

Implementation of a Medicine Distribution System to Determine Health Assistance Priorities for Flood-Affected Communities in Aceh Tamiang

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Abstract

Flooding in Kasih Sayang Village, Manyak Payed District, Aceh Tamiang Regency created challenges in the distribution of health assistance, particularly in data collection, prioritizing recipients, and recording medicine distribution. This community service activity aimed to implement a medicine distribution system to support the prioritization of health assistance for flood-affected communities. The methods used included initial visits, observation, interviews, questionnaires, program implementation, and partner response evaluation. The program was carried out through the symbolic handover of medicines and medical equipment to the village midwife and village head, followed by a trial of the medicine distribution application with partners. The results showed that the application could be used properly by partners and helped make recipient data management more organized, faster, and systematic. The evaluation involving the village head, village officials, and village midwife showed an average score of 3.72, which was categorized as very high. The highest score was found in the need for a system to determine aid recipient priorities at 3.90, followed by the urgency of post-flood health assistance at 3.85. Overall, this program provided practical benefits in supporting a more orderly, transparent, and accountable management of health assistance at the village level.

Keywords: Flood, Health Assistance, Medicine Distribution, Information System, Community Service.

1. INTRODUCTION

Flooding is one of the disasters that directly affects people's health conditions, social life, and daily activities (Kumar et al., 2023). In affected areas, the problems extend beyond water inundation and environmental damage to include disrupted access to health services, aid distribution, and the fulfillment of basic community needs (Sari et al., 2025). In this context, post-disaster management requires an approach that is not only responsive but also well targeted, so that the most vulnerable groups can promptly receive adequate health assistance.

This condition became the focus of the community service activity carried out in Kasih Sayang Village, Manyak Payed District, Aceh Tamiang Regency. Before the program was implemented, the team conducted a preliminary study through a field visit and initial interviews with the Head of Kasih Sayang Village to obtain a clear picture of the post-flood situation. The interview results showed that flooding created difficulties in distributing aid to residents because community needs were not uniform, while field conditions required quick and accurate decision-making. In such circumstances, village officials faced challenges in determining which residents should be prioritized to receive health assistance, particularly medicines, based on their level of need and vulnerability.

The initial interviews also revealed that the aid distribution mechanism still needed to be strengthened, especially in terms of data collection, recipient prioritization, and distribution recordkeeping. In emergency situations, aid distribution that is not supported by a structured system risks inaccurate targeting, delays in delivery, and difficulties

in monitoring and evaluation (Lestari et al., 2026; Vu et al., 2025). For the village government, this became a particular challenge because health assistance had to be delivered quickly while remaining fair, transparent, and accountable (Annahar et al., 2023).

Based on these initial findings, a solution was needed to help village officials manage medicine distribution more systematically. One possible approach was the implementation of a medicine distribution system that functions as a decision-support tool for determining priorities in health assistance for flood-affected communities (Rangkuti et al., 2025). This system is expected to support the identification of aid recipients based on actual field conditions, so that medicine distribution can be carried out in a more orderly manner and be more accurately targeted according to community needs.

This community service activity is important because it is not only oriented toward providing health assistance, but also toward strengthening the village government's capacity in needs-based aid distribution management. With a structured system, the process of medicine distribution is expected to become more effective, transparent, and accountable. Therefore, this activity was directed toward implementing a medicine distribution system to support the prioritization of health assistance for flood-affected communities in Kasih Sayang Village, Banyak Payed District, Aceh Tamiang Regency.

2. RESEARCH METHODOLOGY

To provide a clearer description of the service implementation method, the stages of the community service activity are illustrated in Figure 1. This figure summarizes the sequential process used in the implementation of the medicine distribution system, starting from problem identification to mentoring and evaluation.



Figure 1. Stages of the Community Service Implementation Method

Based on Figure 1, the community service activity was conducted in five main stages: problem and needs identification, medicine distribution system design, socialization and training, system implementation, and mentoring and evaluation.

2.1. Community Research

This community service activity employed a participatory and implementative approach, involving partners directly from the stages of problem identification, solution design, system implementation, to evaluation of activity outcomes (Anam et al., 2020; Ulfah et al., 2021). This approach was selected because the problem of health aid

distribution for flood-affected communities is not only related to technical aspects, but also involves the understanding of village officials, coordination among implementers, and community acceptance of the aid distribution mechanism. Therefore, before the activity was carried out, the team conducted an initial visit to Kasih Sayang Village, Manyak Payed District, Aceh Tamiang Regency through field observation and direct interviews with the Village Head to obtain a real picture of the existing conditions, barriers in aid distribution, and partner needs regarding the system to be implemented.

2.2. Implementation Stages

The implementation of the community service activity was carried out in five stages. The first stage was problem and needs identification, conducted through field observation, initial interviews, and questionnaire distribution to partners. This stage aimed to map the condition of flood-affected communities, vulnerable groups that needed to be prioritized, and obstacles faced in the distribution of health assistance. The second stage was the design of the medicine distribution system, namely developing the system flow and determining the priority criteria for health aid recipients based on discussions with partners. The third stage was socialization and training, provided to village officials and relevant parties regarding system usage, data entry, and the use of priority results in aid distribution. The fourth stage was system implementation, namely the use of the system in determining priority health assistance for flood-affected communities. The fifth stage was mentoring and evaluation, carried out to assess program implementation, identify system usage constraints, and observe changes after the system had been applied.

2.3. Data Collection Techniques

Data in this community service activity were collected through observation, interviews, questionnaires, and documentation. Observation was used to directly examine field conditions, partner situations, and the implementation process (Weston et al., 2021). Interviews were conducted with the Village Head and village officials to gather information regarding the condition of flood-affected communities, barriers in health aid distribution, and partner needs related to the system to be implemented (Amalia et al., 2025). Questionnaires were used to identify the partners' initial needs and to understand their perceptions regarding the urgency of health assistance, the need for recipient data management, the need for a medicine distribution system, the readiness of village officials, and expectations for transparency in aid distribution (Doyle et al., 2025). Meanwhile, documentation was used to record initial visits, the training process, system implementation, and health aid distribution activities in the field.

2.4. Community Service Instruments

The instrument used in this activity was a partner needs questionnaire arranged using a 1–4 Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. The indicators and questionnaire statements are presented in Table 1.

Table 1. Indicators and Statements

Indicator	No	Statement
Urgency of post-flood health assistance	1	The flooding has created an urgent need for health assistance in the community.
	2	Vulnerable groups such as the elderly, toddlers, pregnant women, and sick residents should be prioritized in medicine distribution.
Need for data management and recipient prioritization	1	Village officials need better-organized data to determine health aid recipients.
	2	So far, the prioritization of aid recipients has not been fully

		structured.
	3	The recording of health aid distribution still needs to be improved to become more orderly.
Need for a data-based medicine distribution system	1	A data-based aid distribution mechanism would help village officials work more effectively.
	2	A medicine distribution system is needed to help determine priority recipients of health assistance.
Partner readiness in supporting system implementation	1	Village officials are ready to participate in training on the use of the medicine distribution system.
	2	Volunteers and village officials are willing to cooperate in collecting data on affected residents.
Expectations for transparency and social acceptance	1	System implementation will improve transparency in health aid distribution.
	2	System implementation will increase public trust in the aid distribution process.
	3	This community service program is in accordance with the needs of Kasih Sayang Village at present.

2.5. Data Analysis Techniques

Data obtained from observation, interviews, and documentation were analyzed descriptively and qualitatively to explain partner conditions, field needs, the implementation process, and changes that occurred after the program was applied. Meanwhile, questionnaire data were analyzed descriptively and quantitatively using the average score for each indicator. The assessment results were then interpreted into the following categories: 1.00–1.75 = strongly disagree, 1.76–2.50 = disagree, 2.51–3.25 = agree, and 3.26–4.00 = strongly agree (Purnomo et al., 2026). The level of success achievement in this community service activity was assessed from two main aspects, namely attitude change and the social aspect. The attitude change aspect was indicated by increased understanding and readiness of village officials regarding the use of the medicine distribution system. The social aspect was indicated by increased transparency in aid distribution, public trust in the distribution process, and reduced potential complaints due to inaccurate targeting.

3. RESULTS AND DISCUSSION

This section presents the results of the community service program on the implementation of a medicine distribution system for prioritizing health assistance in flood-affected communities in Kasih Sayang Village, Manyak Payed District, Aceh Tamiang Regency. The discussion covers the initial field visit and partner needs identification, program implementation through the symbolic handover of medicines and medical equipment, application testing, partner evaluation, and the overall impact of the program. Through these findings, this section highlights how the implemented system contributed to improving the orderliness, transparency, and accountability of health aid distribution at the village level.

3.1. Initial Visit and Results of the Partner Needs Questionnaire

Before the implementation of the community service program, the team first conducted an initial visit to Kasih Sayang Village, Manyak Payed District, Aceh Tamiang Regency. This activity aimed to obtain a factual overview of

the partner's condition, strengthen initial coordination with the village authorities, and identify the main needs related to the distribution of health assistance for flood-affected communities. In addition to direct observation and interviews, the needs identification process was also strengthened through the distribution of an initial questionnaire to partners to determine their perceptions of program urgency, system needs, and implementation readiness.



Figure 1. Initial visit by the community service team in Kasih Sayang Village, Manyak Payed District: (a) initial discussion and interview with village partners; (b) field coordination documentation with village officials.

Based on Figure 1, the initial visit was carried out through direct discussion and preliminary interviews with village stakeholders to explore the problems faced by the community after the flood. In Figure 1(a), the communication process between the community service team and village partners can be seen in a participatory field setting. This discussion served as an initial means of understanding the condition of the affected community, the barriers in aid distribution, and the village's need for a solution that could support the distribution of health assistance. Meanwhile, Figure 1(b) presents documentation of field coordination with village officials as a form of the partners' initial support for the planned program.

To strengthen the results of the visit, the team also distributed an initial questionnaire to five respondents consisting of the Village Head, village officials, and the village midwife. The questionnaire used a 1–4 scale, where 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. The recapitulation of the partner needs questionnaire is presented in Table 2.

Table 2. Recapitulation of the Partner Needs Questionnaire Results

No	Indicator	Average Score	Category
1	Urgency of post-flood health assistance	3.80	Very High
2	Need for data management and recipient prioritization	3.60	Very High
3	Need for a data-based medicine distribution system	3.80	Very High
4	Partner readiness in supporting system implementation	3.40	Very High
5	Expectations for transparency and social acceptance	3.60	Very High

The questionnaire results in Table 2 indicate that the partners had a very positive perception of the planned implementation of the medicine distribution system. The highest scores were found in the urgency of post-flood health

assistance and the need for a system to determine recipient priorities, both obtaining an average score of 3.80. This result shows that the partners considered health assistance after flooding to be urgent and in need of system support to help determine aid recipients more accurately.

For the indicators of the need for more orderly recipient data management and expectations for increased transparency in aid distribution, each obtained an average score of 3.60. These findings indicate that the partners recognized the importance of more organized data management and a more open distribution mechanism so that health assistance would not lead to mistargeting or perceptions of unfairness within the community. Meanwhile, the indicator of partner readiness in supporting system implementation obtained an average score of 3.40, which also falls into the very high category. This indicates that the Village Head, village officials, and the village midwife were generally ready to accept the proposed innovation and were willing to participate in training and implementation. Overall, the average questionnaire score of 3.64 confirms that the need for a medicine distribution system was in the very high category, showing that the proposed program was highly relevant to the needs of Kasih Sayang Village.

3.2. Program Implementation

After the initial visit and partner needs identification had been completed, the community service activity proceeded to the program implementation stage. This stage constituted the core of the activity, namely applying the designed solution through the handover of health assistance and the trial use of the medicine distribution application for partners in Kasih Sayang Village, Manyak Payed District, Aceh Tamiang Regency. The program implementation was directed not only at directly providing assistance, but also at strengthening the governance of health aid distribution so that it became more organized, targeted, and easier for partners to use.

As an initial form of support for program implementation, the community service team carried out the symbolic handover of medicines and medical equipment to the village midwife and the Village Head of Kasih Sayang. This symbolic handover was an important part of the activity because it showed that the program did not only focus on system development, but also provided direct support for the post-flood health needs of the community.



(a)



(b)

Figure 2. Program implementation through the symbolic handover of medicines and medical equipment to partners in Kasih Sayang Village: (a) symbolic handover to the village midwife; (b) symbolic handover to the Village Head of Kasih Sayang.

Based on Figure 2, the symbolic handover was conducted to two main parties who play important roles in health services and aid distribution at the village level, namely the village midwife and the Village Head of Kasih Sayang. In Figure 2(a), the handover of medicines and medical equipment to the village midwife indicates that the program supported the role of village health workers as the frontline in community health services. This assistance was expected to support basic health service needs, especially for flood-affected residents requiring medicines and early treatment. Meanwhile, Figure 2(b) shows the symbolic handover to the Village Head, reflecting the active involvement of the village government in supporting the governance of health aid distribution so that it could be delivered to the community in a more targeted manner and according to priority needs.

The next stage was the trial use of the medicine distribution application carried out with partners at the activity site. This trial aimed to ensure that the designed application could be used by village-level users and was suitable for the operational needs of health aid distribution in the field.



Figure 3. Trial use of the medicine distribution application with partners in Kasih Sayang Village.

Figure 3 shows the trial process of the medicine distribution application conducted directly with the village midwife as one of the main users of the system. At this stage, the community service team assisted partners in becoming familiar with the application interface, understanding the system workflow, and simulating its use to support medicine distribution. This trial was important to ensure that the application was not only technically functional, but also easy for partners to operate according to field conditions and needs.

To further clarify the implementation of the system, one of the main menus of the medicine distribution application is presented in Figure 4.

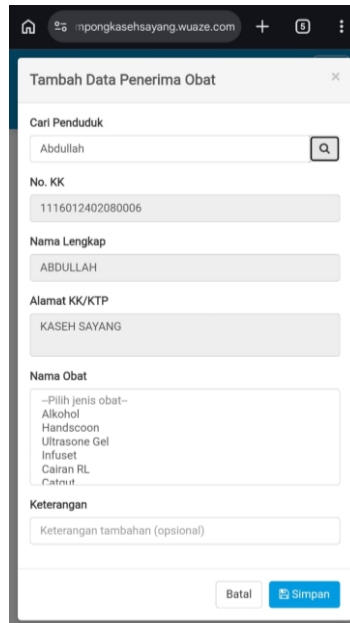


Figure 4. Display of the medicine distribution application on the medicine recipient data input menu.

Based on Figure 4, the medicine distribution application was designed with a simple and user-friendly interface for village officers. The available features include resident search, family card number entry, full name, address, type of medicine, and additional remarks. These features help the process of recording health aid recipients become more organized, faster, and more systematic.

Functionally, the application does not only serve as a recording medium, but also as an administrative support tool for medicine distribution. Through the digital form, recipient data can be documented more completely, thereby facilitating aid distribution, evaluation, and data verification in the future. The implementation results show that the handover of medicines and medical equipment as well as the application trial were carried out according to plan. Partners, especially the village midwife and village authorities, were able to accept and understand the use of the system well. Overall, the program provided tangible benefits in supporting more orderly, transparent, and accountable health assistance management in Kasih Sayang Village.

3.3. Initial Visit and Results of the Partner Needs Questionnaire

The evaluation of the community service activity was conducted to assess the level of program success in supporting the distribution of health assistance in Kasih Sayang Village, Manyak Payed District, Aceh Tamiang Regency. The evaluation involved partners consisting of the Village Head, village officials, and the village midwife through observation, interviews, and questionnaires. The level of program success was measured in percentage form based on the average questionnaire scores using a 1–4 Likert scale. The percentage of success was calculated using the following formula:

$$\text{Percentage of success} = (\text{average score} / 4) \times 100\%$$

The evaluation results showed that the community service program achieved a high level of success across all measured indicators. The recapitulation of the program success percentage is presented in Table 3.

Table 3. Percentage of program success based on partner responses

No	Indicator	Average Score	Category
1	Urgency of post-flood health assistance	3.85	Very High
2	Need for data management and recipient prioritization	3.70	Very High
3	Need for a data-based medicine distribution system	3.90	Very High
4	Partner readiness in supporting system implementation	3.50	Very High
5	Expectations for transparency and social acceptance	3.65	Very High
Overall Average		3.72	Very High

Based on Table 3, the community service program obtained an average score of 3.72, which falls into the very high category. This result indicates that the partners responded very positively and considered the implementation of the medicine distribution system to be in accordance with the needs of Kasih Sayang Village.

The highest score was found in the need for a system to determine aid recipient priorities, with a value of 3.90, followed by the urgency of post-flood health assistance at 3.85. In addition, the need for more orderly data management obtained a score of 3.70, transparency in aid distribution scored 3.65, and partner readiness in supporting system implementation scored 3.50. In general, these results indicate that the program was very well received and has strong potential to support the strengthening of health aid governance in Kasih Sayang Village.

3.4. Impact of the Community Service Program

The implementation of this community service program had a positive impact on the governance of health assistance in Kasih Sayang Village, Banyak Payed District, Aceh Tamiang Regency. This impact can be seen from the distribution of medicines and medical equipment, the increased understanding of partners regarding the importance of data-based aid distribution, and the greater readiness of village authorities to use the medicine distribution system as a tool for determining health assistance priorities.

In addition, the program also contributed to improved orderliness and transparency in the aid distribution process. The presence of the application helped make aid distribution more organized, objective, and accountable. The program also strengthened coordination between the Village Head, village officials, and the village midwife in managing health assistance. Overall, the community service program was considered successful in making a tangible contribution to strengthening health aid governance in Kasih Sayang Village and has the potential to be developed further.

4. CONCLUSION

The community service program, in the form of implementing a medicine distribution system in Kasih Sayang Village, was successfully carried out and aligned well with partner needs. The implemented system was able to support beneficiary data collection, assist in determining priorities for medicine distribution, and improve the orderliness and transparency of health aid delivery. The evaluation results showed that partner responses were in the very high category, with an average score of 3.72, indicating that the program was effective and well received by the Village Head, village officials, and the village midwife. Therefore, the implementation of the medicine distribution system

has the potential to strengthen post-flood health aid governance and is worthy of further development in similar activities in the future.

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