to exercise prudence in wanton deforestation practices, resonating with a profound ethos of eco-sensitivity and the imperative to safeguard the environment's intricate harmony (Andung, 2010).

As explained by the Regional Disaster Management Agency, a fundamental catalyst for the incidence of flooding in Timor Selatan as a whole resides in the communal proclivity towards environmental degradation. Embedded within enduring intergenerational customs are latent propensities that can precipitate the specter of flood hazards. Foremost among these is the practice of shifting cultivation, colloquially known as "tebas bakar," which involves the deliberate preemption of land clearance through the judicious application of controlled burning. The subsequent passage encapsulates the insights gleaned from the interview of P6:

> …The method of *tebas bakar* (slash-and-burn) or "*at kaun feu*" (expanding arable territory for agricultural purposes) involving the systematic felling of substantial arboreal specimens, consequently leads to the removal of critical vegetative barriers against erosion. This local tradition in TTS mandates the incendiary clearance of land, encompassing even sizable trees, during the

establishment of new agricultural expanses. This behavioral inclination markedly amplifies the frailty to flood and landslides catastrophes"… (P6).

The same opinion was expressed by P7, P18, P21, and P24 who mentioned that *natoni lasi*, which are specifically used for social messages, can be inserted with information about the environment. These environmental awareness messages can also be extended to disaster education in the community.

The information provided by the two informants was confirmed by one of the field officers of the Regional Disaster Management Agency of South Central Timor Regency. He emphasised that through the vehicle of *natoni lasi*, the Regional Disaster Management Agency and Village Government can artfully interlace messages germane to disaster information literacy into the social tapestry. This distinctive manifestation of *natoni* assumes the role of a conduit, strategically disseminating disaster-related knowledge during congregational assemblies, instructional sessions, dissemination campaigns, or pedagogical interventions coordinated by the governmental apparatus. These orchestrated junctures serve as the confluence point for inhabitants hailing from a singular village or encompassing several rural enclaves, thereby imparting and fortifying a nuanced understanding of disaster-related dynamics.

During these communal gatherings, the utilization of *natoni lasi* functions as a strategic mechanism designed to endow the populace with crucial insights and heighten awareness concerning the indispensability of environmental guardianship, as well as the imminent hazards associated with deleterious practices, such as ecological degradation. Within this context, the propagation of messages encompasses a spectrum of exhortations and awakenings, beseeching the community to abstain from the injurious act of establishing new plots through slash-and-burn techniques.

The procedural framework for facilitating disaster information literacy via the utilization of *natoni lasi* commences with the inception of enlightenment and awareness initiatives devised by governmental authorities. The custodians of *natoni* and participants of the collective group (*na heen*) are assembled, subsequently receiving directives aimed at conveying essential messages pertaining to disaster literacy. Thereafter, the *atonis* or purveyors of *natoni* undertake the task of translating these foundational messages into the idiom of traditional figurative language. As stated by P5, P15, P16, P23, and P26, *natoni* is a cultural performance that contains sacred messages, and when messages about disaster mitigation are included, it is more likely to be followed. This obedience is because *natoni* is a ritual that has been highly respected by the community for generations.

The utilization of *natoni lasi* as a tool for elevating community consciousness and competence in disaster literacy is underpinned by a conviction of its heightened efficacy. As enunciated by Informant P6, the populace of Timor Tengah Selatan, particularly those residing in rural landscapes, exhibit a profound affinity for the ethnic ethos and ancestral understanding. When messages pertaining to disaster literacy are couched within the linguistic framework of *natoni*, their communicative impact experiences a significant magnification. This phenomenon emanates from the deep-seated veneration accorded by the dwellers of Timor Tengah Selatan to ceremonial pronouncements rendered through the prism of customary rituals. The schematic representation of the disaster communication paradigm facilitated through the instrumentalization of *natoni* is visually encapsulated in Figure 2.
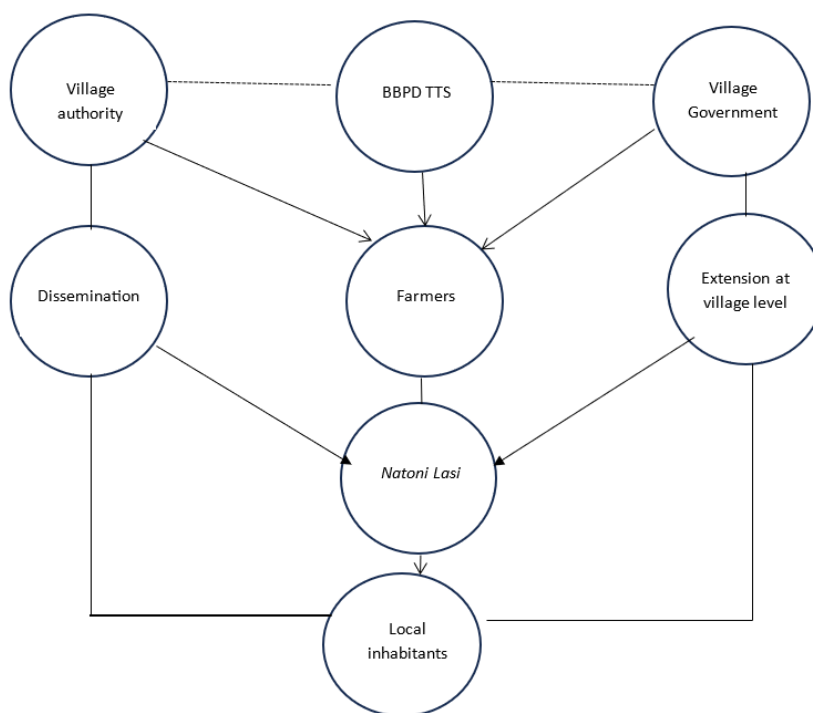
Figure 2. Disaster communication model through *natoni*
Source: author's own work

Discussion

The comprehensive penetration of contemporary communication technologies remains constrained, given the substantial demographic inhabiting rural landscapes marked by notable illiteracy levels and pervasive economic deprivation. Within this context, grassroots media surfaces as a viable conduit for interpersonal interaction and exchange, particularly catering to the communication requirements of marginalized communities in geographically isolated settings (Tamuli & Mishra, 2023). Folk media are traditional means of communication that are close to their lives as they are part of the rituals and customs of indigenous communities.

A parallel scenario is evident within the precincts of the South Central Timor Regency. The march of communication technology has not automatically triggered a shift toward digital paradigms. Rural inhabitants, constrained by circumscribed technological outreach, persist in embracing conventional channels of communication, symbolized by indigenous performative art forms that have been bequeathed by ancestral lineage (Andung & Nope, 2017). Both *koa* and *natoni* typify folk media deeply interwoven with the fabric of existence in South Central Timor, their roles purposefully harnessed to disseminate messages germane to disaster literacy and the contours of mitigation strategies.

The efficacy of utilizing folk media as a conduit for imparting developmental information, particularly encompassing ecological matters, is well evident. A prime exemplar is the proficient deployment of "Yakshagana" as a folk medium, evidencing its capacity to significantly enhance community consciousness regarding environmental intricacies (Venkataramana & Kumar, 2022). The strategic application of folk media as vehicles of communication within local societies is acknowledged for its heightened effectiveness, seamlessly aligning with their linguistic fluency and cognitive resonance (Abdulai et al., 2023). Furthermore, the intrinsic familiarity of folk media within their cultural milieu lends

substantial potency to information dissemination, particularly when conveyed through communication modalities deeply ingrained in their daily routines (Gogoi et al., 2022). In addition, the cultural heritage embedded within folk media confers a distinctive advantage, fostering social cohesion and reinforcing the communal identity encapsulated within these mediums (Qiu, 2023).

The utilization of a variety of communication tools for the purpose of disaster mitigation is considered of utmost importance. This underscores the pivotal role that culturally embedded communication resources play in the realm of community-driven disaster management (Liu, 2022). Furthermore, the traditional performing arts within local societies exhibit significant potential and effectiveness when harnessed for the purpose of disseminating information to their intended audience (Kumar, 2022; Thulla et al., 2022).

Amid the backdrop of overarching global climate shifts, the imperative emerges for adaptation strategies intricately interweaving local ethos and customary norms, a cardinal facet in fortifying the resilience of ethnic societies (Chitengi Sakapaji, 2022). The lacuna in disaster preparedness within these societal spheres accentuates their defenselessness to looming hazards, accentuating the urgency for governmental interventions and stratagems to foster societal robustness, with the engagement of custodians of tradition representing a pivotal course of action (Munsaka et al., 2021). These venerable custodians, acting as effective outlets, can effectively channel the disseminated messages of disaster literacy, particularly when relayed through grassroots mediums. The symbiotic liaison between governmental entities and local communities in disaster management exertions harbors substantial potency, auguring the materialization of transformative and sustainable sociocultural development (Lam et al., 2020). In practice, the use of *koa* and *natoni* as folk media is done through the participation of non-formal leaders as community figures. As community leaders, they are always listened to and followed when communicating any information to the residents. Therefore, the use of *koa* as a traditional communication tool for disaster mitigation purposes is considered effective in building disaster preparedness in the community, especially in the South Central Timor District. As described in the research findings, in the community's experience, *koa* was helpful in the following aspects of disaster crisis situations. First, it informed the community of the crisis situation they were facing. Strong shouting from one person to another was considered to be very helpful because in a short time, all residents of a village would receive the same information in a short time (Istiyanto, 2013; Rahmawati, 2014). This situation is very suitable as a traditional medium, especially in rural areas with a high level of adherence to cultural values and rules and limited access to internet-based technology (As'adi, 2020). Secondly, *koa* plays a role in helping people in crisis situations to take steps to save themselves and their materials. As almost all informants acknowledged, the existence of *koa* allows residents to still undertake rescue efforts and immediately evacuate goods and livestock to safer neighbouring villages. On the other hand, the effectiveness of *koa* as a folk media for disaster mitigation is not as strong as in *natoni*. Performing *natoni* requires a series of preparations for the spokesperson (*atonis*). In addition, because *natoni* is similar to traditional rhymes, its effectiveness is largely determined by the speaker's ability to convert disaster literacy messages into traditional figurative language. Nevertheless, *natoni* has the potential to be maximized as a traditional communication tool, especially in the pre-disaster phase to provide disaster education to local communities.

It is generally understood that the effective use of *koa* and *natoni* as the folk media for disaster preparedness is not without its challenges, especially in the face of technological advances. A digitised society, with easy access to internet-based technology, has emerged as a result of technological advances in the 21st century (Ali et al., 2024). One of the impacts of advanced technology is disruption in various aspects (Löhr, 2023). Technological advances followed by the rapid penetration of the internet into rural areas can threaten local culture (Poroe et al., 2022). This challenge may also threaten traditional communication practices based on folk media, including *koa* and *natoni*.

After exposing the findings of this inquiry to the examination of Combs' situational crisis communication theory, it can be argued that the use of *koa* as a conduit for disaster mitigation corresponds with crisis responsiveness during emergency situations. In contrast, the use of *natoni lasi* is a pre-crisis phase endeavor that embodies a proactive response plan (Sulistyanto et al., 2020). However, the three crisis approaches emphasised in this theory cannot all be fulfilled through the use of *koa* and *natoni* folk media. In practice, *natoni* can only help in the pre-crisis phase, when disaster literacy messages are inserted to increase community knowledge. In the community's experience, this traditional communication channel cannot be used in the crisis and post-crisis phases. *Koa*, on the other hand, is only effectively used in crisis situations as a traditional communication channel that can help communities cope with disaster emergencies. *Koa* has never been used by the community in the pre- and post-crisis phases.

CONCLUSION

The findings of this study reveal several significant insights: Firstly, the inhabitants of the Timor Tengah Selatan region adeptly harness the potential of *koa* and *natoni* as ethnic media tools for disaster mitigation purposes. Secondly, the communication model employed for disaster mitigation within the native community involves the reinforcement of folk media to enhance disaster literacy. This model proves particularly pertinent for deployment in rural settings where access to modern communication technology is limited. Consequently, it is recommended that the Government of Kabupaten Timor Tengah Selatan undertake measures to rejuvenate the utilization of *koa* and *natoni* as homegrown media platforms, aimed at fortifying the rural populace's capacity to confront disaster threats.

Furthermore, a recommendation is extended to the local Disaster Management Agency to continue promoting a disaster literacy campaign by harnessing the potential of folk media. The implications of this study underscore the notion that community-based DRR efforts can be significantly bolstered through the utilization of diverse traditional communication channels rooted in local wisdom and cultural norms. In this context, the avenue of disaster mitigation communication can be effectively enhanced through the optimization of folk media resources as an efficient means of information dissemination. Further research is recommended to conduct quantitative measurements to assess how effective the use of community media is on disaster literacy and community disaster preparedness.

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REFERENCES

Abdulai, M., Ibrahim, H., & Latif Anas, A. (2023). The role of indigenous communication systems for rural development in the Tolon District of Ghana. *Research in Globalization*, *6*, 100128. https://doi.org/10.1016/J.RESGLO.2023.100128

Adi, W., Shalih, A., Shabrina, O., Rizqi, F. Z., Putra, A., Karimah, A. S., Eveline, R., Alfian, F., Syauqi, A., Septian, R. T., Widiastono, Y., Bagaskoro, Y., Dewi, A. N., Rahmawati, I., Seniarwan, Suryaningrum, H. A., Purnamasiwi, D. I., & Puspasari, T. J. (2022). *IRBI (Indeks Risiko Bencana Indonesia) Tahun 2022* (Vol. 01). Badan Nasional Penanggulangan Bencana.

Ali, M. N. S., Salim, N. A. M., Andung, P. A., Jelahut, F. E., & Pabha Swan, M. V.D. (2024). Low-income, yet Highly Literate? The future towards developing a 'super smart society.' *Jurnal Komunikasi: Malaysian Journal of Communication*, *40*(1), 358–375. https://doi.org/10.17576/JKMJC-2024-4001-20

Alshoaibi, M. (2021). Crisis communication and the Fukushima nuclear disaster: An analysis in light of the situation crisis communication theory. *The Scientific Journal of Public Relations and Advertising Research*, *22*(Juli/December), 1–35.

Andung, P. A. (2010). Komunikasi ritual Natoni Masyarakat Adat Boti dalam di Nusa Tenggara Timur. *Jurnal Ilmu Komunikasi*, *8*(1), 36–44.

Andung, P. A., & Nope, H. A. (2017). Media Rakyat sebagai Media Komunikasi Pembangunan Masyarakat Suku Boti. *Jurnal Ilmu Komunikasi*, *14*(2), 277–292. https://ojs.uajy.ac.id/index.php/jik/article/view/870/1079

Anonymous. (2020a). *Bencana Alam Menurut Wilayah Kab/kota (Timor Tengah Selatan) Tahun 2018 s/d 2020*. BNPB.

Anonymous. (2020b). *Korban Banjir di Timor Tengah Selatan 5.437 Orang*. UGM, PKMK FK. https://bencana-kesehatan.net/index.php/13-berita/berita/1097-korban-banjir-di-timor-tengah-selatan-5437-orang

As'adi, M. H. (2020). Media tradisional sebagai media komunikasi pembangunan masyarakat Titidu Gorontalo. *Kalijaga Journal of Communication*, *2*(1), 1–16. https://doi.org/nsnj

Azubuike, F. C., & Aji, T. C. (2021). Role of Information and Communication Technologies (ICTs) in repackaging Indigenous Knowledge: A 21st century perspective. *Library Philosophy and Practice*, 1–14.

Cabella, T. P., & Rasminto. (2022). Efektivitas metode permainan tradisional pada trauma healing korban pasca bencana gempa bumi di Cianjur. *International Seminar On Islamic Education & Peace*, *2*, 194–202.

Chitengi Sakapaji, S. (2022). Integrating local and Indigenous Ecological Knowledge (IEK) systems into climate adaptation policy for resilience building, and sustainability in agriculture. *International Journal of Sustainable Development Research*, *8*(1), 9. https://doi.org/10.11648/j.ijsdr.20220801.12

Fajarini, U., & Handayani, N. (2020). Dampak teknologi modern terhadap kearifan lokal sebagai (Studi kasus Kampung Adat Cireundeu Jawa Barat). *SOSIO DIDAKTIKA: Social Science Education Journal*, *7*(2), 128–146.

Gogoi, B., Ansari, M. ., Sharma, A. K., Barman, M., & Saikia, D. (2022). Effectiveness and suitability of traditional folk media for agriculture among different ethnic groups in Dhemaji District of Assam. *Indian Research Journal of Extension Education*, *22*(4), 22–26.

Istiyanto, S. B. (2013). Penggunaan media komunikasi tradisional sebagai upaya pengurangan jatuhnya korban akibat bencana alam. *Jurnal Ilmu Komunikasi*, *2*(2), 1–82.

Jusivani, L., Widana, I. K., Bahar, F., Widodo, P., Saragih, H., & Kusuma. (2023). Strategi BPBD Nusa Tenggara Barat dalam meningkatkan mitigasi bencana gempa bumi guma mendukung keamanan nasional. *Nusantara: Jurnal Ilmu Pengetahuan Sosial*, *10*(4), 1999–2007. http://jurnal.um-tapsel.ac.id/index.php/nusantara/index

Krampen, D., & Krampen, G. (2016). Case studies in clinical psychology: Are we giving up a publication type and methodology in research on and teaching of psychopathology and psychotherapy? *International Journal of Psychological Studies*, *8*(3), 173. https://doi.org/10.5539/ijps.v8n3p173

Kumar, P. (2022). Analysis of Communication through Traditional Folk Media for Rural Development in Rajasthan. *International Journal of Social Sciences*, *11*(3), 46852. https://doi.org/10.46852/2249-6637.03.2022.6

Lam, D. P. M., Hinz, E., Lang, D. J., Tengö, M., von Wehrden, H., & Martín-López, B. (2020). Indigenous and local knowledge in sustainability transformations research: A literature review. *Ecology and Society*, *25*(1). https://doi.org/ggjfw8

Lestari, P., Paripurno, E. T., & Surbakti, H. (2021). Social cohesion through social media as part of disaster information system in disaster prone area. *Jurnal Komunikasi Ikatan Sarjana Komunikasi Indonesia*, *6*(2), 284–295. https://doi.org/nsnq

Lestari, P., Ritonga, R., Ruliana, P., & Barus, C. C. B. (2020). Disaster communication uses field training exercise simulation as an important aspect of disaster risk reduction. *Jurnal Komunikasi: Malaysian Journal of Communication*, *36*(1), 166–186. https://doi.org/10.17576/JKMJC-2020-3601-10

Liu, W. (2022). Disaster communication ecology in multiethnic communities: Understanding disaster coping and community resilience from a communication resource approach. *Journal of International and Intercultural Communication*, *15*(1), 94–117. https://doi.org/10.1080/17513057.2020.1854329

Löhr, G. (2023). Conceptual disruption and 21st century technologies: A framework. *Technology in Society*, *74*(February), 1–9. https://doi.org/nsns

Madhubhashini, G. T. (2021). Traditional folk communications among indigenous people: Veddas Community in Sri Lanka. *Journal of Development Communication*, *32*(2). https://jdc.journals.unisel.edu.my/index.php/jdc/article/view/209

Manurat, S. W., Mandey, N., & Runtuwene, A. (2020). Peran media komunikasi tradisional dalam penyampaian informasi pada masyarakat Desa Mala Kecamatan Melonguane Kabupaten Kepulauan Talaud. *Jurnal Acta Diurna Komunikasi*, *2*(3), 1–13. https://ejournal.unsrat.ac.id/index.php/actadiurnakomunikasi/article/view/29772

Matías, A., & Cardoso, L. (2023). Crisis communication: Theoretical perspectives and dynamics of a complex concept. *Visual Review. International Visual Culture Review / Revista Internacional de Cultura*, *10*, 2–15. https://doi.org/10.37467/revvisual.v10.4597

Munsaka, E., Mudavanhu, C., Sakala, L., Manjeru, P., & Matsvange, D. (2021). When disaster risk management systems fail: The Case of Cyclone Idai in Chimanimani District, Zimbabwe. *International Journal of Disaster Risk Science*, *12*(5), 689–699. https://doi.org/10.1007/s13753-021-00370-6

Ndiritu, S. W. (2021). Drought responses and adaptation strategies to climate change by pastoralists in the semi-arid area, Laikipia County, Kenya. *Mitigation and Adaptation Strategies for Global Change*, *26*(3).

Ngwese, N. M., Saito, O., Sato, A., Boafo, Y. A., & Jasaw, G. (2018). Traditional and local knowledge practices for disaster risk reduction in Northern Ghana. *Sustainability, 10*(3). https://doi.org/10.3390/su10030825

Nur'aini, R. D. (2020). Penerapan metode studi kasus yin dalam penelitian arsitektur dan perilaku. *INERSIA: LNformasi dan Ekspose Hasil Riset Teknik SIpil dan Arsitektur*, *16*(1), 92–104. https://doi.org/10.21831/inersia.v16i1.31319

Pemerintah Republik Indonesia. (2010). Peraturan Pemerintah Republik Indonesia No. 64 Tahun 2010 tentang Mitigasi Bencana di Wilayah Pesisir dan Pulau-Pulau Kecil.

Permana, R., Eka, C., Nasution, I. P., & Gunawijaya, J. (2011). Kearifan Lokal tentang Mitigasi Bencana pada Masyarakat Baduy. *Makara Human Behavior Studies in Asia, 15*(1), 67-76. https://doi.org/10.7454/mssh.v15i1.954

Poroe, H., Tompo, H. B., & Idayanti, E. (2022). Learning strategy for Christian education based on local wisdom in disruption era. *The International Conference on Theology, Humanities, and Christian Education (ICONTHCE 2021)*, *669*, 61–64. https://doi.org/10.2991/assehr.k.220702.015

Priyowidodo, G., & Luik, J. E. (2013). Literasi mitigasi bencana tsunami untuk Masyarakat Pesisir di Kabupaten Pacitan. *Ekotrans*, *13*(1), 47–61.

Putra, F. D., & Cangara, H. (2023). 72 jam pertama pendekatan komunikasi risiko untuk kesiapsiagaan bencana. *Al Munzir - Jurnal Kajian Ilmu-Ilmu Komunikasi Dan Bimbingan Islam*, *16*(1).

Putri, N. A., Sutiyo, Yunari, I., Supriatna, A., & Uluputty, I. (2024). Mitigasi bencana berbasis kearifan lokal pada masyarakat adat Kasepuhan Ciptagelar. *Gema Publica: Jurnal Manajemen dan Kebijakan Publik*, *9*(1), 65–82. https://doi.org/nsnw

Qiu, Q. (2023). Identifying the role of intangible cultural heritage in distinguishing cities: A social media study of heritage, place, and sense in Guangzhou, China. *Journal of Destination Marketing and Management*, *27*(December 2022), 100764. https://doi.org/10.1016/j.jdmm.2023.100764

Ragil, C., Prama, A. R. E., & Effendi, H. (2020). Kearifan lokal dalam mitigasi bencana di Wilayah Lereng Gunung Merapi. *Jurnal Reka Ruang*, *3*(1), 10–18.

Rahmawati, W. (2014). Peran media komunikasi dalam tanggap bencana. *Jurnal Dialog Penanggulangan Bencana*, *5*(1), 25–40.

Safitri, B. V., Maulida, N., & Waru, T. (2022). Sorong Serah Aji Krama as a traditional communication media of indigenous Tribe Of Sasak. *Proceedings Of International Conference On Communication Science*, *1*(1), 59–66. https://doi.org/nsnx

Sjuchro, D. W., & Andung, P. A. (2020). Rural community in Indonesia in their fight for governance transparency through radio. *Utopía y Praxis Latinoamericana*, *25*(10), 78–91.

Sulistyanto, A., Usmar, U., & Hermiyetti, H. (2020). Model of crisis communication management in the perspective of situational crisis communication theory at the transportation ministry. *Jurnal Komunikasi Ikatan Sarjana Komunikasi Indonesia*, *5*(2), 232–242. https://doi.org/10.25008/jkiski.v5i2.408

Syarifuddin, S., Efendi, J. F., & Fauzia, F. A. (2023). Pemahaman mitigasi bencana alam siswa berbasis permainan tradisional pada pembelajaran matematika di Sekolah Darurat Semeru. *Teorema: Teori dan Riset Matematika*, *8*(1), 152. https://doi.org/nsnz

Tamuli, P., & Mishra, K. (2023). *Folk media and social development: A study on Bhaona and Chhau Performing Arts*. *Journal of Communication and Management, 2*(2), 135–138.

Thene, J. (2016). Mitigasi bencana gempa bumi berbasis kearifan lokal Masyarakat Rote Kabupaten Rote Ndao Provinsi Nusa Tenggara Timur. *Jurnal Teori dan Praksis Pembelajaran IPS*, *1*(2), 102–106. https://doi.org/10.17977/um022v1i22016p102

Thulla, P. F. Y., Koroma, A., Moriba, S., & Fofanah, I. M. (2022). Folk media: Existence, forms, uses and challenges in Mende indigenous communities of Southern Sierra Leone. *Research Journal in Advanced Humanities*, *3*(4), 13–25. https://doi.org/nsn2

Venkataramana, P. K., & Kumar, S. (2022). Effectiveness of folk theatre in conveying environmental consciousness: A case study of Yakshagana. *Media Asia*, *49*(2), 111–129. https://doi.org/10.1080/01296612.2021.2005961

Wahyuli, S., Nurfarhaty, & Haeril. (2023). *Natural disaster management in local government from the perspective of collaborative governance*. JSIP: Jurnal Studi Ilmu Pemerintahan, 4(1), 93–102.

Wahyuni, H., Rum, M., Octastefani, T., & Fitrah, A. (2023). Between science, religion, and politics: multi-layered communication responses to maritime disaster in Indonesia. *Media Asia*, *50*(3), 355–372. https://doi.org/10.1080/01296612.2022.2153462

Wardyaningrum, D. (2018). Kepercayaan masyarakat terhadap informasi tradisional dan modern pada peristiwa bencana alam. *Jurnal ASPIKOM*, *3*(4), 609. https://doi.org/10.24329/aspikom.v3i4.264

Wardyaningrum, D. (2019). Communication of local people about myths of Merapi Mountain in Disaster Mitigation. *Jurnal Komunikasi Indonesia*, *3*(1). https://doi.org/nsn5

Xu, W., & Zammit, K. (2020). Applying thematic analysis to education: A hybrid approach to interpreting data in practitioner research. *International Journal of Qualitative Methods*, *19*, 1–9. https://doi.org/10.1177/1609406920918810

Yuliana, Y. (2023). The role of media for communication during the disaster. *Jurnal Studi Ilmu Sosial Dan Politik (Jasispol)*, *3*(1), 1–7.