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# Environmental Communication and Disaster Mitigation In Sampang Floods

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**Abstract:**
**Background**:This study aims to find an environmental communication model for flood disaster mitigation in Sampang, Madura. The benefits of this research can increase public and government awareness in increasing the effectiveness of flood disaster communication in Sampang, Madura. Organizational Information Theory is used as material for this study. Qualitative descriptive research method with data collection techniques, observation, interviews, documentation. The research location is in Sampang District, Madura, especially with communities affected by floods, the Regional Disaster Management Agency (BPBD), the Social Service, the Village Head, and members of the youth community who care about disasters. The result of this research is in the form of an environmental communication model to support the flood disaster early warning system.
**Materials and Methods**: This research is a qualitative research. Data were collected by observing, in-depth interviews and documentation. Interviews were conducted with the Sampang community, and the Regional Disaster Management Board (BPBD), and members of the disaster-concerned community. The research was conducted in Sampang Regency, which is the location where floods occur almost every rainy season. The informants of this study were the Regional Disaster Management Board (BPBD), community members and community members who care about disasters. The research instrument used was in-depth interviews (in dept-interview), observation and documentation.
**Results**: The cycle of environmental and disaster communication models shows that in dealing with disasters, a management stage is needed. In the mitigation of the Sampang flood disaster, there are two interrelated things, namely humans and the environment as well as two stages of disaster management, namely risk management and crisis management. Risk management includes preparedness, mitigation, and prevention which will result in protection, life and comfort for all flood victims in Sampang.
**Key Word**: Sampang flood, environmental communication, disaster management

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## I. INTRODUCTION

Sampang is one of the districts in Madura Island, East Java which is prone to natural disasters from flooding. Community resilience is still low and the communication process in a disaster environment has not been effective. According to Oepen and Hamacher, 1999; Chox, 2010, environmental communication is a planned and strategic communication process used by media products to support effective policy making, community participation and implementation of projects directed at environmental sustainability. This explains that an environmental communication as a two-way interaction of social processes that allows the person concerned to understand certain environmental factors and interdependence. They also respond to problems in a better way by using this method. Environmental communication aims to increase people's ability to be able to respond to any appropriate signs of the environment with the well-being of both human civilization and natural biological systems

This study uses organizational information theory (West and Turner 2008: 339-349) with a number of basic assumptions, namely: (1) Human organization exists in an information environment. This assumption states that organizations depend on information in order to function effectively and achieve their goals. (2) The information received by an organization differs in its obscurity. Vagueness is meant here is ambiguity in terms of information received by the organization. (3) Human organizations are involved in information processing to reduce obscurity of information. In an effort to reduce this ambiguity, organizations began to carry out collaborative activities to make the information system received well understood. The Sampang Flood disaster is closely related to management and information on environmental conditions. In order to reduce information confusion, the organization, in this case the BPBD Sampang, strives for information about the Sampang flood environment to be managed effectively.

Flood is the overflowing of a river flow due to water exceeding the capacity of the river so that it overflows and inundates the land or lower areas around it. Kali Kemuning which flows across the urban area of Sampang is often a disaster for the community when the rainy season arrives. The disaster that occurs is a flood disaster where every year there is always a flood, although it is not too big, it is quite disturbing to community activities and loss of property. Topographically, Sampang Regency consists of a stretch of hills, altitude between 0-300 m above sea level and an average slope between 2 - 25%. Topography like this really supports the process of soil erosion, which in essence carries sediment from the top, which in turn is deposited in river flows and causes silting of rivers so that the river's capacity for continuous rainwater will cause flooding. The occurrence of flooding in Sampang Regency, besides being due to topography, is also due to the natural environment that does not support the hydrological cycle process or the process of rotating water on the earth's surface.

Environmental communication is greatly influenced by world views or cultural orientation towards God, life, death, the universe, truth, matter (wealth) and other philosophical issues related to life. Differences in ideology can lead to different views or concepts about human relationships and human perceptions of the reality around them (Mulyana, 2007). In order to overcome various differences in perceptions and confusion of information about the Sampang Flood eruption disaster, Organizational Information Theory (West Richard and Lynn H. Turner, 2008: 339) can be used as a basis for thinking and acting. The assumption of this theory is that; (1) Human organizations exist in an information environment, (2) Information received by an organization differs in terms of its obscurity, (3) Human organizations are involved in information processing to reduce information ambiguity.

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## II. MATERIAL AND METHODS

This research is a qualitative research. Data were collected by observing, in-depth interviews and documentation. Interviews were conducted with the Sampang community, and the Regional Disaster Management Board (BPBD), and members of the disaster-concerned community. The research was conducted in Sampang Regency, which is the location where floods occur almost every rainy season. The informants of this study were the Regional Disaster Management Board (BPBD), community members and community members who care about disasters. The research instrument used was in-depth interviews (in dept-interview), observation and documentation. The data analysis technique used the Spreadley (1980) data analysis model with the following stages: 1. Analysis before going to the field. Results of preliminary secondary data studies to determine the focus of research. 2. Data analysis while in the field. The researcher analyzed the data simultaneously by conducting observations and interviews. When the researcher feels that the informant's answer is not sufficient, the researcher continues the question until the data obtained is valid. 3. Complete data analysis from the field.

Several steps are taken at this stage, including: 1). Domain analysis, which provides a general and comprehensive overview of the panel object. 2). Taxonomic analysis, namely the detailed description of the domain analysis through focused observation. 3) Componential analysis, namely looking specifically for every detail of the internal structure, and 4). Analysis of cultural themes, which is looking for relationships between data whose results are substantive and formal findings. The data analysis methods used vary according to the stages of the research being carried out. Disaster mitigation identification was collected by means of in-depth interviews and then analyzed. After identifying all types of problems and how to overcome them, the researcher held discussions with the team of related parties to make conclusions.

## III. RESULT

The location around the Sampang flood is a highrisk area for a disaster. This underlies the importance of disaster mitigation in order to improve environmental safety, according to the 9 national development priorities for 2015-2019. For the implementation of disaster mitigation, environmental communication is needed to convey the intention to receive messages from a person or group of people to other people, whether private, group, public or en masse related to environmental situations and conditions, both physical and social. (Mulyana, 2007) states that environmental communication greatly affects the world view or cultural orientation

towards God, life, death, the universe, truth, matter (wealth) and other philosophical issues related to life. Differences in ideology can lead to different views or concepts about human relationships and human perceptions of the reality around them.

To eliminate various differences in perceptions and confusion of information about the Sampang flood disaster, Organizational Information Theory (West Richard and Lynn H. Turner, 2008: 339) can be used as a basis for thinking and acting. The assumption of this theory is that; (1) Human organizations exist in an information environment, (2) Information received by an organization differs in terms of its obscurity, (3) Human organizations are involved in information processing to reduce information ambiguity.

The results of Oepen and Hamacher's research (1999) explain that environmental problems still occur in Indonesia and appear on television, radio, newspapers and other social media news. Floods, landslides, global warming and volcanic eruptions are part of environmental issues that require a lot of public attention. The end of the coverage of environmental issues is related to solving problems that always end up in the interests of certain individuals or groups who take advantage of the situation, so that conflicts occur. Conflict should not have occurred if all elements of society could understand what actually happened, not merely from a cultural and historical perspective. This opinion is corroborated by (Cox Robert; 2010) who describes in the current debate on sustainable development, communication and education as a process of environmental learning that has an impact on at least two levels; 1) Environmental perceptions that are largely determined by the cultural context, vision, lifestyle and value assessments obtained through communication; 2) Criteria and options for decisions regarding sustainable practices of public discourse and communication alternatives in a transparent manner. This in turn can change people's perceptions by using logic and the application of science.

The cycle of environmental and disaster communication models shows that in dealing with disasters, a management stage is needed. In the mitigation of the Sampang flood disaster, there are two interrelated things, namely humans and the environment as well as two stages of disaster management, namely risk management and crisis management. Risk management includes preparedness, mitigation, and prevention which will result in protection, life and comfort for all flood victims in Sampang. This risk management is closely related to development planning by the regional central government, including the National Disaster Management Board (BNPB), Bupati, the Regional Disaster Management Agency (BPBD), the Head of Social Service, Kominfo, National Unity and Community Protection (Kesbanglimas), Police, Army Indonesian National Armed Forces), Camat, Village Heads, disaster care communities, and society. The government in implementing communication on disaster environment does not run smoothly due to various disturbances both from the environmental and human sides. Management that is carried out after a disaster is crisis management including emergency response, rehabilitation and reconstruction, which results in a previously unstable environment and society becoming stable.

The Sampang Flood Disaster and Environmental Communication Model has elements of distinctive local culture. The Madurese community, especially Sampang, have expertise in reading natural signs and symptoms before flooding. If they see a black cloud in the northern region of Sampang, it will certainly have an impact on flooding in their area. The Madurese kinship system is very strong. The Madurese kinship is so open and wide. The concept of kinship in Madurese terms is called beleh (karabet), taretan dibi '. Madurese maintain kinship in such a way that the tradition of visiting each other among relatives is still very strong today. In the context of this flood disaster, the residents of Sampang Madura rely heavily on information from their relatives who come from the northern region of Madura to prepare for a disaster.

**Disaster**

According to Law No.24 of 2007 concerning Disaster Management, what is meant by disaster is "an event or series of events that threatens and disrupts people's lives and livelihoods caused either by natural factors, non-natural factors and human factors, resulting in human casualties. environmental damage, property loss and psychological impact.

According to the law, there are three types of disasters, namely natural disasters, non-natural disasters and social disasters. Based on this category, an event is called a natural disaster if it causes damage, disruption to life, livelihoods and the community which results in victims and the damage is beyond the capacity of the local community to cope with the resources they have.

From the explanation above, the community's ability to deal with disasters is important. From another perspective on disasters, the political economy viewpoint of seeing a natural phenomenon such as storms, earthquakes, floods does not have to be a disaster. Warning, protection, knowledge, expertise, access, both to material and knowledge resources, networks and sources of assistance can mitigate the impact of natural events and enhance human capacity to recover their effects. (Blaikie in Abdullah: 2008).

According to Law No. 24 of 2007, there are several types of disasters, among others (bnpb.go.id):

1. Natural disasters such as landslides, floods, droughts, earthquakes, tsunamis, volcanic eruptions and hurricanes.

2. Non-natural disasters, namely technological failures, epidemics, epidemics and extraordinary events
3. Social disasters, such as terror

Natural disasters are known to cause environmental damage directly, unlike non-natural disasters and social disasters. Seeing the vulnerability of disaster events in Indonesia, the government needs to pay attention to disaster communications that must be carried out in each province.

**Mitigation**

Disaster mitigation is the efforts made in the community to reduce vulnerabilities and increase the community's ability to reduce disaster risk, for example: disaster training, emergency management training and so on. The government and the people of Sampang, especially around the City District during the rainy season, should always be prepared and be disaster resilient.

Mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to property and human life. So that mitigation can be said as a mechanism so that the community can avoid the impact of potential disasters. Action can focus on avoiding disasters, in particular avoiding placing people and property in hazardous areas. Including efforts to control hazards through various construction of special facilities and application of certain technologies Mitigation is defined as any sustained action taken to reduce or eliminate long-term risk to property and human life. So that mitigation can be said as a mechanism so that the community can avoid the impact of potential disasters. Action can focus on avoiding disasters, in particular avoiding placing people and property in hazardous areas. Including efforts to control hazards through various construction of special facilities and application of certain technologies.

Article 1 number 9 Law of the Republic of Indonesia Number 24 of 2007 concerning Disaster Management defines mitigation as a series of efforts to reduce disaster risk, either through physical development or awareness and increased capacity to face the threat of a disaster. According to Article 1 paragraph 6 of Government Regulation No. 21 of 2008 concerning the Implementation of Disaster Management, disaster mitigation is a series of efforts to reduce disaster risk, both through physical development and awareness and increased capacity to face disaster threats. In general, mitigation is an effort to reduce and / or eliminate victims and losses that may arise. Therefore, emphasis needs to be given to the stage prior to the occurrence of a disaster, particularly in the activity of taming / mitigating, otherwise known as "mitigation". Article 1 number 9 Law of the Republic of Indonesia Number 24 of 2007 concerning Disaster Management defines mitigation as a series of efforts to reduce disaster risk, either through physical development or awareness and increased capacity to face the threat of a disaster. According to Article 1 paragraph 6 of Government Regulation No. 21 of 2008 concerning the Implementation of Disaster Management, disaster mitigation is a series of efforts to reduce disaster risk, both through physical development and awareness and increased capacity to face disaster threats. In general, mitigation is an effort to reduce and / or eliminate victims and losses that may arise. Therefore, emphasis needs to be given to the stage prior to the occurrence of a disaster, particularly in the activity of taming / mitigating, otherwise known as "mitigation".

Disaster mitigation activities include (1) disaster risk recognition and monitoring; (2) participatory disaster management planning; disaster awareness culture; (3) application of physical, non-physical and disaster management measures; (4) identification and recognition of sources of danger or threat of disaster; (5) monitoring of natural resource management; (6) monitoring of the use of high technology; (7) spatial planning supervision and environmental management; (8) other disaster mitigation activities.

According Bevaola Kusumasari and Quamrul Alam (2012) there is a critical period after the disaster tested leadership. This requires the ability to decide correctly, quickly and with the lowest possible risk. The response process begins immediately after a disaster occurs and this period clearly requires more complex actions than those for the mitigation, preparedness and recovery phases.

## IV. DISCUSSION

Environmental communication as a strategycommunication and / or concept rules so thatpeople who receive communication canunderstand what they are personallymust do to protect the environment,understand what the government is doingor environmental activists forcarry out flood prevention and improvementenvironmental quality, and watch out forthreats to human health andenvironment. Robert Cox (2006) define environmental communication:

"Informal - a study of the ways in which wecommunicate about the environment, the effects ofthis communication on our perceptions of boththe environment and ourselves, and therefore onour relationship with the natural world. Formal- the pragmatic and constitutive vehicle for ourunderstanding of the environment as well asour relationships to the natural world; it is thesymbolic medium that we use in constructingenvironmental problems and negotiating
society's different responses to them.

This research shows the results that the implementation of disaster management during the emergency response includes: 1) quick and precise assessment of location, damage and resources; (2) Determination of disaster emergency status; (3) Rescue and evacuation of people affected by disasters; (4) fulfillment of basic needs; (5) Protection of vulnerable groups; and (6) Immediate recovery of vital infrastructure and facilities.

There are several things that must be done in disaster preparedness and mitigation, including (1) Disaster resilient communities should recognize the characteristics of threats in disaster-prone areas. (2) Analyzing disaster risk by conducting threat analysis, vulnerability analysis and capability analysis. (3) Build a communication network in the community through HT radio, cellphone, internet network, to access information from both the government and the community (4) The existence of a regional action plan (RAD) or contingency plan at the provincial, district government to village action plans (RAK) at the community level, which are activities in disaster risk reduction (PRB) such as training on disasters, building early warning facilities, building communication networks and so on. (5) There is cooperation from all parties, especially communities around areas prone to volcanic disasters (6) Focusing on activities to reduce risks before the occurrence of flood disasters

## V. CONCLUSION

Environmental communication in the disaster area is inseparable from the level of knowledge and attitudes regarding various matters relating to environmental disasters, both physical environmental disasters and the community and government environment. Environmental communication is a vehicle for providing knowledge and understanding to the community regarding good environmental planning in order to function effectively and provide maximum benefits for the creation of community behavior that is conducive to the environment.

Knowledge is the basis for the formation of beliefs. This belief in the next stage becomes material for consideration in determining attitudes and behavior, including disaster resilient attitudes and behaviors. On the other hand, environmental communication is a vehicle for providing knowledge and understanding to the public regarding good environmental planning in order to function effectively and provide maximum benefits for the creation of community behavior that is conducive to the environment.The substance of this research recommends that the Sampang Regional Government carry out a strategic planning and design process for environmental communications that is strategic and useful in mapping any environmental problems, especially in disaster-prone areas. Environmental communication design activities require soft and hard competence in planning, and also require comprehensive environmental communication insight.

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