

Making Education Support Media About Flood Hazard in Samarinda in the Form of Digital Comic

Yustisi Calista Hartono¹; Rebecca Milka N.B.²; Paulus Benny Setyawan³

Petra Christian University, Surabaya, INDONESIA^{1,2,3}

Email: e12180150@john.petra.ac.id¹; milka@petra.ac.id²; bennysetyawan18@petra.ac.id³

ABSTRACT

Samarinda is the capital of East Kalimantan that is currently growing rapidly. However, the city of Samarinda still has a complex flood problem. This flood phenomenon occurs not only when it is the rainy season but also when it rains for 1-2 hours. This condition interferes with the activities of the community and the government in Samarinda in carrying out daily activities because it can immerse settlements and housing, damage public facilities, and cause casualties. Despite the frequent occurrence and inconvenience of the community, Samarinda's level of public awareness in preventing floods is still minimal. This can be seen from the large number of communities that still often throw garbage carelessly into rivers, especially residents living near rivers. The garbage thrown into the river hinders the flow of water to the point where it can create a high puddle. It is seen that there are many communities, especially young people who are open-minded about environmental issues. Therefore, it is necessary to design a flood prevention educational medium in Samarinda city that can start from oneself or a simple thing with the main target is Samarinda people itself, especially the youth with qualitative methods.

Keywords: Webcomic, comic, flood, webtoon, education media, Samarinda.

INTRODUCTION

Although Samarinda is a fairly growing capital, it still has frequent flood problems. This event occurs not only when it is rainy but also when it rains for around 1-2 hours. This condition interferes with community and government activities in Samarinda, it can even cost lives. Based on the news from the website Merdeka.com (29/8), there was a flood on Sunday, August 29, 2021, after Samarinda was hit by heavy rain for about 2 hours and at least 50 points of the area were flooded to 50 centimeters. Not only the roads, but also the floods soaked the residents' settlements. According to the Info Taruna Samarinda (TRC-ITS) Volunteer Team, Joko Iswanto (as cited in Rosadi, 2021), "In addition to flooding, we also recorded an incident of a collapsed installation pole and a point of avalanche" (p.4).

There are several factors that could cause the flood in Samarinda to worsen. Such as wild mining, increased infrastructure, residential needs, to community actions that also contribute fairly to the occurrence of this case. Despite the frequent occurrence, Samarinda people's level of awareness in preventing floods is still minimal because it is seen from the large number of people who still often throw garbage recklessly into rivers, especially residents living near rivers. Such garbage can

inhibit the flow of water to the extent that it can create a high puddle. Nurrahmani (Perilaku masyarakat, 2021) said, "The total garbage that has been transported by this garbage net is about 13 tons. Here the Mayor sees that there is no change in people's behavior not to throw garbage carelessly" (p. 9). There is a view that garbage thrown into some rivers in Samarinda will flow into Mahakam River, which is the largest river in Samarinda. In fact, it is wrong. However, it is also seen that some youth circles are active in following or conducting environmental-preservation activities, including the issue of garbage in rivers. Adolescence is an active period and can consider a variety of new insights.

Nowadays, there are many people of various ages who read comics digitally for both entertainment and educational means. Not a few comic readers have made educational comics his role as his role model. Therefore, the need to create a design that modifies flood prevention on streams to modulate especially the Samarinda people regarding the importance of river cleanliness as one of the flood prevention efforts. The media used is webcomic because it's quite in demand by most of the design targets and webcomic can also convey information in visual form to attract attention and be easy to understand. People can access it easily and for free.

DESIGN TARGET

Demographic:

- Age: 10-60 years, male and female, students/ students to workers, SES C-A
- Geographic:
- Citizens of Samarinda who is already aware of the danger of flooding (Primary) and the people of Samarinda city and around it (Secondary)

Psychographic:

Happy to explore the internet and webcomic, keep pace with technological developments.

Behavior:

Like to read webcomics, keep up with present developments, express oneself, and be active in social media.

Technographic:

Unable to off from the gadget, making technology as an education and entertainment.

METHODS

This design uses a qualitative research view, where in the design methodology a research method of data collection and data analysis will be performed. This method is done in the following ways:

Primary Data

- Interview
The first sources are communities living in areas near the river, design targets and other sources who can provide information and input for the design.

Secondary Data

- Observation
To find out directly the actions of communities around rivers and flooded areas in Samarinda. The things that will be observed are the physical and verbal treatment of the objects that have a connection to this project.
- Survey
Using Google Form to search Samarinda's citizens opinions that related to the flood in this city, river conditions, and their interest in webcomic.

Data Collection Method

Using a qualitative method which examines the causal relationships of problems and possibilities that could be used as indicators in the research making process. Some tools will be used to collect the data, such as recording devices, interview question lists, surveys, and the internet.

Data Analysis Method

Using 5W+1H (What, Where, Who, When, Why, and How) data analysis method.

- What: What has been the problem of Samarinda city for so long until now?
- Where: Where is the place where there are frequent floods in Samarinda city?
- Who: Who is involved in the flood problem in Samarinda?
- When: When did the flood in Samarinda occur?
- Why: Why do floods in Samarinda occur often?
- How: How is the public's response to flood cases in Samarinda? And how to prevent flooding in Samarinda?

THEORIES

About Webcomic

According to Gumelar (2011), comics are a sequence of images arranged according to the maker's purpose and philosophy until the story message is delivered, comics tend to be given the necessary lettering as needed.

According to Fauzana (2013), comics are a medium that conveys visualizations or illustrations of images. In other words, comics are pictorial stories in which images serve a descriptive story. There is a word balloon in each picture to make it easy for the reader to understand the story presented by the author. Webcomic is a digital comic that is opened online through an application or website (such as Webtoon). In addition to being easily accessible, there are some webcomics that are free to open freely. The noticeable difference between printed comics and webcomics is one of them within the limits of its spread. Webcomic deployment is faster and more extensive than print comics because it is published and distributed over the internet. Digital comic making can be done in both traditional and non-traditional styles. The formats used by webcomic makers are diverse. Start with comic strip formats, traditional print comic prints and free novels, and other formats. Usually, comics are regarded for entertainment. However, it can also be an educational media. According to Fauzana (2013), comic is one of the learning media as long as it is related to the material as well as according to the learning goals to be achieved. Comics are in great demand from teenagers till grown up people because of the visuals and the storyline.

About Flood

According to Encyclopedia Britannica, flooding is a high-water stage where water overflows both naturally and artificially on usually dry land like other

ivers that flood plains, and the effects of flooding on human welfare range from unlimited blessings to disasters. According to the World Health Organization website, there are 3 common types of floods: flash floods (which are caused by rapid and excessive rainfall that raise water levels rapidly), river floods (which are caused when continuous rain exceeds the river's holding capacity), and coastal floods (which are caused by storm waves associated with tropical cyclones and tsunamis).

There are several things that could cause flooding, such as: Wild logging, wild mining, greenhouse effect, utilizing land on a long-term basis of exaggeration, heavy rainfall, lack of drainage area, throwing away garbage carelessly, and others. Some of the results of flooding are skin infections, diarrhea, Dengue Blood Fever (DBD), the rarity of clean water supply, failed harvest, damaged public facilities, stunted activity, until costing lives both from diseases or drowned.

According to Mizzy (2013), the way to prevent flooding in Samarinda can be divided into 3 sections, which are:

- Pre-flood solutions
Usually, the cause of flooding is the garbage problem. Therefore, we need to create a sense of culture of shame and feel guilty to any group or individual if it soils the environment in any form. Then, getting used to keeping clean and daring to reprove a person who throws away garbage carelessly. In addition, the need for government encouragement to the public. The geographical condition of Samarinda constitutes a lowland and swampy area. Therefore, there needs to be strict regulations and laws. If the water absorption area should not be used as a residential area, all communities that have a rock form must be used as a stage house, make drainage according to the standard, and conduct order for all people of Samarinda city.
- At flood solutions
The government should come down directly to the site as a good example for other institutions as well as the public. They are also assisted by the disaster response agency providing evacuation sites, public utility goods including medicine and logistics assistance. The public can also take part in helping the government by volunteering for floods.
- Post-flood solutions
After the flood, the government, communities, and also publics could together clean up the area, strengthen clean living habits and love the environment, cleaning drainage and rivers regularly, and tighten the mining permits.

FINDING AND DISCUSSION

Based on Interview Results

Based on the results of the interview, "floods have been raging in the city of Samarinda for a long time, but only a few points" said Sri Hartatik (2021, personal communication). "Floods could occur due to overflowing river water and follow-up flooding from places higher than the city. Making a house on a river that is not a stage house makes the waterways dammed... and it also causes flooding" said Syafrizal (2021, personal communication). "Now, floods occur thoroughly and can worsen just because it rains a little or river water overflows. Some efforts have already been made to prevent flooding such as overhauling the Segiri market, conducting cleanup of the Karang Mumus river, the creation of dams at some point of the small river that most trigger flooding, to create a special group to deal with river problems" said Nina Endang Rahayu (2021, personal communication). "Not a few communities view flooding as a business field and an attempt to get donations. The perception that regards the river as the closest dump and floodplain is part of childhood nostalgia still exists. Therefore, this problem cannot be solved without cooperation between peoples, institutions, up to government. The idea of creating educational media in the form of webcomics is quite interesting because other than being visually interesting, it is easy to understand well of all ages" said Ronaldus Sandy Setiawan (2021, personal communication).

Based on Observation Results

Based on the observation results from September 12, 2021, to November 21, 2021, there were 16 thorough flood cases in Samarinda city. Puddles in the Mahakam River overflow naturally accompanied by torrential rains. Several aspects related to the condition were found to be:

- 1 hour of rain caused 5 – 7 locations to be flooded.
- During the flood, there were still vehicles that threw garbage on the streets and rivers.
- Some places even used boats as their street transportation.

From all the data from above, it can be understood if it is true that 1 short-duration torrential rain can cause flooding for up to days, even more than one week. Such floods hampered various activities and damaged facilities. Mainland roads are even turning into using water transportation.

Based on Survey Results

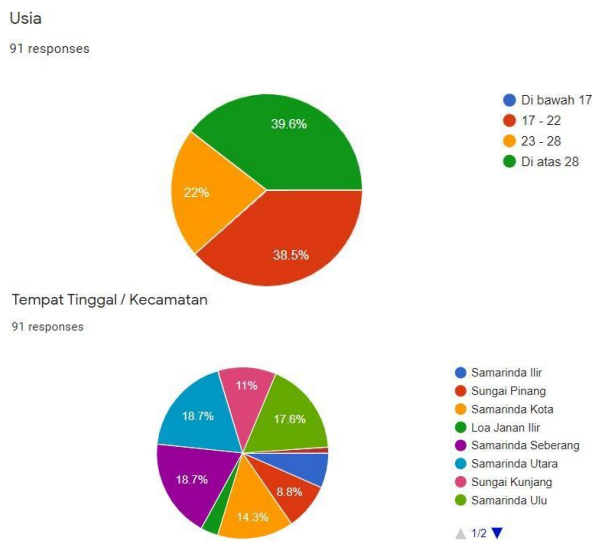


Image 1. Survey results

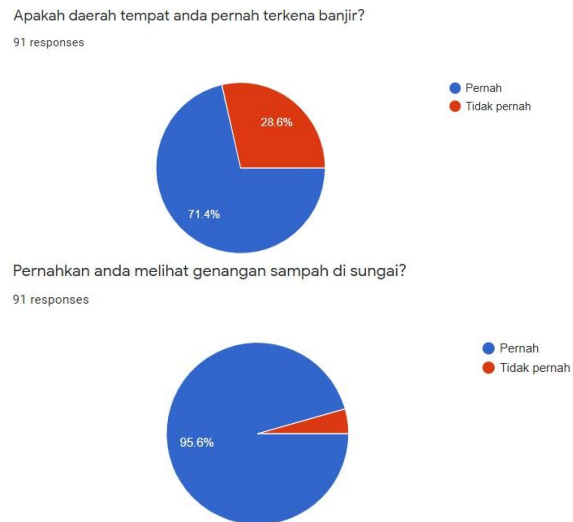


Image 2. Survey results

This survey was distributed to the people of Samarinda (from students, until workers) on October 11-12th, 2021 using Google Form. There were 91 respondents in this survey who were 17-22 years old (38.5%), 23-28 years old (22%), and over 28 years old (39.6%). Female respondents (60.4%) dominated more than male respondents (39.6%). It can be seen that 71.4% of places around Samarinda have been flooded, and 95.6% of it have seen garbage puddles in the river. According to the respondents, many of them felt the flood problem that occurred in Samarinda city was getting worse and more concerning. The custom of citizens throwing garbage into rivers is still visible, especially by citizens living near rivers. Before the development of the times, indeed, rivers were often used as strategic main places to meet daily needs and dispose of garbage (organic and nonorganic).

However, this action is precisely because if it gets left unchecked, it gets worse like Samarinda city residents have experienced. It is seen that the lack of public awareness related to this, and public trash cans are still not thoroughly distributed. This custom can be one of the main factors that floods in Samarinda are still preserved other than due to city conditions, mining conditions, and others.



Image 3. Respondent's opinions

MEDIA CONCEPTS

The purpose of this media is intended for teenagers to adults both already aware and still unaware about the dangers of flood phenomena, the habit of throwing garbage carelessly into the river can result in fatal effects, and some other things that can be done to prevent flooding. This media also contains a mutual gesture, not easily giving up, and caring for each other as the sources and respondents expected. This media will be published on the LINE Webtoon platform in Webtoon Canvas. The platform is free of charge and quite popular both by young until adults because of the visuals, storyline, and people can access it very easily. It's very suitable to approach design targets. The comic tells about the main character's daily life during her vacation in Samarinda. Previously, the main character lost the person she truly cared about because of a massive flood incident. After a long time away from her old city, she came back and saw there were many things that have changed in her old town. Most of the

buildings and the social activities around the city are becoming more modern, but the river conditions are getting worse than before. The main character observes the city and appears to have had quite a high flood. The main character will act by participating in helping out when pre-flooded, during floods, and post-flooding as large as he or she is able as an ordinary society.

To make the story closer to its original purpose, this comic uses a color palette earth tone as an approach to nature and the dominant color of the comic is the color of the river that is brown. This comic will be using Indonesian language, both formal and informal, and a tiny bit of Samarinda's accent. The visual style is a cartoon style that is simple in nature to be more comfortable for both teenagers and adults to see. This comic-making technique uses digital techniques that begin with rough sketch, line art, basic color, until adding details and effects using ProCreate software. After that, the comic will be tidied up and added writing with Adobe Photoshop software. This comic will contain eight episodes that begin with the introduction of the main character Sarita, the onset of problems, until the problem solving.

Sarita



Image 4. Sarita

Sarita is the main character of this comic. She is described by always wearing a Dayak bead fang necklace which is a relic from her grandmother, brownish black hair, two moles in both eyes, and slightly upward sharp eye tips.

Arai

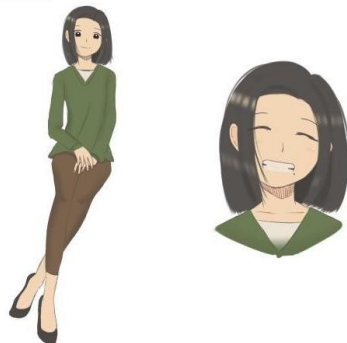


Image 5. Arai

Arai is described as looking cheerful and smiling often. She has gray black hair that is the equivalent of a shoulder length, a mole on the left of the chin, and often wears green clothes.

Danum



Image 6. Danum

Danum is described by having sharp eyes, a face that rarely smiles, and a slightly dark skin color compared to Arai and Sarita due to frequent activities, often wearing shirts.

Grandma Kayaat



Image 7. Grandma Kayaat

Grandma Kayaat is Sarita's biological grandmother. She is described as having long ears with copper-plated earrings that were a symbol of Dayak women's beauty in the past. Once every year, the earring is added so that it makes the ears elongate. These long ears can also be emblematic of aristocratic descent.

CONCLUSION

Through the acquired data above, it can be inferred if there are still many Samarinda people who have a low level of awareness about the dangers of flooding effects that would result from indiscriminate dumping of garbage and make webcomic as a medium for flood prevention campaigns suitable for design targets. The story in this comic can be about the main character's personal experience so that the reader's approach to the plot's main message can be easier to understand. Using the LINE Webtoon Canvas platform can be a good choice for this design.

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