Risk Communication in Reducing Flood Risk in Jakarta

E M Susilowardhani¹*, L Djuhardi² and I Yulianti³

¹Study Program of Communication Science, Tanri Abeng University, Jakarta-Indonesia
²Faculty of Communication Science, University of Persada Indonesia Y.A.I, Jakarta-Indonesia
³Direktorat Pemberdayaan Masyarakat, Deputi Bidang Pencegahan dan Kesiapsiagaan BNPB (Badan Nasional Penanggulangan Bencana), Jakarta-Indonesia

*ernams.erna@gmail.com

Abstract. Jakarta is an area that is frequently facing flood. With its condition which is located in low plain, surely it will be a reception area of water flowing from upper plain around Jakarta. Human may strongly have a contribution in causing flood. Therefore, it needs a strategic effort to increase the awareness of Jakarta’s people to keep their environment from the danger of flood which in this case is the authority of BPBD DKI Jakarta (Badan Penanggulangan Bencana Daerah/ Regional Disaster Management Agency). This research base on communication sciences’ perspectives, especially the study of risk communication. Researchers use qualitative-descriptive approach. Interview and observation as primary data. While literary review and documentation as secondary data. To validate the data, the researchers use the technique of triangulation of method. The results of this research are that there are several steps in risk communication planning in reducing flood risk in Jakarta. The first step is to determine the purpose and objectives of saving lives, minimizing the impact and damage that may result from anticipation of flooding; Make the people of DKI Jakarta to know, be able, and do related to their awareness of flood risk. Next is to analyse the audience. All citizens of DKI have the right to get the same information. The third step is to build messages. In implementing communication messages to reduce flood risk, any information submitted must be clear, logical, and easy to understand. The fourth step is to determine the right method. BPBD DKI Jakarta divides into two categories of conditions. First, the method used to create communication messages during normal conditions. Secondly, the method used when the flood has occurred. The fifth step is setting the schedule. Regarding the schedule arrangement, BPBD DKI Jakarta refers to Law No. 24 Year of 2007 on Disaster Management. Schedule setting is done once a year by doing contingency plan which is in sub district level. The final step is to evaluate the risk communication effort. The evaluation is correlated with the contingency plan. This means that annual evaluations are carried out to determine whether flood mitigation and flood risk management are better or worse.

1. Introduction
Disasters that occur can lead to development damage that has been achieved so far. Post-disaster recovery spent a lot of money. However, the funds used for the recovery of the affected areas are not necessarily able to restore normal development. Material losses and human casualties are so high that it
can lead to setbacks in development. This shows that disaster management can be one of the effects of positive impact. For this reason, the National Disaster Management Agency comes from the Act of 24 Year of 2007 [1].

The Government of Indonesia plays an important role in building disaster management system in the country. National Disaster Mitigation Agency has a very crucial task in dealing with and handling disaster such as giving guidance and direction to disaster management effort which includes disaster prevention, emergency handling, rehabilitation, and reconstruction in a fair and equal, delivering information on disaster management activities to Communities, using and accounting for national/ international donations/ assistance. In addition to these tasks, BNPB also has functions to formulate and establish disaster management and refugee management policies by acting promptly and appropriately and effectively and efficiently; And coordinate the implementation of disaster management activities in a planned, integrated, and comprehensive (Law No. 24 Year of 2007 on Disaster Management).

The National Disaster Management Agency has a mission of protecting the nation from disaster threats through disaster risk reduction, building a reliable disaster management system and conducting disaster response in a planned, integrated, coordinated, and comprehensive manner. The strategy of realizing a resilient Indonesia disaster by way of distancing the disaster from the community, keep the community from disaster, live harmony with disaster risk, develop and encourage local wisdom in disaster management [2].

To the regional level, there is the Regional Disaster Management Agency which is a disaster management agency located under and responsible to the Governor. BPBD is headed by a head, ex officio held by the Regional Secretary (Sekda), which is under and responsible to the Governor. With the establishment of BPBD DKI Jakarta since February 2011 it is expected that Disaster Management in DKI Jakarta will be better because it is managed Since before the disaster, during the disaster and after the disaster [3].

BPBD DKI has many programs related to disaster preparedness, one of them is disaster information dissemination. Moreover, Jakarta is a flood subscription area. With the condition of the area that is in the lowlands, will certainly be a place to stop water flowing from other areas around Jakarta. Humans are very likely to have contributed in causing flooding.

However, with the existing conditions, as citizens of Jakarta must have a high awareness of the risk of flooding. To increase the awareness, BPBD DKI strives to conduct various socialization and also providing information to the people of Jakarta. With the characteristics of a plural society, would be a complex thing for BPBD DKI in conveying information to the public. Need a good risk communication strategy and planning so that programs that have been implemented in improving disaster preparedness- including flood reduction in Jakarta-can work well.

Therefore, the purpose of this research is expected to know the steps of strategy and communication risk planning in reducing flood risk in Jakarta.

2. Literature Review
Risk communication as an area of investigation “grew out of risk perception and risk management studies” [4][5]. The ultimate goal of risk communication research is to “increase the quality of risk decisions through better communications”.

Responsibility for risk communication is divided among all levels of government and within levels among many agencies. Messaging is not coordinated, and citizens become confused and often ignore the conflicting information. Risk communication aimed at raising public awareness is most effective when it is delivered at the local level by local leaders; however, this requires an understanding and a willingness to support this communication [6].

So, we need to plan and conduct the strategy. Having a risk communication plan can help you focus your efforts and keep all those involved in assessing, communicating, and managing the risk informed so that they can work together as a team [7].

Your purpose and objectives may at first seem obvious. You are communicating to provide the audience with information they need to make a decision about a risk to their health or safety or the
environment [7]. Audience analysis (i.e., determining the audience’s characteristics and needs) is a tool too often neglected in risk communication. In almost every case in which communication efforts failed, inadequate or faulty audience analysis is at least partly to blame. You have to know to whom you are communicating if you are to communicate with any hope of success [7]. When conveying risk-related information, it often helps to develop key messages as part of the planning process. Messages help focus all communication participants on the most important information and how to convey it.

Message development in risk communication is not the same as developing a catchy slogan in an advertising campaign. Message development is not manipulative, nor is it a substitute for audience analysis or public participation. The point is not to try to bombard people with what you think they ought to know, but to understand what they want and need to know and addressing those things in a clear, concise way.

You know what you are trying to communicate and why and to whom you will be presenting the risk information. Now you need to decide how to communicate your message. Which methods of communication will best meet both your purpose and objectives and your audience’s needs?

Once you know what you hope to accomplish, who you are doing it for, and how you will do it, you need to determine when you will do it. Setting a schedule for risk communication efforts requires that you consider a number of factors, such as legal requirements, organizational requirements, the scientific process, other ongoing activities, and audience needs.

Every risk communication effort can benefit from being evaluated. Evaluation can help a current effort achieve its purpose and objectives and make future efforts more successful. Currently, the use of media is not only traditional media. With the development of information and communication technology, the format of new media is arising.

The rise of cyberactivism underscores the reality that these new media provide a readily accessible channel for people to respond to risks, which are defined here as perceived hazards or threats to a person’s physical, psychological, social, political or economic well-being. With increasing frequency, the public turns to the Internet or cell phones to learn details of crisis-and risk-related events [4]. Members of the general public with little or no prior involvement with responsible organizations attempt to find out what happened, how organizations are responding, and how the consequences might affect their lives. More involved publics—people with whom the organization has established relationships, goodwill and trust—might use new media to reconcile new information with their extant knowledge.

3. Methods
In this study, the researcher uses qualitative approach. Qualitative research is defined as a research procedure obtained descriptive data in terms of written words or spoken from the people and attitudes that observe by the researcher. According to them, this approach is directed to those backgrounds and individuals holistically. So, in this case, the approach might not isolate an individual or organization into variable or hypothesis, however it requires to consider as a part of an entity [8].

Concurrently, the research method used is case study that has a descriptive characteristic. This case might be related with individual, role, small group, organisation, community, or even a nation. The case might be a decision, policy, process, or a particular event. Several types of unit that might be examined as the forms of case study are individuals, characteristic or attribute from individuals, action and interaction, heritage or attitude artefact, setting as well as event or a particular incident [9]. Meanwhile, a descriptive nature is to expose situation or events, without finding or explaining relationship, not to test hypothesis or predict [10].

To expose the flood’s condition and problem in Jakarta, and its way to cope this. Thus, it is required to data collection using interview and observation techniques towards the key informants and supporting informants as the subject of this research. Researchers in qualitative research regularly acquires data taken from interview, observation and documentation, instead it only depends to one data source. Afterwards, the researcher reviews all the data, comprehends and organizes into relevant categories with data source [11].
Research Subject is an entity existed in itself contains or attaches to research object. Subject in this context is informant, namely an individual recognized such information regarding circumstance and condition of the research, so it should have much experience about the background of the research [8]. Meanwhile, Sugiyono [12] stated that selecting samples in qualitative research is not depend to statistical measurement. The sample selected functions to gather a maximum information. In this research, the researcher establishes research subject with a particular criterion that might be able to fulfill the requirements of the research, especially Jakarta residents who face flooding annually.

After the data is collected, the next phase is to conduct data analysis. According Irawan [13] data analysis is a process to find out and control systematically the transcript of interview, record in the field, and other materials gathered. In which, all of those aspects were gathered to improve the understanding of the research (towards a phenomenon) and assist the researcher to represent its result.

Data validation technique conducted in this research applies authenticity namely extending personal construction recognized. The researcher provides and facilitates the disclosure of a detailed personal construction so that it will affect the effortless of deep knowledge [14]. According to this research, thus researcher permits the informants to share information regarding to their knowledge and experience, as well as what they felt as a part of Jakarta residents who almost face flooding annually.

4. Results and Discussion
In this section, researchers conducted an analysis related to the results that have been obtained. Researchers presented the findings by categorizing sub-discussion in accordance with the concept of reference for researchers. There are several stages which communication messages are delivered to be effective.

4.1. Determining Objectives and Analysis the Audience
Understanding that the risk of flooding in DKI Jakarta area is so high, the Jakarta Disaster Management Agency (BPBD DKI) needs to define the purpose and objective when delivering communication messages related to flood risk.

Based on the results of interviews with Mr. Basuki Rahmat, as Section Head of Community and Institutions Empowerment of BPBD DKI, the explanation was made that efforts to reduce flood risk carried out by BPBD DKI were conducted with the following objectives, the first one is saving more lives, minimizing the impact and damage that may be caused as a precautionary measure due to flooding. Second, make the people of DKI Jakarta to know, be able, and do related to their awareness of the risk of flooding. So, it can encourage the community to be proactive in handling the flood and also the reduction of the risks.

By setting the intent and purpose, BPBD DKI Jakarta can be more optimal and focused in flood prevention and flood risk socialization in Jakarta.

The people of DKI Jakarta are a plural society. Many migrants from various regions in Indonesia become residents of Jakarta. Although it tends to be heterogeneous, in flood mitigation and flood risk reduction tend to be the same because perceived by all citizens of DKI is the same thing, namely the problem of flooding. Although heterogeneous, but BPBD DKI does not discriminate the target audience. All citizens of DKI have the right to get the same information. However, the focus of attention is the areas that are flood-prone points. So, not to whom the community profile, but more focused on areas that have the potential to be affected by flooding. For example, the area that is on the banks of the river crossing Jakarta or the area that is a basin.

In the area of DKI Jakarta, the categories of areas can be divided based on the water level: normal, standby 3, standby 2, and standby 1. The focus of attention is the audience in the standby 3, standby 2, and standby 1.

4.2. Develop the Messages and Determine the Appropriate Method
In implementing communication messages to reduce flood risk, any information submitted must be clear, logical, and easy to understand. Moreover, the character of every human being is different.
Acceptance of information obtained was different. Thus, the message built also must be tailored to the conditions in the field.

The information presented is focused primarily on the alert area 3 (standby 3). The purpose of the information given on alert area 3 is not to be panic the citizens who are in the 3rd alert area. In addition, the focus of information on the area is considered more efficient.

To determine the appropriate method, BPBD DKI Jakarta divides into two categories of conditions. First, the method used to create communication messages during normal conditions (no flooding) and when the flood has occurred.

At normal times, the methods used are: Broadcast message through social networking media. Messages are delivered continuously by utilizing social networking media. BPBD DKI Jakarta cooperates with BMKG (Meteorology, Climatology, and Geophysics Agency) to provide information about weather, climate, air quality especially in DKI Jakarta. Includes information about the water level divided into four groups, namely normal, standby 3, standby 2, and standby 1; Audio warning system. Audio warning system is placed in areas that are prone to flooding; Broadcast message via SMS. Messages are delivered using the broadcast SMS (short message service) method. This method is the cooperation between BPBD DKI Jakarta, Ministry of Communications and Informatics, as well as mobile operators in disseminating information about weather, climate, and air quality; Radio-based, face-to-face, videotron, and emergency call 112 Jakarta Alert. These media are used as complaints media; Socialization through religious communities on disaster risk reduction.

Meanwhile, the methods used during the flood have occurred, are: Use of qlue application, qlue is one application integrated with Jakarta Smart City in the form of social media that invites community participation to report complaints and care about the surrounding environment (smartcity.jakarta.go.id). With this application, Jakarta residents can report complaints against environmental conditions, such as garbage, floods, congestion, road damaged, fire, and others (smartcity.jakarta.go.id). All incoming reports, validated first, then executed. With the use of Qlue application, people can know the flood map in real time; Use of Twitter. Twitter is used because it is considered popular for people who tend to be active in social media. Thus, the information disseminated can be instantly realized by Twitter users; Telegram. Telegram is instant messaging which is simple, fast, secure, and synced across all your devices; Put eyes on. Eye tide is a citizen's eye view report which is a feature on detik.com as part of citizen journalism.

4.3. Evaluating Risk Communication Efforts
The evaluation is correlated with the contingency plan. This means that annual evaluations are carried out to determine whether flood mitigation and flood risk management are better or worse.

Evaluation is also conducted on the flood condition, which is the cause of the flood. For example, for a lower area of the terrain, the floods that occur can be reduced by using a pump. For areas that are normal (flood-free), if a sudden flood, it is necessary to evaluate the cause so that it can be done anticipatory steps during the rainy season.

4. Conclusion
Conducting proper communication on the flood problem in DKI Jakarta becomes one of the responsibilities of Jakarta Disaster Management Agency. With the problem of flood that always hit the area of DKI Jakarta, risk communication is needed because of the complex focus so that the risk of flooding can be reduced. Not only dealing with nature, but also on existing infrastructure, disaster management regulation, and also people in disaster environment.

The communities become aa very important point because they are dealing directly and feel themselves as a result of the flood disaster in DKI Jakarta. Acceptance of a message may vary from one person to another. Therefore, it is necessary strategic planning in conveying the message to them.

The first step in risk communication planning in reducing flood risk in Jakarta is to determine the purpose and objectives of saving lives, minimizing the impact and damage that may result from anticipation of flooding; Make the people of DKI Jakarta to know, be able, and do related to their
awareness of flood risk. So, it can encourage the community to be proactive in tackling the flood and also the reduction of the risks.

Next is to analyse the audience. All citizens of DKI have the right to get the same information. However, the focus of attention is the areas that are flood-prone points. So, not to whom the community profile, but more focused on areas that have the potential to be affected by flooding. For example, the area that is on the banks of the river crossing Jakarta or the area that is a basin. In the area of DKI Jakarta, the categories of areas can be divided based on the water level: normal, standby 3, standby 2, and standby 1. Audience is the focus of attention is the audience in the standby 3, standby 2, and standby 1.

The third step is to build messages. In implementing communication messages to reduce flood risk, any information submitted must be clear, logical, and easy to understand. Moreover, the character of every human being is different. Acceptance of information obtained was different. Thus, the message built also must be tailored to the conditions in the field.

The fourth step is to determine the right method. In determining the appropriate method, the DKI Jakarta BPBD divides into two categories of conditions. First, the method used to create communication messages during normal conditions (no flooding). Namely with the use of Broadcast messages through social networking media; Audio warning system; Broadcast message via SMS (short message service); Radiation, face-to-face, videotron, and emergency call 112 Jakarta Alert; Socialization through religious communities on disaster risk reduction. Secondly, the method used when the flood has occurred. Methods used include: Use of Qlue application; Use of Twitter; Telegram, and pairs of eyes that are a feature of citizen journalism on detik.com.

The fifth step is setting the schedule. Regarding the schedule arrangement, BPBD DKI Jakarta refers to Law No. 24 Year of 2007 on Disaster Management. Schedule setting is done once a year by doing contingency plan which is in sub district level.

The final step is to evaluate the risk communication effort. The evaluation is correlated with the contingency plan. This means that annual evaluations are carried out to determine whether flood mitigation and flood risk management are better or worse. Evaluation is also conducted on the flood condition, which is the cause of the flood. This is done in order to prevent and mitigate floods in the future.

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