



# Preparedness School Citizens of State Elementary School in Facing Flood through Digital Literation

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## ABSTRAK

Literasi menjadi salah satu faktor penting dalam proses pendidikan dan pembelajaran di sekolah agar masyarakat memperoleh kemampuan untuk bertahan dari segala resiko bencana. Penelitian ini bertujuan untuk menganalisis kesiapan warga sekolah SD Negeri dalam menghadapi Banjir melalui Literasi Digital. Penelitian ini menggunakan pendekatan kualitatif dengan teknik pengumpulan data menggunakan observasi, dokumentasi dan wawancara mendalam dengan warga sekolah. Subyek penelitian ini adalah warga sekolah SDN 05 Bidara Cina yang meliputi siswa kelas 4 dan 5, guru, kepala sekolah, dan wakil kepala sekolah. Penelitian ini menggunakan data primer melalui LIPI/UNSECO, dan data sekunder untuk mengumpulkan informasi. Hasil penelitian ini menemukan bahwa sekolah belum menggunakan media sosial sebagai bahan untuk mengungkapkan informasi pengetahuan tentang banjir. Informasi terpadu tentang kebencanaan di sekolah ini masih dibatasi melalui Whatsapp. Berdasarkan hasil wawancara dengan kepala sekolah, wakil kepala sekolah, guru dan 3 siswa masih kurang literasi digital. Hal ini dapat ditunjukkan bahwa sekolah tidak menyediakan media informasi tentang bencana di sekolahnya maupun melalui website sekolah. Kesiapsiagaan literasi digital di daerah rawan perlu ditingkatkan agar sekolah dapat memanfaatkan media digital untuk mendapatkan informasi tentang bencana banjir dan juga secara cepat menginformasikan warga sekolah untuk siap menghadapi bencana.

## ABSTRACT

Literation serves as an important factor in education and learning process at school so that the community obtains ability in surviving at any disaster risks. This research aims to analyze the preparedness of school citizens of State Elementary School in facing Flood by Digital Literation. This research used a qualitative approach with data collection technique was used to observation, documentation and in-depth interview with school citizens. The subject of this study was school citizen of state elementary school 05 Bidara Cina included a student class 4<sup>th</sup> grade and 5<sup>th</sup> grade, teacher, principle, and vice principle. This research using primer data through LIPI/UNSECO, and secondary data was collecting the information. Results of this study found that the school has not yet used social media as a material to disclose information of knowledge on flood. Integrated information about disaster in this school still restrictiveness through Whatsapp. Based on interview results with headmaster, vice headmaster, teachers and 3 students still lack of literacy digital. It can be showed that school did not provide media information about disaster in their school or through school website. It is important to enhance preparedness of digital literacy in prone area so that school are able to take advantage of digital media to get information about flood disaster and also quickly inform school community to prepared for disaster.

## 1. INTRODUCTION

Disaster is a series of potential events giving threats to life of creatures, giving losses to human life and losses of properties which can be caused by natural and humans. Floods are the most common and destructive of all disasters and are a constant threat to life and property. Flood can be caused by trigger, hazard, and vulnerability components simultaneously and systematically, so it can estimate any risks to be faced (Lassa et al., 2022; Ramadhan et al., 2019). Flood disaster is an overflow over limits so it goes to its lower surrounding areas

making such pools or paddles. However, it has greatly destructive effects to human at life, social and economic activities and environment (Islam et al., 2016; Tingsanchali, 2012). For humans, floods can cause damage to properties even threat safety for human life. For socio-economic life, flooding has a very significant impact perceived by humans, such as physical damage to buildings, residential equipment, infrastructure, disruption to public lifelines and services, loss of agriculture and industry and the destruction communication networks, loss of plants and soil and transport of sediment loads and pollutants (Anwar, Y., & Ningrum, 2022; Deasy, 2017). Flood disasters in urban areas are increasingly becoming the focus of studies due to losses caused by flood damage is increasing globally.

Communication and information to manage the disaster are important parts to reduce affected of floods. Well-integrated information is needed in disaster management and it could be effective and efficient. Research from previous study showed that the community needs availability information to update about the disaster information in Sinabung volcanic through the utilization of the website in BPBD Karo as a channel for spreading information about Sinabung volcanic (Lestari et al., 2021). In the other research, showed that communication to manage disaster is an important part to manage the disaster and is supported by government regulation and it could be built with integration and cohesion (Syarif et al., 2014). Communication becomes a part of preparedness to facing the disaster. Preparedness is so important serving as the main principle to facing floods. Preparedness serves as an important preventive and proactive step that can be taken in dealing with flood disasters, so that when there is a disaster, the community has the ability to deal with it, and does not seem panicked because they already have preparedness in dealing with disasters (Islam et al., 2016; Tingsanchali, 2012).

Education institution is a place to obtain understanding in preparing the community in facing any disaster (Almukarramah et al., 2019; Ardales et al., 2016). School as one of the education institutions can give understanding on the disaster preparedness. Research found that the impact of small-scale flood on school communities in Metro Manila cannot be underestimated the risks are extensive and can pose a considerable impact. However, there are still a number of schools having low level of preparedness (Danianti & Sariffuddin, 2015; Findayani, 2018). Research by previous study around 7 schools in Lebak Banten sub district showed low level of school community preparedness level, out of 5 parameters of disaster preparedness, there were only knowledge and attitude parameters having high scores (Muzani et al., 2020). Literation serves as an important factor in education and learning process at school so that the community obtains ability in surviving at any disaster risks. Disaster literation is proved to give effects on public preparedness in West Java Province and students at State Senior High School 1 Klaten in 2011 (Juhadi & Herlina, 2020; Marlyono, 2016). It is necessary for any individual to have ability to read, understand, use information in decision making, follow instructions in the context of mitigation, preparation, response, and recovery from disasters is called disaster literacy. The communicative stage of disaster literacy includes advanced skills in finding and managing experiences with disasters. The critical stages include analyzing disaster information, taking control of stay-safe attitude, cope with, and recover from disasters (Brown et al., 2014; Kesumaningtyas et al., 2022).

Currently, there is increasingly rapid development of technology and information as well as including in various aspects. Humans not only have ability to read and write but also must be completed with skills and expertise to support the life in the 21st (Adiputra, 2008; Harjono, 2019). Ability to read and write is called as literation. In this fourth evolution era, it is known as digital revolution. Development of technology currently open broad access to information. This requires the community to have ability to disclose information clearly and in details particularly by digital media. Access to information is increasingly easy to be obtained including in education worlds, this leads to a thinking on the important of digital literation (Rizaldi et al., 2020; Setiyadi et al., 2019).

According to previous study digital literation is an effort to know, to search, to understand, to analyze, and to use teknologi digital (Setyaningsih et al., 2019; Yustika & Iswati, 2020). Digital literation is described as a form of way of thinking in using digital media. Based on the understanding of several experts, it can be concluded that digital literacy is a user's skill in using digital media (Konstantinidou & Scherer, 2022; Kulju et al., 2018). Digital literacy in the field of education has an important role, especially in 21st century learning. It showed that schools need a preparation to facing the flood. Information about disaster quickly spreading through the community, information system played important roles in facing a disaster. Basic struggling to reduce the impact of disaster even in preparedness, emergency, recovery, or rehabilitation after disaster was imprecision information. However, literation is important for citizen in school to have a preparation in flood disaster. In the context of disaster, social media plays an important role in the disclosure of information concerning flood disaster, so social media can serve as an instrument to apply any preventive efforts of flood prevention by disclosure of disaster information (Harjono, 2019; Kesumaningtyas et al., 2022). In line with a number of studies, one of which is related to the development of digital literation related to disaster to be well-adjusted to be used to improve students' understanding on disasters.

Based on previous research, there is still little research on digital literacy in order to increase flood disaster preparedness among school citizens, especially the school which is known as a prone area, such as State elementary school 05 Bidara Cina. As one of the elementary schools in flood-prone areas, the area of state

elementary school 05 Bidara Cina is located in a flood-prone area. Based on its geographical location, this school is close to Ciliwung, access to the location of this school is in a narrow alley, and its topography is lowland, it is not surprising that this area is one of the flood-prone areas. This school has not provided integrated information through media digital. The research study focuses to analyse about the preparedness of school citizen of state elementary school 05 Bidara Cina in facing flood through digital literacy.

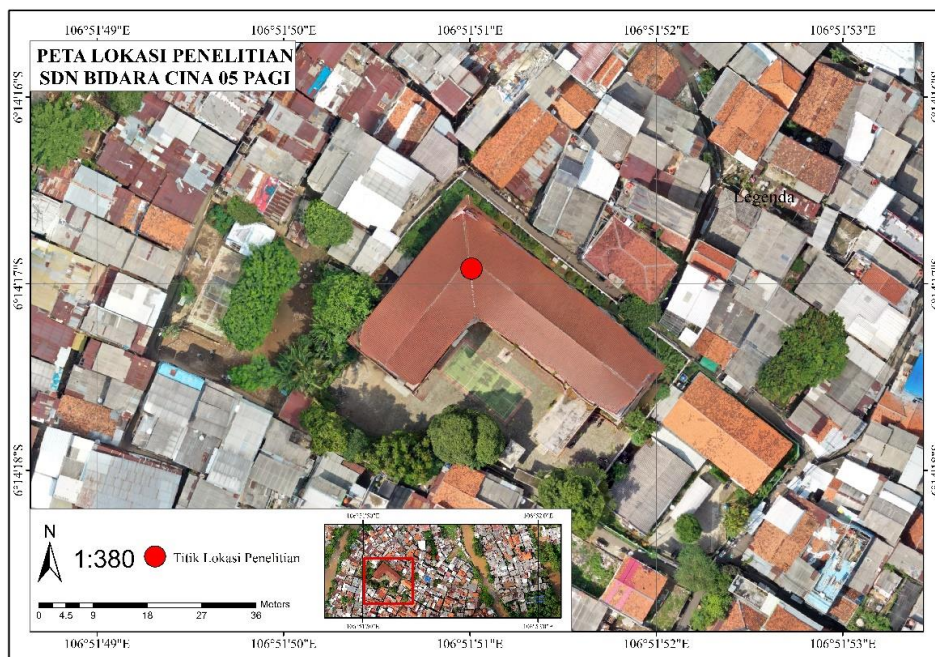
## 2. METHOD

This research is using triangulation method of data sources. The object of the research is the preparedness of in facing flood. The subject of this study was a school citizen of state elementary school 05 Bidara Cina. The preparedness parameter is used as a tool in qualitative research to assess the preparedness of school citizens at State elementary school Bidaracina through digital literacy. This research using primer data through LIPI/UNESCO as the parameters and secondary data was collecting the information through school citizen, such as headmaster, teacher, and students.

## 3. RESULT AND DISCUSSION

### Result

State Elementary School 05 Bidara Cina is a public elementary school located in Bidara Cina Village, Jatinegara District, East Jakarta Administrative City. Bidara Cina Village is one of the villages directly adjacent to the Ciliwung River in the west. This village has an area of 126.3 km<sup>2</sup> which is divided into 16 RW and 188 RT. SD Negeri 05 is located in an alley sdn, RT 17, RW 07 and is one of the densely populated areas and is a flood-prone area in Bidara Cina Village which can be seen in [Figure 1](#).



**Figure 1.** Map of Research Location, SDN 05 Bidara Cina

The floods in their areas have tremendous impact on schools event damaged school facilities and Infrastructure. The available facilities like school furniture such as chairs, tables, wardrobes, school appliances and equipment were either damaged, destroyed or some were even washed away. Teaching materials, and documents were also ruined. In also can be seen at state elementary school 05 Bidara Cina, based on the interview, flood happened in this school until second floor. The school used to be built by the government when the flood happened.

When the researcher were doing an interview, the headmaster of this school is a new headmaster but the vice principle lived near the school and understand about the history of this school. The vice principle who lived near the school stated that sometimes teachers were often reminded to put any administrative materials and report cards on the second floor in order to save important documents at any condition, but there were some teachers who sometimes forgot to save these important documents. Sometimes this is happening because teachers also deal with the effects of floods on their family and they also tend preparing the lesson in case of the unfavorable situation. Interviews with the headmaster and vice headmaster are show in [Figure 2](#).





**Figure 2.** Interviews with the Headmaster and Vice Headmaster

Some of the teachers in their school not all of them live in a flood-prone area. When a flood occurred, teachers who live close to the school, vice principle and religion teacher, come to directly monitor the school condition. The flood attacked their school, and both of these teachers coordinated to check and ensure the school document was not broken because of the flood. Before the existence of digital media, schools had announced information about process learning during the flood through office government, and leaflet poster in front of the school. The information included a schedule for students and the process of learning in their house. During that time, information through digital media has been developing and it makes easiness for sharing information.

Related to the disaster preparedness at school, information related to disaster plays as an important part to be known by all school citizens, since it is a part of emergency plan action. The disaster preparedness planning components at school include availability of important numbers, maps or school plans including gathering points and evacuation routes, early disaster warnings, information procedures to parents or guardians, and backup plans such as closed temporary schools or learning activities on holiday. The disclosure of information is closely related to ability to read and understand disaster information. The ability to read, write, and understand is called as literacy. The flood warning system in schools is applied by sirens and relies on information from social media. The school has social media in the form of a website and YouTube channel. Both social media do not cover information about disasters or learning about floods. Both social media contain activities at school. The flood warning system relies on information obtained via Whatsapp through the closest people. Information related to the flood disaster alert status was also conveyed by local residents through mosque speakers which were heard up to the school so that the school was rarely late in getting information related to flooding.

The ability to mobilize resources includes the availability of volunteers, skills, expertise, mobilization of funds, and involvement between components. In terms of coordination, State Elementary School 05 conducts a lot of coordination with the government related to flood management and because of school's located in a narrow alley, there is also difficult access, but there is more assistance from the private sector and scouts. The flood disaster leads to damage to several school facilities, especially in the form of school administration, such as main books. When the flood occurred, teachers who lived near the school location immediately rushed to the school even though it was at night in order to check other important facilities. Floods occurred 2 to 3 hours and in heavy flood conditions, it could occur overnight. This condition causes learning activities to be stopped until a predetermined time. When learning activities are stopped it will make student's performance decrease and affected to reduced class hour, more lessons missed, and some students lost their school materials like book and uniform. Depth of flooding in school is show in [Figure 3](#).



**Figure 3.** Depth of Flooding in State Elementary School 05 Bidara Cina

Before the existence of social media such as Whatsapp, announcements about learning activities were made through leaflets pasted in the sub district office, but now, by using Whatsapp, information can be distributed to students and parents. Since the school was officially announced in 2017, floods rarely occurred coming into the school garden. There was flood in 2019 with the water until 0.25 meter or at the ankle. The floods were not at the moment of raining but at dry condition. This indicated that the floods were post-floods. The situation of floods in elementary school 05 bidara cina is show in [Figure 4](#).



**Figure 4.** Floods at State Elementary school 05 Bidara Cina

School had not provided any simulation related to disaster. The simulation of disaster preparedness once happened when the socialization conducted by university students of UNJ during the field study and community service. Teachers at the state elementary school 05 Bidara Cina has been aware of the school location at flood prone area. Based on the interview with the teacher or Vice Headmaster, she stated that she had no experiences related to floods but she was aware of the location at flood prone area. The interview was also conducted with religion teacher who has taught for 17 years and lived at Bidara Cina sub district RW 07 since 1996. The teacher stated to have describe, give understanding and relate his subject to floods. One of which was by integration of flood disaster through the learning at class by disclose of information related to floods using youtube channel, assignment related to floods and relating disaster events with religious subject materials. One of which was by using one of the verses in the Holy Quran stating that "Disaster could be caused by human such as throwing garbages everywhere". This can be concluded that the teachers in state elementary school of 05 Bidara Cina have had good knowledge and attitude on preparedness of flood disaster.

Students of State Elementary School 05 Bidara Cina already have had social media, they used YouTube, Tik Tok, Facebook and instagram. In general, students used social media to access subject matters and watch the school YouTube channel. Students never used social media to access related to flood disasters, but students got more information about floods through news on television. This shows that the mass media plays a role in informing events about the flood disaster. However, Information about flood conditions can be accessed via websites, electronic devices, and social media such as twitter or Instagram. This information is updated every hour informed about water levels from BPBD DKI Jakarta. The results of interviews with 4th grade students of State Elementary School 05 Bidara Cina, it showed that majority students have experienced flood disasters, this was supported by their location in Bidara Cina Village. Regarding good level of students' knowledge and attitude towards flooding, most of them stated that flooding was the water was overflowed from rivers or waterways with over capacity, after the floods, students helped their parents to clean their houses. Students stated that the teachers had given assignments about flood disasters and had given lessons about flooding through youtube.

There has been good level of preparedness of State Elementary School 05 schools in the aspect of the flood emergency response plan. Based on the results of an interview with the vice principal, she stated that the school had a siren that automatically sounded anytime of a flood occurred. Local residents near the school environment also informed about the flood disaster alert status through mosque speakers, so that flood disaster information could be heard by the school. When a flood occurred, the school electricity is turned off. The development of technology is currently getting faster in accessing information. Whatsapp groups can be used as a medium of communication related to flood disaster information, so that information on learning activities at home during a flood can be directly informed to parents. Sirin at state elementary school is show in [Figure 5](#).



**Figure 5.** Sirin at State Elementary School 05 Bidara Cina

School readiness in emergency response planning is very important to reduce risk in the event of a disaster. The emergency response plan includes the actions to be taken when dealing with an emergency. The results of the observations showed that there were instructions for the evacuation route, but there was no map and assembly point at State Elementary School 05 Bidara Cina. In addition, this school also provides evacuation equipment and supplies provided by the Regional Disaster Planning Agency (BPBD), such as ropes. In 2021, State Elementary School 05 Bidara Cina visited Jakarta State University students and invited students to conduct flood disaster simulation training as one of its KKN projects. Previously this school had never held simulations or training related to flood disasters. Whereas disaster simulations and training should be held regularly by cooperating and coordinating with local parties and the disaster department. The training is not only carried out to students, but to all school members. Evacuation route at state elementary school is show in Figure 5.



**Figure 5.** Evacuation Route at State Elementary School 05 Bidara Cina

### Discussion

Related to policies and regulations or procedures during flood disasters, the school has applied handling procedures that are usually recommended by the local government, such as taking photos of schools affected by floods and then sending reports to supervisors, Kasatlak, and the Sub-Department. Sometimes, the data collection was quite time-consuming because it took three days. It is necessary for cooperation between schools and the authorities, especially in procedures for informing flood events (Ardales et al., 2016; Everest, 2020). The existence of current technological developments should make it easier to conduct any information updates and make reports on procedures for handling flood disasters.

Based on the results of interviews with teachers of state elementary school 05 Bidara Cina it can be seen that the worst flood disaster occurred in 2007 which reached the height of the roof of the first floor. When there was a flood, state elementary school 05 Bidara Cina had not yet been completed with multistorey construction, so the learning process was carried out by joining the Cipinang Cempedak school. State elementary school 05 Bidara Cina has not been provided a tool for information about the disaster. Lack of information technology to know about student literacy did not enhance through education (R. A. K. Dewi & Fatkhiyani, 2021; R. K. Dewi et al., 2019). At the end, school must provide information about disaster as a preparedness to face flood disaster on an elementary school (Islam et al., 2016; Tingsanchali, 2012). It is important as well to make a standard operational procedure in a school while the flood disasters happen and prevention for flood disaster.

This is in line with previous research analyzing school preparedness for flood disaster preparedness at SDN Gebangmalang, Mojoanyar District, Mojokerto Regency (Aprilin, 2018). The results found that there was a relationship between teacher and parent preparedness for potential flood disasters. Socialization and information so that teachers and parents can get better awareness and preparedness to deal with the threat of floods in the Mojoanyar sub-district, Mojokerto Regency. The purpose of this study was to determine the effect

of disaster management training using simulation methods on flood disaster preparedness behavior among students of SMAN 2 Tuban (Ferianto & Hidayati, 2019). The results of statistical tests show that there is an effect of disaster management training using simulation methods on flood disaster preparedness behavior in Tuban 2 Public High School students.

The implications of this research provide an overview of the preparedness of school citizens of state elementary school in facing floods through digital literacy in one of the elementary schools. This research can be a reference for elementary schools in implementing digital literacy in efforts to deal with floods. This research has limitations in the scope of research, the subject is only limited to elementary school 05 Chinese Bidara. It is hoped that future research will be able to deepen and broaden the scope of research related to the preparedness of school citizens of state elementary school in facing floods through digital literacy.

#### 4. CONCLUSION

Base on the result it can be seen that the worst flood disaster occurred in 2007 which reached the height of the roof of the first floor. When there was a flood, state elementary school 05 Bidara Cina had not yet been completed with multistorey construction, so the learning process was carried out by joining the Cipinang Cempedak school. In terms of the emergency response at the State elementary school 05 Bidara Cina, it was quite good as well as the disaster equipment and supplies that had been provided by the school. However, State elementary school 05 Bidara Cina has not been provided a tool for information about the disaster. Lack of information technology to know about student literacy did not enhance through education. At the end, school must provide information about disaster as a preparedness to face flood disaster on an elementary school. It is important as well to make a standard operational procedure in a school while the flood disaster happen and prevention for flood disaster.

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