

Emergency preparedness and response communication in dealing with the effects of hazards during the increase of the water level of the Bili-Bili Dam

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Abstract

The high intensity rainfall in the South Sulawesi region at January 2019 resulted in a rise in the Water Level (TMA) of the Bili-Bili Dam and was set in Alert status with elevation +101.87 meters. This is the highest elevation in the Dam operation record since 1999. The increase in elevation has caused managers to carry out an early warning system and open the spillway that have affected floods in the Gowa Regency area. The purpose of this study is to provide an overview of the forms of emergency preparedness and response communication carried out by the Balai Besar Wilayah Sungai Pompengan Jeneberang (BBWSPJ) as the manager of the Bili-Bili Dam in dealing with the effects of hazards during an increase in TMA. The type of research used is qualitative with a case study approach using in-depth interviews and document analysis. The results of the study indicate that communication planning for handling TMA has been prepared in the Emergency Action Plan. Preparedness communication was carried out when there was an indication that the TMA was moving up at elevation +99.45 (Normal) on January 21, 2019 by starting to operate a warning system through verbal notification using loudspeakers to the downstream community that the spillway would be opened. Emergency response communication was carried out when there was an increase from Normal to Wary to Alert through coordination with government to urge the public to avoid the impact of the overflow and to evacuate the victims.

Keywords: Flood; Bili-Bili Dam; Crisis Communication; Preparedness; Emergency Response

1. Introduction

The high rainfall in South Sulawesi Province since January 20, 2019 resulted floods, landslides and whirlwind in 13 regencies/cities (Taufiqqurahman, 2019). This incident was a large-scale disaster in South Sulawesi Province because usually the disasters in the rainy season only occur in the district scale. This incident also caused the Bili-Bili Dam located on the Jeneberang River in Gowa Regency to be set as Alert status for the first time. Water Level (TMA) which reached an elevation of +101.87 meters on January 22, 2019 is the highest since it was operated in 1999 (Biro Komunikasi Publik Kementerian Pekerjaan Umum dan Perumahan Rakyat, 2019). Rainfall intensity and the water discharge of the Jeneberang River coming out of the dam plus water flow from the Jenelata River with 1,200 m³ of each (SIM, 2019) resulted the community in the riverbank area being flooded with the height up to 200 cm (Nugroho, 2019). This incident made Gowa District being one of the areas which is most severely affected by the floods.

There have been many reports about the triggers of flooding in Gowa Regency, including hydro meteorological factors, environmental damage, siltation of dams (Chandra, 2019), wild farming in forests and sand mining in the upstream of dams (Ramadan, 2019). But how should the society understand the situation and independently be able to act to protect themselves does not get much attention. During the emergency period from January 21 to 23, 2019, the flow of information related to flooding and the Bili-Bili Dam was very large and most of it was spread through social media. Instead of providing understanding, it caused panic. Through

social media and several application groups, the conversation about the breakdown of Bili-Bili has become a hot issue (Rusdianto, 2019). In this situation, the dam management should be 'first, right and credible' to gain control of a situation and the trust of the public before speculation and rumor dilute their authority (Collins, Neville, Hynes, & Madden, 2016).

The awareness of government and organization managers who have a potential danger level, such as the dams, regarding the risk and crisis management based on public needs is still very lack in South Sulawesi Province. They should have an action plan to prevent potential threats, especially to the most risk-prone society. So that all parties are ready when they confront the threat of danger and can reduce the possibility of actions that should not be taken in confront the emergency situation. In addition, a positive or negative image of the government and managers can be influenced by public perceptions by the handling of incidents that has done.

According to the Ready website (Ready.gov, n.d.), a business must be able to respond promptly, accurately and confidently during an emergency in the hours and days that follow. This is due to the society needs the information about what happened and how the impact. Therefore, it is necessary to plan crisis communication that is appropriate based on the needs of the society. Booz et al. (2012) define crisis communication as 'the exchange of risk relevant safety information during an emergency situation (Collins, Neville, Hynes, & Madden, 2016). Crises are dynamic, unexpected events that involve significant threat and ongoing uncertainty. To maximize effectiveness, crisis communication must begin early, gain authority amongst an audience and continue to communicate regularly throughout the lifespan of an event.

Crisis communication aims at preventing or lessening the negative outcomes resulting from a crisis, often crisis communication has an informative function (Spence, Lachlan, & Griffin, 2007). Such messages encourage the receiver to take some action to avoid a possible threat or harmful effect and to create a rational understanding of the risk, a persuasive function. The crisis message makes clear directions on the current state regarding the crises and what actions should now be taken.

The flood incidents in Gowa Regency and the greater dangerous impact that could be caused by the failure of the Bili-Bili Dam prompted this research. The unpreparedness of the community to deal with emergency situations when there are problems occur to the dam, one of them is caused by the unpreparedness of the government and managers in anticipating and communicating risks. So that there is less information and preparation for disaster that is understood by the community. Although this study is closely related to risk communication, the focus in this study specifically examines crisis communication because it refers to the occurrence of disasters that have occurred. The object of the research is the crisis communication activity of the Pompengan Jeneberang River Regional Center (BBWSPJ) as the manager of the Bili-Bili Dam in handling emergency situations due to extreme weather in January 2019.

It is expected that the results of this study can encourage big attention of governments and managers of organizations that have a potential danger level to increase attention to risk and crisis communication in order to increase the readiness of societies in dealing with risks and dangers. Assuming that when the public receives risk or crisis messages, they make risk assessments based on sensory perception (Spence, Lachlan, & Griffin, 2007). Therefore, if the public believes it is necessary and has received appropriate information in a timely manner, it is reasonable to expect that they will take action to protect themselves.

2. Method

This study is intended to present a form of crisis communication in the situation of emergency preparedness and response carried out by BBWSPJ while handling the increase of TMA of the Bili-Bili Dam. The research method used is a case study. This is a deep study in only one group of people or events (Bungin, 2011). Therefore, according to (Kriyantono, 2010), researchers can use in-depth interviews, participant observation, documentation, survey results, recordings, and physical evidences as instruments of data collection. In this study, we used in-depth interviews and documentation. The first stage is carried out by doing the interview with the Head of the Operations and Maintenance Planning Section (OP) BBWSPJ (Nasaruddin, 2019) to obtain information on the forms of emergency preparedness and response communication carried out during the emergency period. The second stage is tracking documents from the Emergency Action Plan report (Kementerian Pekerjaan Umum dan Perumahan Rakyat, 2018), website (Biro Komunikasi Publik Kementerian

Pekerjaan Umum dan Perumahan Rakyat, 2019), and Guidelines of Emergency Action Plan (PT. Multimera Harapan, 2018) to get data that describes comprehensive handling and communication actions.

3. Result

The study was conducted 10 days after handling the emergency situation of the Bili-Bili Dam due to an increase of the water level reaching 101 meters. This number is set as Alert status on January 22, 2019 at 13.40 (SISDA BBWSPJ, 2019) because it was closed to the maximum limit of water level, which is 103 meters (Rusdianto, 2019).

In the operation pattern of the Bili-Bili Dam (Biro Komunikasi Publik Kementerian Pekerjaan Umum dan Perumahan Rakyat, 2019), there are four levels of hazard status:

- Normal Status (TMA +99.50 meters)
- Wary Status (TMA +100 meters)
- Alert Status (TMA +101.60 meters)
- Caution Status (TMA + 103 meters)

In the Bili-Bili Dam Emergency Action Plan (RTD) document in 2018, the emergency response is classified into three conditions, wary, alert and caution.

The operation to handle the emergency situation of the Bili-Bili Dam began on January 21, 2019 at 14.00 when the TMA reached +99.45 elevation. Based on the Guidelines of Emergency Action Plan (SOP), the reservoir overflow operating doors must be opened gradually because there are indications that the water level continues to increase to Normal status. According to the Head of the OP Section (Nasaruddin, 2019), 5 minutes before the opening of the spillway door, an early warning system is operated by giving notifications to the public through loudspeakers to avoid from the river water flow. The loudspeaker used has a radius of 4 km. This warning system is carried out until the morning of January 22, 2019, each manager will add spillway door openings. Notifications are delivered in two languages, namely Indonesian and Makassarese languages.

When the monitoring response status of the elevation goes to +99.69 and there is an indication that TMA will increasing, according to the Head of the OP Section (Nasaruddin, 2019), the response to the emergency action starts with the Head of BBWSPJ by submitting reports and notifications about the dam condition and the implementation of the RTD to officials within the Directorate General of Water Resources and Gowa Regency government and related agencies by using telephone lines.

At 12:45, the elevation reaches +101.38 meters and is set as Wary (SISDA BBWSPJ, 2019). In this situation, the Head of BBWSPJ led the implementation of the RTD, acting as a spokesperson, and began activating the Emergency Action Operations Command Post as a hazard information center for the collapse of dams and refugees located in the Bili-Bili Dam. Publication and delivery of messages to the media is also carried out through SMS and telephone channels so it also increase the coverage and reports from regional and national news media.

The emergency communication flow in the Wary condition is still within the scope of the manager where the monitoring and observations are increasingly enhanced by continuing to coordinate with the Head of the OP and Analysts. In this plot, if the situation can be controlled, the emergency will be terminated. However, if the conditions are deteriorated and the experts assess that there will be potential for disaster, the status will be increased to Alert and will be carried out by refugees for the danger zone 1. In this situation, based on the RTD guidelines that have been socialized among agencies, information is delivered to the public and evacuation handling become the responsibility for the Gowa Regency Government that is because the area is the most affected.

When the status of Wary occurred, the Gowa Regency government began to delivering emergency information to the public through Instagram and Facebook as social media, and danger warning patrol cars. The information submitted was to asked the public to prepare for the disaster and immediately evacuate from the riverbank area.

Because the situation is still not able to be controlled by the management due to the rainfall was still

high, at 13:40 the dam was determined in Alert status because the TMA had reached +101.64 meters (SISDA BBWSPJ, 2019). In this situation, based on RTD, coordination and monitoring for dam repair and safeguards are increasingly being improved. The communication flow for this situation, based on the SOP, was carried out to the Head of the UPB for the process of repairing and securing the dam and all Gowa Regency government agencies for the evacuation process. If conditions can be controlled, then the emergency is terminated. However, if the danger condition continues, a request is made to the Regional Disaster Management Agency (BPBD) and related agencies to begin partial evacuation of residents living on the banks of the river and who have a high level of vulnerability. And if the efforts to prevent the collapse of the dam are unsuccessful and the dam conditions are getting more critical, then the emergency situation will be set in a state of Caution.

In this situation, the evacuation was carried out by the BPBD with the Kapolres and DANDIM Gowa on the afternoon of January 22, 2019 in the Pangkabinanga Sub-District of Pallangga Subdistrict because the area had been submerged in 50 cm of water and continued to rise up to 200 cm.

Alert status continued until the elevation reaches +101.87 meters at 18:00 and lasts until 20:00. At 20:10 the TMA starts to go down at an elevation of +101.86 meters and continues to fall down until 11:00 on January 23, 2019 to +100.77 meters. In this situation, the efforts to prevent dam failure are successful so that the emergency is terminated. But the process of handling disasters after the emergency situation is still being carried out by the agencies within the Gowa Regency Government. Recorded 3 people died, 45 people were injured, 2,121 people were displaced scattered in 13 refugee points, and more than 500 housing units were flooded (Nugroho, 2019).

The decision that the emergency situation ended was made by the Head of BBWSPJ as the leader of the RTD implementation, while the final determination of the emergency response in the downstream dam was carried out by the Regent.

4. Discussion

This study examines the form of crisis communication that is specifically reported in the form of emergency preparedness and response communication. The study focused on the communication activities of the Bili-Bili Dam management in dealing with the emergency situations due to the abnormal TMA the dam. In the disaster management cycle, there are four functional components, namely mitigation, preparedness, response and recovery (HH, 2012). The four components are currently the platform for handling disasters. Two components are the pre-crisis phase, mitigation and preparedness, and two components are the post-crisis phase, response and recovery (Fischer, Posegga, & Fischbach, 2016). Mitigation includes the reduction or elimination of hazard risk components. Preparedness includes activities to equip people who are at risk of disaster or prepare to be able to help people in disaster events with various tools/equipment to improve their ability to survive and minimize financial risks and other risks. Response includes actions taken to reduce or eliminate the impact of disasters. Recovery, including repair, reconstruction or reaching back from what has been damaged/lost and ideally reducing the risk of the same chaos in the future.

Preparedness planning and emergency response is an approximate process but requires experience and training. This plan is structured in a document that can be used as a guide in handling actions. For the Bili-Bili Dam, the planning document is known as the Emergency Action Plan (RTD) which is updated every five years and the Emergency Action Plan (SOP) Guidelines that follow the RTD update. This RTD has been corrected for the second edition in mid-2018 and has been disseminated to government agencies in August 2018. Only, in this RTD document, no explanation or document or other guidance related to the form of socialization or campaign regarding the risk of failure was found dam to the society.

From the research conducted, the communication activities of the Bili-Bili Dam management at the time of preparedness or when in a situation where there is a potential disaster, begins when there was an indication that the TMA has risen to Normal status on January 21, 2019. The communication carried out to anticipate the emergency situation was an oral warning form using loudspeakers with a range of 4 km. This warning was aimed at people who move around the watershed within the radius, to stop the activity and avoid the river because there will be a spillway door opening that will have an impact on the heavy flow of water. On the other hand, communication was also carried out using telephone lines within the dam management scope to

monitor the situation and exercise control over failures that can occurred.

Regarding this form of preparedness communication, the steps taken by the manager based on the RTD have been carried out to deliver emergency messages appropriately so it did not cause panic. Preparedness situation is a situation where there is a potential disaster, this indicates a disaster can occur, and also does not occur. So that, during the incident, which is still in a low intensity, crisis communication must be informative and clear but not aggressive to avoid panic in the community. By understanding the audience, the handling approach used will also be easily accepted. Understanding local vulnerabilities such as flooding near rivers can help form a sound basis for disaster management preparation (Collins, Neville, Hynes, & Madden, 2016).

In the end, even though the crisis management was trying to be maximized, managers and the government finally announced to the public to prepare themselves for risk. The emergency situation is becoming increasingly serious after almost 23 hours of the handling process that is trying to be controlled cannot be maximized due to the high rainfall. This situation then enters the response phase, which is based on the results of the study, in this situation the manager starts activating the Emergency Action Operations Command Post as a hazard information center for dam collapse and displacement. In this operation, the Head of Dam Management acts as the operation leader and also the spokesperson. Handling steps began to be carried out and information dissemination to the public began. The dissemination of this information through mass media, social media and hazard warning patrol cars. In this phase, notifications and evacuation activities were also started because the riverbank area began to be flooded with potential to cause flooding.

The importance of planning for an emergency situation, especially one that has the potential to cause disasters, is to be able to reduce risk. Communication is one of the important factors in handling emergency situations. When an emergency occurs, communication must be done immediately because everyone needs the right information immediately. So that in any emergency planning, an important component of preparedness programs is crisis communication. Moreover, the crisis situation generally involves many parties and participants.

Crisis communication provides enough information to make decisions, and the decision is then communicated to participants (Puspito, Sumardjo, Sumarti, & Muljono, 2015). Understanding the crisis management team with participants, can manage participants' reactions to the crisis. Steps taken in managing information about disasters include:

- gathering information to analyze threats
- sharing information
- cooperating with participants
- coordinating warnings for alertness
- planning and evacuating
- developing and implementing public education.

Each activity requires communicative, empathetic, intelligent people, leadership, and considerable communication skills.

When a threat does erupt into the crisis stages, different communication exigencies and audiences emerge (Reynolds & Seeger, 2005). This includes an immediate threat and compressed timeframe requiring a more direct response. There is, for example, an immediate audience of those affected by the crisis. This includes victims, potential victims, close family members, emergency workers, first responders, and others directly affected by the event. Timely communication with this group may help mitigate or contain harm. A much larger audience, usually represented through the media, involves the general public. The immediate communication needs are to reduce the uncertainty, allowing audiences to create a basic understanding of what happened so that they may act appropriately. Without such basic information, both the general public and affected groups may not be able to make sense of the event and may engage in activities that actually increase the relative level of harm.

Communicating timely information to the public about such centers is a core function of crisis communication. Different kinds of crises, however, manifest different forms of threat and different

communication exigencies (Reynolds & Seeger, 2005). The first step of credible crisis communication is understanding how to appropriately structure and deliver emergency messages. As the severity intensifies, direct public health recommendations should be delivered in clear, regular intervals via the media. Messages should empower groups and individuals to take positive action in, helping to affirm their sense of control over a crisis (Collins, Neville, Hynes, & Madden, 2016).

Awareness of the Bili-Bili Dam management regarding the large risk of disasters from a dam guided them to continue to update information in the RTD document. However, the application of risk communication has not been arranged properly and has not been implemented. Much of the risk communication as practiced in public health combines several features in public messages, usually carried out in mainstream media, as a general persuasive campaign. They seek to inform the public and change behavior in ways that protect and improve public health and safety. The ability of individuals to take action during a crisis brings a sense of empowerment, allowing individuals to feel as if they have control in the situation.

These best practice principles for risk communication include (Collins, Neville, Hynes, & Madden, 2016):

- reduce inappropriate actions by the public (rioting, looting or overwhelming infrastructure)
- deliver clear and consistent messages across all media (news and social media)
- ensure that the media channels chosen are diverse enough to reach the widest population, including minorities and marginalised groups
- be regular in order to minimize the formation of rumours or inaccurate information getting out from unofficial sources or social media
- empower the public and responders to make better decisions
- be accurate and reflect the exact level of risk, not being too extreme or too casual in communication of severity
- be flexible enough to suit every scenario.

Listening to feedback, adjusting the message and provoking an audience into action will help address all stages of the disaster/emergency management cycle.

5. Conclusion

Empowering people to take positive actions during a crisis, allows individuals to feel as if they have control in the situation. This will be very helpful in overcoming all stages of emergency management. This awareness needs to be shared by all stakeholders by developing and implementing appropriate risk and crisis communication planning. This is because, in the event of an emergency, the need to communicate immediately is a situation that encourages a person or group of people to reduce uncertainty. This also allows them to make a basic understanding of what is happening so that they can act appropriately and avoid the threat of risk. The results of this study provide a strong basis for encouraging communication planning as one of the important components in risk management planning carried out by the government or the management of a company, industry, infrastructure, and others that have a large potential risk. So that the risks posed can be reduced and can increase public trust in the organization's ability to manage incidents.

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