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Building Post Flood Community Resilience through Integrated Health Logistics and Child Psychosocial Support in North Aceh

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ABSTRAK

Bencana banjir hidrometeorologi yang melanda Aceh pada November 2025 berdampak pada penurunan kesejahteraan dan kapasitas pemulihan masyarakat terdampak. Kegiatan pengabdian kepada masyarakat ini bertujuan memperkuat resiliensi pascabanjir melalui layanan kesehatan, bantuan logistik rumah tangga, dan pendampingan psikososial anak. Program dilaksanakan di Kecamatan Langkahan, Kabupaten Aceh Utara, dengan sasaran 30 kepala keluarga dan 35 anak penyintas banjir. Intervensi mencakup edukasi dan pemeriksaan kesehatan bagi 33 warga, distribusi paket sembako dan peralatan memasak kepada 30 keluarga, serta program "Main Ceria" berbasis permainan terapeutik yang diikuti 37 anak. Evaluasi menunjukkan 88,6% anak mengalami peningkatan partisipasi sosial dan respons emosional yang lebih positif, sementara 93,3% keluarga menyatakan bantuan mendukung percepatan pemulihan aktivitas rumah tangga. Program ini berkontribusi pada pemulihan fungsi dasar keluarga, peningkatan kapasitas adaptif masyarakat, serta penguatan resiliensi pascabencana dalam berbagai dimensi.

ABSTRACT

Hydrometeorological flooding that affected Aceh in November 2025 led to a decline in the welfare and recovery capacity of impacted communities. This community service program aimed to strengthen post-flood resilience through health services, household logistical assistance, and psychosocial support for children. The program was implemented in Langkahan District, North Aceh Regency, targeting 30 households and 35 child flood survivors. Interventions included health education and medical examinations for 33 residents, distribution of food packages and cooking equipment to 30 families, and the "Main Ceria" therapeutic play program involving 37 children. Evaluation results indicated that 88.6% of children showed improved social participation and more positive emotional responses, while 93.3% of families reported that the assistance supported faster recovery of household activities. The program contributed to the restoration of basic family functions, strengthened community adaptive capacity, and reinforced post-disaster resilience across multiple dimensions.

INTRODUCTION

Natural disasters are a global phenomenon whose frequency continues to increase as a consequence of extreme climate change (Liu & Lin, 2024). Indonesia, as an archipelagic country located within the Ring of Fire and characterized by high rainfall intensity, is highly vulnerable to

various hydrometeorological disasters (BNPB, 2024). Among these hazards, flooding is one of the most frequently occurring events and has extensive impacts not only on physical infrastructure but also on the social and economic life of communities (Stefanidis et al., 2022; Nofal & Lindt, 2020; Manzoor et al., 2022). These conditions highlight that flood risk is increasingly becoming a persistent development challenge rather than a sporadic natural occurrence.

Aceh Province, particularly North Aceh Regency, is an area that experiences periodic flooding due to a combination of lowland topography, river overflow, and high rainfall intensity (BPBA, 2025; Lubis et al., 2024). The flood event that occurred at the end of 2025 once again inundated several residential areas, reinforcing the fact that this region has a high level of vulnerability to hydrometeorological disasters (Karimullah et al., 2025; Isma et al., 2024). This recurring condition indicates that flooding is not merely an incidental event but rather a structural risk faced by local communities, closely linked to environmental management, settlement patterns, and watershed conditions.

The impacts of flooding are not limited to physical environmental damage but also give rise to various challenges during the emergency and recovery phases. From a health perspective, exposure to contaminated water increases the risk of skin diseases, diarrhea, and acute respiratory infections (ARI) (Dayrit et al., 2018; Saulnier et al., 2018). Limited access to healthcare services due to disrupted transportation infrastructure and inundated health facilities further exacerbates the condition of affected populations, particularly vulnerable groups such as children, older adults, and pregnant women (Liang & Messenger, 2018; Paterson et al., 2018). In many cases, these barriers also delay early treatment, increasing the likelihood of secondary health complications during the post-disaster period.

In addition to health-related issues, flooding also significantly affects household logistical resilience. Many families lose cooking equipment and essential household items due to damage or being swept away by floodwaters (Shah et al., 2020). This condition prevents food aid from being properly processed at the household level, thereby hindering the independent fulfillment of basic needs (Rosinger et al., 2022). As a result, affected households often become dependent on external assistance for longer periods, indicating that recovery is not only about food availability but also about restoring domestic functionality and self-sufficiency.

On the other hand, the psychological impacts of disasters, particularly on children, are often overlooked in emergency responses. Traumatic experiences such as losing shelter, witnessing environmental destruction, and living in evacuation settings can lead to anxiety, fear, and prolonged stress (Hassan et al., 2018). Without adequate psychosocial support, these conditions may affect children's emotional and social development in the long term, including their ability to interact, learn, and regulate emotions effectively (Le Roux & Cobham, 2021; Xie et al., 2024). This highlights that psychological recovery is an essential but frequently underprioritized dimension of disaster response.

From a disaster resilience perspective, community resilience is not only determined by physical survival capacity but also by the ability to meet basic needs and the psychological capacity to resume normal social functioning (Houston, 2018; Wei et al., 2021). However, existing post-flood response efforts are generally implemented in a sectoral manner, addressing health, logistics, and psychosocial needs separately, which constrains the development of a comprehensive recovery process at the community level. As a result, the effectiveness of interventions in strengthening long-term adaptive capacity at both household and community levels remains limited. In this context, community resilience is conceptualized as the interaction

of three mutually reinforcing dimensions: health security (physical recovery and disease prevention), household logistical resilience (restoration of domestic functionality and basic needs autonomy), and psychosocial resilience (emotional stability and child developmental recovery). These dimensions form a conceptual framework in which strengthening one domain supports and reinforces the others, thereby contributing collectively to overall community adaptive capacity.

Based on this condition, this community service program was designed to strengthen post-flood community resilience in North Aceh Regency through a comprehensive approach that combines basic health services for affected individuals, household logistical assistance in the form of food supplies and cooking equipment to support domestic self-sufficiency, and psychosocial support for children through the therapeutic play-based "Main Ceria" program as emotional recovery support. The novelty of this program lies in the simultaneous operationalization of these three resilience dimensions within a single community-based intervention model, which allows health recovery, household restoration, and child psychosocial rehabilitation to be addressed in a coordinated but functionally interconnected manner. Each component was developed to address interrelated dimensions of post-disaster needs in a mutually reinforcing manner, with the aim of enhancing the adaptive capacity of affected communities not only in terms of physical recovery and basic needs fulfillment but also in relation to children's psychological well-being as a key element of sustainable community recovery.

METHOD

This community service program was conducted in Langkahan District, North Aceh Regency, one of the areas severely affected by the November 2025 flood disaster. The program adopted a participatory community-based approach involving lecturers from Universitas Malikussaleh, alumni of the Faculty of Medicine of Universitas Malikussaleh, members of Salimah Lhokseumawe, and local community stakeholders. Through this approach, community members were actively involved in identifying priority needs and supporting the implementation of post-disaster recovery activities.

The program began with a preparatory phase and a rapid needs assessment conducted in coordination with village officials and community representatives. The assessment identified urgent needs related to healthcare access, household recovery, and children's psychosocial well-being. Based on the assessment results, 30 households were selected as beneficiaries of logistical assistance, while flood-affected children were identified as the target group for psychosocial recovery activities. The intervention was implemented through three integrated components: health services, household logistical support, and psychosocial assistance for children.

Health services consisted of health education and basic medical examinations for 33 residents to support early detection of health problems and promote preventive health practices during the recovery period. Household support was provided through the distribution of food packages and essential cooking equipment to 30 households to facilitate the restoration of daily domestic activities. In addition, the "Main Ceria" psychosocial support program was conducted for 37 flood-affected children through therapeutic play, group games, storytelling, and creative activities designed to encourage social interaction, emotional expression, and positive engagement during post-disaster recovery.

Program evaluation focused on three key indicators: access to health services, fulfillment of basic household needs, and changes in children's psychosocial conditions. Access to health services was assessed based on participation in health education and medical examination

activities. The effectiveness of logistical assistance was evaluated through beneficiary feedback regarding the contribution of the distributed aid to the recovery of household activities. Psychosocial outcomes were assessed through direct observation of children's social participation and emotional responses during the "Main Ceria" program. Indicators of improvement included increased participation in group activities, greater interaction with peers and facilitators, and more positive emotional expressions observed throughout the intervention. Data were collected through attendance records, field observations, and brief feedback discussions with participants and community representatives.

Ethical considerations were incorporated throughout the program implementation, particularly for activities involving children. Participation in the psychosocial activities was voluntary and conducted with the approval of parents or guardians. All activities were designed to be age-appropriate, non-invasive, and supportive of children's well-being. No personal identifying information was collected, and all observations and reports were presented in aggregated form to ensure participant privacy and confidentiality.

RESULT AND DISCUSSION

Result

The implementation of the community service program in Langkahan District, North Aceh Regency demonstrated a meaningful contribution to post-flood recovery outcomes. The activities went beyond emergency relief by supporting improvements in health conditions, strengthening household domestic functions, and enhancing psychosocial recovery among affected communities. This approach enabled more responsive handling of diverse needs emerging during the disaster response and recovery phases, resulting in improved community recovery conditions across physical, functional, and psychosocial dimensions.

Health Services and Post-Disaster Disease Management

The flood disaster in Langkahan District disrupted access to healthcare services and increased health risks among affected residents. Limited access to clean water, inadequate sanitation, and prolonged exposure to floodwater contributed to heightened vulnerability to various health problems during the recovery period. To address these conditions, the community service team conducted health education and basic medical examinations for 33 residents as part of a comprehensive post-disaster recovery program.

Figure 1. Basic health screening for flood-affected residents in Langkahan District.

Health education focused on preventive measures related to personal hygiene, safe water use, environmental sanitation, and disease prevention in post-flood settings. Medical examinations were also conducted to identify health complaints and provide preliminary healthcare support. During the screening activities, residents commonly reported complaints consistent with conditions frequently observed in post-flood environments, including skin irritation, itching, mild respiratory symptoms, fever, and general fatigue. These findings highlight the importance of early health monitoring and preventive interventions in reducing potential health risks among affected populations.

Table 1. Common health complaints observed during post-flood health screening

Health Complaint Category	Description
Skin Problems	Itching, skin irritation, and minor dermatological complaints associated with prolonged exposure to floodwater.
Respiratory Symptoms	Cough, sore throat, and mild upper respiratory tract complaints commonly reported after flooding.
Fever-Related Symptoms	Fever and general malaise potentially associated with environmental exposure and reduced sanitary conditions.
General Fatigue	Physical weakness, exhaustion, and decreased stamina experienced during the recovery period.
Other Minor Complaints	Headache and non-specific discomfort reported by several residents.

All 33 residents who attended the activity received health education and medical examinations, ensuring full coverage of participants. The provision of preventive health education alongside direct medical screening improved access to essential healthcare support during the recovery period. Furthermore, the intervention increased community awareness of healthy behaviors and environmental sanitation practices, contributing to household recovery and enhancing community resilience following the flood disaster.

Restoration of Domestic Function through Cooking Equipment Assistance

In addition to health-related issues, damage to household equipment was a major challenge faced by communities after the flood. Prolonged exposure to floodwater caused significant loss and deterioration of essential domestic items, particularly cooking utensils and food preparation equipment. As a result, many households were unable to carry out basic food preparation activities, despite the availability of food supplies. This condition led to disruption of household domestic functions and reduced the capacity of families to meet daily needs independently.

As an intervention, assistance was provided to 30 households in the form of food packages and essential cooking equipment. The assistance was intended to support both immediate consumption needs and the restoration of household domestic functions. The provision of cooking equipment enabled households to resume basic food preparation activities and improve self-reliance in meeting daily needs. The restoration of household functions contributed to the recovery of basic service capacity at the household level during the post-disaster period.

Figure 2. Distribution of food packages and cooking equipment to affected communities.

Psychological Transformation through the "Main Ceria" Program

Children are among the groups most vulnerable to the psychosocial impacts of disasters. Flood-related disruptions, including displacement, loss of personal belongings, interruptions to schooling, and changes in daily routines, can negatively affect children's emotional well-being and social interactions. If not properly addressed, these experiences may lead to anxiety, withdrawal, reduced self-confidence, and difficulties in social adjustment. To support psychosocial recovery, the community service team implemented the "Main Ceria" program, a therapeutic play-based intervention attended by 37 children from flood-affected families in Langkahan District.

The program consisted of ice-breaking sessions, group games, creative activities, educational games, and storytelling exercises designed to create a safe, supportive, and enjoyable environment for children during the recovery process. These activities encouraged children to express their feelings, share experiences with peers, and engage in positive social interactions. The play-based approach was selected because it provides a child-friendly medium for emotional expression while fostering a sense of normalcy following a disruptive disaster event. Throughout the sessions, facilitators actively encouraged participation and collaboration, enabling children to rebuild confidence and strengthen interpersonal relationships in a supportive setting.

Figure 3. "Main Ceria" psychosocial recovery activities for children.

Observations conducted during the activities indicated positive changes in children's behavior and emotional responses. Children who were initially hesitant and less communicative gradually became more engaged in group activities and demonstrated greater confidence when interacting with peers and facilitators. Overall, 88.6% of participating children exhibited improved social participation and more positive emotional responses following the program. Beyond providing recreational opportunities, the intervention contributed to restoring children's

sense of safety, enhancing emotional well-being, and supporting their adaptation to post-disaster conditions.

Program Synergy and Community Acceptance

The success of this program was supported by the active involvement of village officials, community leaders, and local volunteers in Langkahan District. Community participation was present throughout the implementation process, including the distribution of assistance and the execution of program activities. This collaboration facilitated coordination between the implementation team and local stakeholders, supporting the smooth delivery of services in the field.

Community acceptance of the program was relatively high, as the assistance provided corresponded to post-flood recovery needs, particularly in health services, restoration of household functions, and psychosocial support for children. At the end of the program, a brief evaluation was conducted with village officials to verify the distribution and utilization of assistance. In addition, discussions with residents were carried out to document follow-up input related to community needs and preparedness for future flood events.

Figure 4. Group photo of volunteers, village officials, and community members at the closing of the community service program.

Discussion

The implementation of this community service program in Langkahan District demonstrates that post-disaster recovery requires more than the provision of emergency assistance. The activities revealed that flood-affected communities faced interconnected challenges related to health, household recovery, and psychosocial well-being. These conditions indicate that recovery efforts should address multiple dimensions of vulnerability simultaneously rather than focusing solely on immediate relief. This experience aligns with community resilience perspectives, which emphasize that disaster recovery involves not only physical rehabilitation but also the restoration of social, psychological, and adaptive capacities that enable communities to resume daily life and respond to future disruptions (Tseng & Stojadinović, 2024; Mayer, 2019).

The household assistance component highlighted the importance of restoring domestic functionality as part of community recovery. During program implementation, many households reported difficulties in resuming routine activities due to damage or loss of essential cooking equipment. While food assistance can help meet immediate needs, the availability of cooking utensils enables families to prepare meals independently and gradually regain normal household functions. Similar experiences have been reported in post-disaster recovery programs in several

countries, where restoring household assets contributed to livelihood recovery and strengthened adaptive capacity among affected communities (Chandrasekhar et al., 2018; Rodríguez-Cruz et al., 2022). The provision of cooking equipment therefore represented more than material assistance; it supported households in rebuilding self-reliance during the recovery period. This observation is consistent with studies suggesting that recovery programs are more effective when they support both immediate needs and the practical resources required for longer-term adaptation (Spotts et al., 2023; Phadera et al., 2019).

The health service activities also played an important role in supporting recovery efforts. Post-flood environmental conditions, coupled with damaged infrastructure and transportation barriers, limited access to formal healthcare facilities for some residents. Through community-based health education and medical examinations, residents were able to receive essential healthcare support within their local environment. Similar approaches have been reported in disaster recovery initiatives in South Asia and other flood-prone regions, where locally accessible health services helped reduce healthcare access barriers and promoted preventive health practices among affected populations (Lilleston et al., 2018; Sheerazi et al., 2025). The implementation experience in Langkahan suggests that community-based health services can serve as an effective mechanism for maintaining healthcare access during the early stages of post-disaster recovery, particularly when formal health systems remain disrupted.

The psychosocial support activities conducted through the “Main Ceria” program demonstrated the value of addressing children's emotional and social needs alongside physical recovery efforts. The positive changes observed in children's participation and emotional responses indicate that therapeutic play and group interaction activities can create supportive environments that encourage emotional expression and social reconnection. Comparable outcomes have been documented in disaster recovery programs implemented in different international contexts, where play-based psychosocial interventions contributed to improved emotional well-being, reduced distress, and strengthened resilience among disaster-affected children (Cohen & Gadassi, 2018; Topal et al., 2025). Beyond individual benefits, child-focused psychosocial support may contribute to broader community recovery by strengthening social relationships and reinforcing social capital, which are important elements of long-term resilience (Cadamuro et al., 2021; Pfefferbaum et al., 2018).

The implementation process also revealed several challenges that should be considered in future programs. Access to some affected areas remained constrained by damaged infrastructure, limiting the reach of services and requiring additional coordination with local stakeholders. Furthermore, the activities were conducted within a relatively short period and focused primarily on immediate recovery needs. As a result, the program was able to document short-term outcomes but could not assess longer-term changes in health conditions, household recovery, or children's psychosocial well-being. These limitations suggest the need for follow-up activities and more systematic monitoring to better understand the sustainability of recovery outcomes over time.

Another important lesson from this program concerns the value of addressing multiple recovery needs through a coordinated approach. Health services alone would not fully address household recovery challenges, while logistical assistance without psychosocial support could overlook the emotional impacts experienced by children and families. By responding to health, domestic, and psychosocial needs within the same recovery initiative, the program was able to address several interconnected factors that influence community resilience. This experience

supports previous disaster recovery literature emphasizing that recovery outcomes are often strengthened when interventions acknowledge the multidimensional nature of disaster impacts rather than treating each problem separately.

The experience from this community service program highlights the importance of combining health services, household recovery support, and psychosocial assistance within post-disaster interventions. Addressing these interconnected needs enabled affected families to restore daily functions, improve access to essential services, and strengthen their capacity to adapt during the recovery process. Sustaining these gains will require continued collaboration among local governments, community organizations, educational institutions, and community members. Such efforts may contribute not only to post-disaster recovery but also to improved preparedness and resilience in facing future flood events.

CONCLUSION

The community service program implemented in Langkahan District, North Aceh Regency, successfully strengthened post-flood community resilience through health services, household logistical assistance, and psychosocial support for children. Health education and medical examinations improved access to essential healthcare support, while the distribution of food packages and cooking equipment helped restore household functionality and support family self-reliance. Furthermore, the "Main Ceria" program contributed to positive psychosocial recovery among children by encouraging social participation and emotional expression through play-based activities. These outcomes demonstrate that addressing health, household, and psychosocial needs simultaneously can support a more comprehensive recovery process and enhance community adaptive capacity following disaster events. Future community resilience programs should emphasize sustained follow-up activities, stronger collaboration among local governments, community organizations, educational institutions, and healthcare providers, as well as the incorporation of community-based disaster preparedness, health promotion, and child-focused psychosocial support into local resilience strategies to reduce vulnerability and improve preparedness for future flood disasters.

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