

Increased Community Awareness Against Flood Management

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Abstract

During the rainy season, many areas in Malang are prone to flooding, especially near rivers. Samaan Village is part of the Brantas River Basin, which has a source of water flow from Sumber Luh in the Brantas River area. Four neighborhoods in this village are located in the river basin. The flood disaster in Malang City at the end of 2021 resulted from flooding in Batu City. This flood event was the worst after the flood in 2004. The flash flood caused many material losses, one of which damaged the newly built Taman Keceh tourist attraction. This PKM offers socialization, mentoring, and training activities related to flood disaster management for communities around the Brantas River. This activity aims to equip the community with understanding and skills in flood disaster management. The implementation of disaster management consists of 3 (three) stages, including pre-disaster, during a disaster (emergency response), and post-disaster (rehabilitation and reconstruction). The methods used in this activity included deliberation, brainstorming, and demonstration. In the process, the participants were accompanied by resource persons and the service implementation team as facilitators. During the series of processes, an evaluation was carried out to monitor and improve activities. The results of this activity include (1) increased community awareness in flood disaster management, (2) the availability of Early Warning Systems (EWS), both traditional and modern simple ones, as an effort to mitigate flood disasters, and (3) the formation of cooperation between local communities in flood disaster management (pre, during, and post).

Keywords: flood disaster; flood management; river basin; Early Warning System (EWS)

INTRODUCTION

The flood disaster in Malang City some time ago, to be precise, on 4th November 2021, resulted from flooding in Batu City. Malang City has four flood-affected locations: Jatimulyo, Rampal Celaket, Samaan, and Kotalama Villages. Due to the increased rainfall intensity and high river discharge, the river overflowed and flooded the area around the riverbanks. As a result of the flood, the building of Taman Keceh was destroyed. The bathroom building was destroyed, and the base camp of the Taman Keceh association was in the vicinity, which was also washed away. Taman Keceh is a bathing place from a water source in the Brantas river area (Listyaningrum, 2021).

If the intensity of rainfall and river discharge experience an extreme increase, the river water can overflow and flood the area around the riverbank. Therefore, disaster management can be optimized as a means of prevention and preparedness for the surrounding community in dealing with flooding. Some problems in the Brantas river basin community in Samaan Village include 1. Erratic and unpredictable hydrometeorological conditions. 2. The potential for flooding. 3. Insight into disaster management as a whole in a minimal community. From these problems, it is necessary to follow up to empower the community to manage and cope with flood disasters.

The Ministry of PUPR-BPSDM (2017) explains that the implementation of disaster management consists of 3 (three) stages, including pre-disaster, during a disaster (emergency response), and post-disaster (rehabilitation and reconstruction). The purpose of disaster management is to protect the community from the threat of disaster, harmonize existing laws and regulations, and ensure the implementation of disaster management in a planned, integrated, coordinated, and comprehensive manner. Also, respect local culture, build public

and private participation and partnerships, encourage cooperation, solidarity, and generosity, and create peace in society, nation, and state (Law No. 24/2007).

The solution that will be offered to solve the problem of flood disaster management is assistance and training in flood disaster management as a means of prevention and preparedness for the surrounding community in dealing with floods. In this program, the emphasis will be on two things: increasing community knowledge in flood disaster management and increasing their skills in preparedness and emergency response during floods. In addition, the implementation of this activity is carried out by involving community participation. This is because community involvement is essential to increase their awareness of efforts to anticipate further disasters (Umeidini, 2019).

- For members of the organization, this service activity helps develop their knowledge and skills related to management and practice in management about flood disaster management for the community around Taman Keceh.
- For the surrounding community, the results of this service can be helpful to empower the community with their preparedness in dealing with flood disasters.
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METHOD

The process of implementing community service regarding flood disaster management can be seen in Figure 1 below.

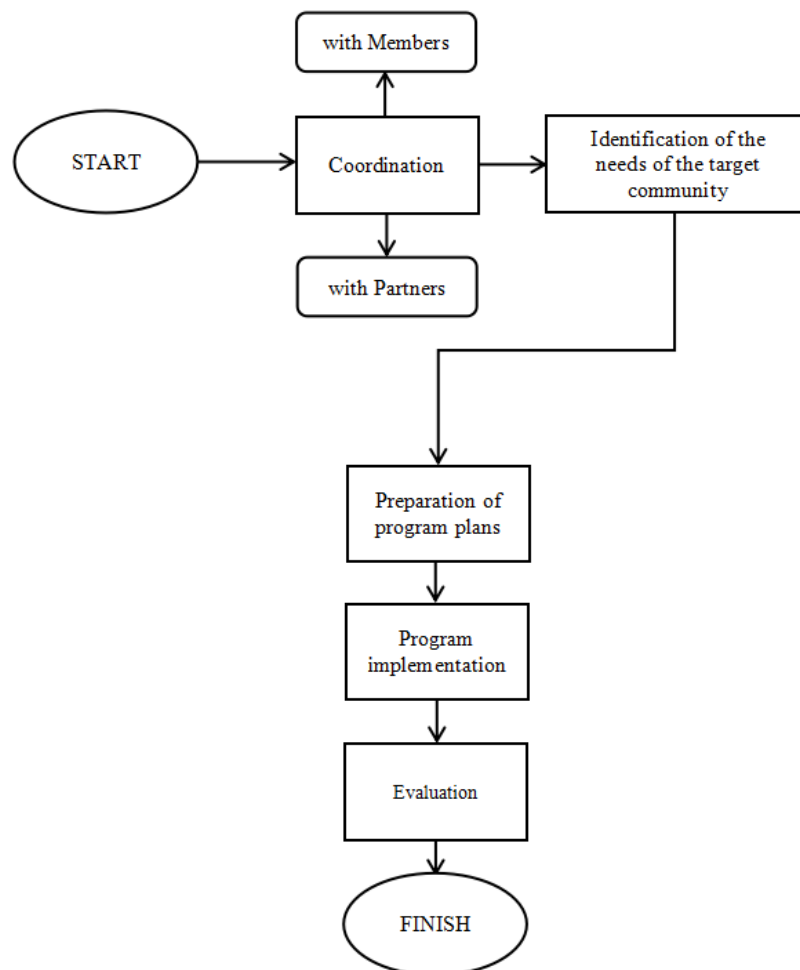


Figure 1. The flow of an implementation of the flood management awareness-raising program

From the flowchart, it can be explained that the methods used at each stage are as follows.

- Coordination with implementing members and institutions/organizations from cooperation partners. In this activity, the method used is the deliberation method. This is used to agree

between the implementing members and the institution mutually. The agreement in question includes prioritizing the needs of the community in general and the plan for solving them.

- Identification of the needs of the target community related to disaster management materials. In this activity, the methods used were interviews and brainstorming. Interviews were used to obtain data from several community leaders, while brainstorming was used to discuss problems and determine priority needs with SWOT analysis.
- Develop a plan for mentoring and training activities. This activity was conducted using the deliberation method between the implementing members and target partners.
- Implementation of mentoring and training activities. The methods used in this activity were socialization, practice, and demonstration. The stages in flood disaster management include pre-disaster, during a disaster (emergency response), and post-disaster stages. In the process, the implementation team acted as a facilitator who actively involved the community during the activity.
- Evaluation of service activities. This activity is carried out using the method of interviews, observations, and surveys from the beginning to the end of the activity.
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RESULTS AND DISCUSSION

Based on the community service program that has been carried out, the results obtained include community needs for flood awareness, increased understanding and awareness of the community, and evaluation of activities that have been carried out as follows.

Community Needs for Flood Management Awareness

When planning a program, the first thing to do is to identify the needs first. According to Sutarto (2008), identification is an integral part of the organizing and planning process, which will then be used as a reference in the preparation of the program implementation. From this opinion, needs identification is a necessary process that must be carried out when we are going to implement a community empowerment program. This is needed to ensure that the program meets the community's needs. Therefore, the service implementation team identified and analyzed needs with a priority scale.

The main problem that must be resolved immediately in this community is the lack of awareness and vigilance against flood disasters. There is still much rubbish scattered around the river in the Brantas watershed. At the end of 2021, there was a flood with a large flow in this area. It resulted in much physical damage in the neighbourhood. Currently, the intensity of rainfall in this area is very high. Kodoatie and Syarief (2006) reported the impact or loss of flooding, loss of life or injury, property loss, residential damage, commercial area damage, industrial area damage, agricultural area damage, and drainage, and We gave some examples of irrigation damage. This makes this discussion one of the critical focuses that must be resolved.

These community needs are then used as a reference to plan a community empowerment program entitled community service. The agreed activity planning is to provide socialization of understanding for the community regarding flood management. Then the community is given training and assistance to start practicing management. Then it was agreed that the implementation of flexible training activities was by the concept of non-formal education, which adapts to the community's learning needs. Non-formal education with community empowerment is a way to provide awareness to the community about flood disaster prevention and management efforts.

Increased Public Understanding and Awareness of Flood Disasters

Based on the community's needs from the results of needs identification, a solution is obtained in the form of a community service program based on socialization and community

awareness of flood management. The active participation of the community service participants characterizes community awareness regarding the importance of flood prevention efforts in their environment. The participants, who consisted of resilient villages and RT representatives in RW 02, were enthusiastic about participating in the activity from start to finish. This training activity was conducted at the RW 02 hall. The awareness was also marked by the participants' enthusiasm during the question-and-answer session.

The research result by Nisa (2014) explained that the most critical stages in disaster management are the pre, during, and post-disaster stages. Every stage of disaster management requires the participation of the community. This participation can be in the form of ideas, energy, property, skills and abilities, and community activities. Community participation can be realized if there is a good understanding and awareness from the community regarding the importance of flood management. Therefore, the team organized a series of activities to improve this. The results of the activities were evaluated through pre-test and post-test.

The pre-test and post-test results of the community service activities show an increase in understanding and awareness of flood management.

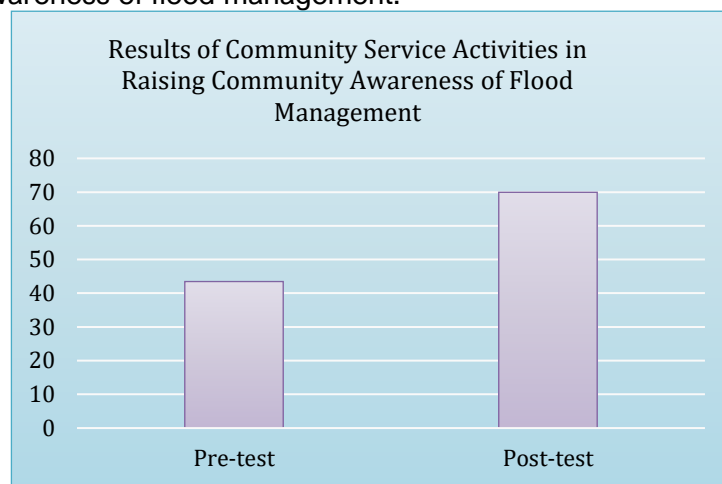


Figure 2. Results of Community Service Activities in Raising Community Awareness of Flood Management

Based on Figure 2, there are changes in the results during the pre-test and post-test. From these results, the program has contributed to increasing community awareness and understanding of flood disaster management. In addition to increasing the understanding and awareness of the community, this community service activity also equips them by providing flood management guidelines. These guidelines are in the form of infographics in the form of posters containing flood management.

After being given material by speakers from BPBD Malang City, the community was invited to make an Early Warning System (EWS). An early Warning System is a tool used to detect danger/disaster. The Early Warning System is made from a traditional tool, namely the bells. The community was also invited to modify a simple modern EWS in the form of a flood siren. All stages of the planned activities have been carried out well.

Evaluation and Follow-up Activities

Evaluation is carried out to identify and assess the results achieved, expected, and not expected in the short and long term, both for implementers of activities in order to focus on achieving program goals and for other users in gathering efforts to meet the needs of target groups (Andriani, 2020). The evaluation results can be used as a reflection of the program that has been carried out. Supporting and inhibiting factors in the program can also be known from this evaluation process. The purpose of conducting this evaluation is to be used as a guideline for future program improvements.

Based on the implementation of the community service program that has been carried out, the supporting factors of the program include (a) good cooperation between the implementation team, service partners, local government officials, and also from BPBD Malang City; (b) resource persons directly from the experts, namely the Head of Prevention and Preparedness of Malang City; (c) residents, members of youth organizations, and members of resilient villages who are participatory; and (d) the time used for implementing this activity adjusts to the leisure time of the participants, namely on Sundays. The inhibiting factors in this service activity include the busyness of each implementation team member because each member also has other service targets that need to be implemented. In addition, some unfavorable conditions suddenly came so that the implementation of the activity was delayed far from the previously planned time.

The follow-up plan for developing the service program that has been carried out is to pass on information related to disasters, especially floods, conveyed by the resource person. In addition, it is necessary to collaborate with the entire community to form a flood disaster prevention team in each RT. It would be better if it is formed from each *dasawisma*. From forming the flood prevention team, then planning and implementing flood prevention measures. Due to the dense population in the area, the basic plan that can be done is to clean up the trash in each environment. This is because an increase (density) in population can increase the amount of waste and the diversity of types of waste produced (Alviansyah, 2022). This is what can trigger an overflow of river water into residential areas, therefore special handling is needed in waste cases to prevent flooding.

CONCLUSION AND SUGGESTION

This community service activity in the form of a program to increase community awareness of flood management has been completed well. The implementation includes socialization activities, providing materials, and procuring a simple EWS (Early Warning System) as an effort to be aware of flood disasters. This activity increased understanding and awareness of the target community. Flood disaster prevention efforts were also conveyed in this community service activity. EWS in bells and flood sirens have been made together and given to the target community.

Suggestions that can be given include, among others, members of the resilient village following up on the activities carried out by delivering socialization and cooperation in flood disaster prevention efforts. Residents around the river are expected always to pay attention to the cleanliness of their environment. Maintain the cleanliness of existing rivers and streams.

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APPENDIX



Figure 3. Identification of Community Needs and Problems



Figure 4. Socialization of Program Implementation



Figure 5. Implementation of Training Activities