

Strengthening Community Participation through Development Communication for Post-Disaster Rehabilitation in Aceh Tamiang and Langkat

(Penguatan Partisipasi Masyarakat melalui Komunikasi Pembangunan untuk Rehabilitasi Pascabencana di Aceh Tamiang dan Langkat)

Muhammad Fachran Haikal ^{a*}, Hasan Sazali ^{a,2}, Anang Anas Azhar ^{a,3}, Rubino ^{a,4}, Khatibah ^{a,5}, Ilham Mirzaya Putra ^{a,6}, Chika Lestari ^{b,7}

^a Universitas Islam Negeri Sumatera Utara Medan, Indonesia

^b Persatuan Kaunselor Pendidikan Malaysia, Malaysia

E-mail: muhammadfachranhaikal@uinsu.ac.id

***Corresponding Author:** muhammadfachranhaikal@uinsu.ac.id (M. F. Haikal).

ARTICLE INFO

Received: 7 July 2026
Revised: 28 August 2026
Accepted: 30 August 2026

How to Cite:

Haikal, M. F., Sazali, H., Azhar, A. A., Rubino, Khatibah, Putra, I. M., & Lestari, C. (2026). Strengthening Community Participation through Development Communication for Post-Disaster Rehabilitation in Aceh Tamiang and Langkat. *Jurnal IPTEK Bagi Masyarakat*, 6(1), 421-429.
<https://doi.org/10.55537/j-ibm.v6i1.1803>

ABSTRACT

This community service program strengthened community participation in post-disaster rehabilitation by integrating participatory development communication with Participatory Action Research (PAR) in Aceh Tamiang and Langkat. Thirty community members participated through two focus group discussions, two in-depth interviews, participatory observation, and program documentation. The process supported community involvement in identifying rehabilitation priorities, collective planning and action, disaster-risk mapping, and reflective evaluation. Communication shifted from predominantly one-way delivery toward more dialogical interaction, enabling participants to exchange perspectives and contribute to decisions. Participation nevertheless varied according to educational background, social position, communicative confidence, cultural factors, and the short facilitation period. The findings indicate that integrating participatory communication and PAR can support more inclusive, locally responsive rehabilitation, although the results remain descriptive evidence of participatory processes rather than proof of causal effectiveness.

Keywords: Development Communication; Community Participation; Post-Disaster Rehabilitation; Community Engagement; Participatory Action Research.

ABSTRAK

Program pengabdian masyarakat ini memperkuat partisipasi masyarakat dalam rehabilitasi pascabencana melalui integrasi komunikasi pembangunan partisipatif dan Participatory Action Research (PAR) di Aceh Tamiang dan Langkat. Sebanyak 30 warga terlibat melalui dua FGD, dua wawancara mendalam, observasi partisipatif, dan dokumentasi program. Proses tersebut mendorong keterlibatan masyarakat dalam mengidentifikasi prioritas rehabilitasi, perencanaan dan aksi kolektif, pemetaan risiko bencana, serta evaluasi reflektif. Pola komunikasi bergeser dari penyampaian informasi satu arah menuju interaksi yang lebih dialogis sehingga peserta dapat bertukar perspektif dan berkontribusi dalam pengambilan keputusan. Tingkat partisipasi tetap bervariasi karena latar belakang pendidikan, posisi sosial, kepercayaan diri komunikatif, faktor budaya, dan singkatnya masa fasilitasi. Temuan menunjukkan bahwa integrasi komunikasi partisipatif dan PAR dapat mendukung rehabilitasi yang lebih inklusif dan responsif terhadap kebutuhan lokal, tetapi hasilnya merupakan bukti deskriptif proses partisipatif, bukan bukti efektivitas kausal.

Kata kunci: Komunikasi Pembangunan; Partisipasi Masyarakat; Rehabilitasi Pascabencana; Keterlibatan Masyarakat; Participatory Action Research.

Introduction

Post-disaster rehabilitation remains a critical development challenge in Indonesia because disasters often generate interconnected physical, social, economic, and institutional consequences. The severe flooding that affected parts of Aceh and North Sumatra in late November 2025 illustrates the scale and complexity of these challenges. Aceh Tamiang was among the severely affected areas, with the National Disaster Management Agency

subsequently recording 37,888 damaged houses. In Langkat, flooding affected 16 subdistricts, encompassing 141 villages and 29 urban wards, with more than 434,000 residents reported as affected during the emergency response period (Badan Nasional Penanggulangan Bencana, 2026; Pemerintah Kabupaten Langkat, 2025). These conditions demonstrate that post-disaster rehabilitation requires not only the restoration of damaged infrastructure but also the recovery of social relations, community capacities, and mechanisms for collective action.

Post-disaster rehabilitation is therefore a strategic stage in promoting sustainable and locally responsive recovery. Beyond physical reconstruction, rehabilitation should strengthen local institutions and provide affected communities with meaningful opportunities to contribute to decisions concerning their own recovery. Participatory development approaches position community members not merely as recipients of external assistance but as actors whose knowledge, experiences, and priorities can inform development decisions (Sulaiman et al., 2024). Recent evidence from Indonesia also emphasizes the importance of integrating community participation, access to disaster information, community networks, and adaptive capacity into local disaster mitigation policies (Esariti et al., 2026). This orientation is particularly important because sustainable recovery depends on the capacity of communities and local institutions to maintain disaster preparedness and collective action beyond the immediate emergency period.

The importance of community participation is especially evident in the context of Aceh. An assessment of Sendai Framework implementation at the subnational level identified continuing challenges related to risk knowledge dissemination, the continuity of disaster risk reduction forums, village-level preparedness, funding, sustainable recovery, and community participation (Sufri et al., 2025). These findings indicate that strengthening community involvement remains an important issue even in a province with extensive experience in disaster management. Rehabilitation efforts therefore need to create opportunities for affected communities to participate not only in receiving assistance but also in identifying needs, determining priorities, implementing actions, and reflecting on recovery processes.

Community participation, however, should not be understood simply as physical attendance or involvement in program implementation. Meaningful participation encompasses opportunities to identify problems, determine priorities, contribute to decision-making, participate in collective action, and evaluate program implementation. Arnstein (1969) distinguishes substantive citizen participation from forms of involvement in which communities are merely informed or consulted but retain limited influence over decisions. More recent evidence from community-based disaster risk reduction similarly shows that the quality of participation depends on who is involved, how participation is organized, the purpose of engagement, and the stages at which communities are allowed to contribute (Ravazzoli et al., 2025). Participation should therefore be assessed not only by the presence of community members but also by the extent to which their knowledge and contributions influence rehabilitation processes.

The quality of participation is closely connected to the communication relationship established between communities and other development actors. Predominantly one-way communication can restrict opportunities for dialogue, limit the articulation of local knowledge, and position community members mainly as recipients of externally formulated information and decisions. Contemporary development communication has increasingly shifted away from modernization-oriented approaches centred on information dissemination toward participatory approaches emphasizing dialogue, local knowledge, collective learning, and community agency (Yudarwati & Gregory, 2022). In disaster contexts, participatory communication can enable communities to draw upon their lived experiences and place-based knowledge in developing locally appropriate responses (Harris, 2025). Evidence from community-centred disaster communication also demonstrates that communication platforms capable of amplifying local voices can strengthen community engagement in disaster management and resilience-building processes (Kanjilal et al., 2025). Communication therefore becomes part of the rehabilitation process itself rather than merely a channel for conveying information about programs.

Despite growing recognition of participatory approaches, an important practical gap remains between the normative commitment to community participation and its consistent operationalization throughout disaster rehabilitation. Ravazzoli et al. (2025) found that community participation in disaster risk reduction and climate adaptation initiatives tends to be concentrated in earlier stages, while involvement is comparatively limited during monitoring, evaluation, and recovery. Moreover, marginalized groups and women may remain underrepresented even within formally participatory processes. In Aceh, discontinuities in community participation, village preparedness, institutional commitment, and sustainable recovery similarly demonstrate the challenges of sustaining participation beyond initial disaster management activities (Sufri et al., 2025). Differences in access to information, educational background, social position, institutional authority, and communicative confidence may further shape the extent to which community members can participate meaningfully. Thus, the availability of participatory forums alone does not ensure that community voices will influence rehabilitation priorities or remain involved across the recovery process.

The post-disaster contexts of Aceh Tamiang and Langkat provide a relevant setting for addressing this practical gap. Rehabilitation in these areas requires mechanisms that allow affected communities to articulate needs, contribute local knowledge, negotiate priorities, participate in collective action, and reflect on the implementation of rehabilitation initiatives. Participatory development communication can facilitate these

processes by creating dialogical spaces for collective problem identification and decision-making. When integrated with Participatory Action Research (PAR), this communication process can connect dialogue with participatory planning, collective action, observation, and reflection, thereby positioning community members as active partners rather than passive beneficiaries. Such integration is particularly relevant where rehabilitation must respond to locally specific environmental, livelihood, social, and disaster-risk conditions.

Accordingly, this community service program aimed to strengthen community participation in post-disaster rehabilitation through the integration of participatory development communication and PAR in Aceh Tamiang and Langkat. Specifically, the program sought to facilitate community involvement in problem identification, participatory planning, collective action, and evaluation; identify factors that supported or constrained participation during implementation; and derive practice-based lessons for more inclusive and locally responsive rehabilitation initiatives. The contribution of the program does not lie in proposing or validating a new development communication model, but in demonstrating how dialogical communication and PAR can be operationally integrated within a community-based post-disaster rehabilitation process. By extending participation from problem identification to reflective evaluation, the program addresses the continuing challenge of moving community engagement beyond information provision and consultation toward more substantive involvement in locally grounded recovery.

Method

This community service program employed a participatory approach based on Participatory Action Research (PAR), positioning community members as active partners in identifying problems, formulating priorities, implementing agreed activities, and reflecting on the rehabilitation process. PAR was selected because it emphasizes collaborative knowledge production, collective action, and the direct involvement of participants in addressing context-specific problems (de Oliveira, 2023). This approach is particularly relevant in post-disaster settings, where local knowledge and lived experiences constitute important resources for understanding community needs and developing contextually appropriate responses (Pyles, 2015). Accordingly, community members were positioned not merely as beneficiaries but as partners whose experiences and perspectives informed the implementation process.

The program was implemented in disaster-affected communities in Aceh Tamiang and Langkat Regencies. In Aceh Tamiang, Benua Raja Village served as one of the implementation sites, while the specific implementation site in Langkat Regency was Tanjung Pura. The activities were conducted from January 30 to February 1, 2026. The two areas were selected because they had experienced substantial post-disaster rehabilitation needs and required greater community involvement in identifying rehabilitation priorities and developing locally responsive recovery initiatives.

A total of 30 community members participated in the program, comprising local community representatives and disaster-affected residents. Participants were selected purposively based on their direct experience of the disaster, involvement in community activities, knowledge of local conditions, and relevance to the rehabilitation process. Recruitment was facilitated in coordination with local community representatives and village authorities. Efforts were made to include participants from different community groups to ensure that diverse experiences and perspectives were represented throughout the participatory process. This consideration was important because participatory processes in post-disaster settings may be influenced by differences in social position, communicative capacity, and access to decision-making opportunities (Pyles, 2015).

Data and participatory information were collected through focus group discussions (FGDs), in-depth interviews, participatory observation, and program documentation. Two FGDs were conducted, with approximately 10 participants in each discussion, while two in-depth interviews were conducted with selected participants representing key stakeholder perspectives. The FGDs were used to facilitate collective reflection on post-disaster problems, community priorities, rehabilitation needs, and possible courses of action. In-depth interviews provided more detailed accounts of participants' experiences, perceptions of participation, communication barriers, and changes observed during the program. Participatory observation was used to document patterns of interaction, involvement in discussions, decision-making processes, and participation in collective activities. Program documentation comprised records of participatory planning activities, community action plans, documentation of collective rehabilitation activities, participatory disaster-risk maps, and records generated during monitoring and evaluation sessions.

The program followed the PAR sequence of problem identification, participatory planning, collective action, observation, and reflection. During the initial stage, facilitators and community members jointly identified post-disaster problems and mapped priority needs. The participatory planning stage involved deliberative discussions through which participants formulated locally relevant rehabilitation priorities based on the needs identified. The action stage involved the implementation of agreed community-based activities, including environmental rehabilitation initiatives, community working arrangements, livelihood-related planning, and community-based disaster preparedness activities. Observation and reflection were subsequently conducted to review implementation experiences, identify emerging constraints, and formulate recommendations for subsequent community actions. Insights generated during the reflection stage were used to reconsider priorities, assess the implementation of agreed activities, and identify areas requiring further attention. The integration of reflection

and action reflects a central characteristic of PAR, in which practical knowledge is developed collaboratively through engagement with real-world problems (de Oliveira, 2023).

Participatory development communication was integrated throughout the PAR process as the principal form of community engagement. Rather than relying on one-way information delivery, facilitators encouraged dialogue, collective problem definition, shared decision-making, and negotiation of rehabilitation priorities. Communication activities included facilitated group discussions, participatory planning meetings, reflective sessions, collective formulation of action priorities, and community evaluation forums. These activities provided opportunities for participants to articulate local concerns, exchange perspectives, negotiate possible responses, and contribute directly to decisions concerning rehabilitation activities. Communication therefore functioned as an integral component of the participatory process rather than solely as a mechanism for disseminating program information.

Program outcomes were assessed primarily through qualitative indicators of participation. These indicators included community involvement in identifying problems, contributing ideas during discussions, participating in collective decision-making, engaging in agreed activities, and providing feedback during evaluation sessions. Supporting evidence consisted of participatory planning records, completed community action plans, participatory disaster-risk maps, documentation of collective activities, and monitoring and evaluation records. Given the qualitative and participatory nature of the program, these indicators were interpreted descriptively rather than through statistical significance testing. The assessment therefore focused on observable participatory processes and tangible program outputs rather than on estimating the magnitude of change through quantitative measures.

Data were analyzed using a thematic approach to identify recurring patterns, meanings, and dynamics related to community participation and development communication. The analytical process involved organizing FGD and interview records, participatory observation data, and program documentation; identifying meaningful units of information; grouping related information into categories; and developing broader themes concerning participation, communication processes, enabling factors, constraints, and community responses. Interpretations were discussed reflectively with participants and facilitators where feasible, consistent with the collaborative knowledge-construction principles of PAR. This process helped maintain the connection between analytical interpretations, participants' experiences, and the local post-disaster context.

Credibility was strengthened through triangulation across data sources and collection methods. Information generated through FGDs was compared with interview accounts, participatory observations, and documentary evidence to identify convergence and discrepancies across sources. Reflective discussions with community members also served as a form of participant validation by allowing emerging interpretations to be reconsidered collaboratively. An audit trail consisting of records of participatory planning sessions, community action plans, documentation of collective rehabilitation activities, participatory disaster-risk maps, and monitoring and evaluation records was maintained to support transparency in documenting the implementation and interpretation processes.

Ethical considerations were incorporated throughout the program, particularly because participants were members of disaster-affected communities who could be considered situationally vulnerable. Participatory research in post-disaster settings requires particular attention to autonomy, power relations, voluntary participation, and the protection of potentially vulnerable community members (Pyles, 2015). Prior to participation, individuals were informed of the objectives and procedures of the program, and verbal informed consent was obtained before their involvement in data-generating activities. Participation was voluntary, confidentiality was maintained in reporting personal information, and identifiable information was not disclosed without permission. Participants were informed of their right to decline particular questions or withdraw from activities without adverse consequences. Formal institutional ethical clearance was not sought for this community service program; however, ethical safeguards were applied throughout its implementation, including voluntary participation, informed consent, confidentiality, respect for participant autonomy, and protection of personal information.

Results

The implementation of the community service program generated several observable outcomes related to community participation in post-disaster rehabilitation. Evidence obtained through focus group discussions, in-depth interviews, participatory observation, and program documentation showed that participants identified several priority concerns following the disaster. These concerns included damaged environmental infrastructure, sanitation problems, limited livelihood opportunities, and disaster-related risks. The participatory problem-identification process enabled community members to articulate their experiences, identify locally perceived needs, and connect those needs with rehabilitation priorities.

Initial observations and participants' accounts indicated that communication prior to the participatory process had largely been characterized by one-way information delivery and limited opportunities for community members to contribute to decision-making. During the program, facilitated discussions created broader opportunities for participants to express concerns, exchange perspectives, and propose locally relevant priorities. Community-generated ideas became increasingly visible during these discussions, particularly when participants were encouraged to explain their needs and consider alternative responses to rehabilitation problems. These

observations indicate a qualitative shift toward more dialogical communicative engagement rather than a quantitatively measured increase in participation.

The participatory planning process resulted in several locally formulated rehabilitation priorities. These included environmental drainage improvement, strengthening community livelihood groups, environmental rehabilitation activities, and community-based disaster preparedness initiatives. Participants discussed these priorities collectively and considered their relevance to local conditions, perceived needs, and available community resources. This process connected the problems identified during the initial stage with locally formulated courses of action and constituted one of the principal tangible outputs of the program.

Table 1. Main Participatory Processes and Program Outputs

Stage	Participatory Process	Main Output
Problem identification	Social mapping, FGDs, interviews, and facilitated community discussion	Identification of environmental infrastructure, sanitation, livelihood, and disaster-risk concerns
Participatory planning	Deliberation and collective priority setting	Community-formulated rehabilitation priorities and action plans
Collective action	Community involvement in agreed activities	Environmental rehabilitation activities, community working arrangements, and collaborative local initiatives
Disaster preparedness	Participatory discussion and community-based mapping	Participatory identification and mapping of disaster-prone areas
Monitoring and evaluation	Reflective discussion and participant feedback	Community feedback on implementation, constraints, and areas requiring further attention

Changes were also observed in the way participants communicated during the rehabilitation process. Throughout facilitated discussions, participants demonstrated greater willingness to articulate needs, explain the reasoning behind proposed priorities, and respond to different perspectives expressed by others. This pattern was particularly evident during participatory planning and reflective evaluation, where discussions moved beyond problem identification toward consideration of possible responses and negotiation of priorities. Because no standardized instrument was used to measure communication capacity, these observations are interpreted as qualitative evidence of increased communicative engagement rather than as evidence of measurable capacity development.

The collective action stage provided opportunities for community members to translate agreed priorities into practical activities. Participants became involved in environmental rehabilitation initiatives, mutual-assistance activities, community working arrangements, and collaborative efforts related to local resource management. These activities connected participatory deliberation with practical action and enabled community members to contribute beyond the discussion and planning stages. Their involvement in both planning and implementation also demonstrated that participation within the program was not confined to information provision or consultation.

Community-based disaster preparedness represented another tangible outcome of the program. Through participatory discussions, community members identified locally perceived disaster risks and considered possible measures to strengthen preparedness for future events. One concrete output was the participatory identification and mapping of areas regarded by community members as vulnerable to disaster. The mapping process incorporated local knowledge of environmental conditions, previous disaster experiences, and community perceptions of risk. The participatory disaster-risk map is therefore interpreted as evidence of collective involvement in risk identification rather than as a quantitative indicator of increased disaster awareness.

Participatory monitoring and evaluation extended community involvement beyond the planning and implementation stages. During reflective discussions, participants provided feedback on activities that had been undertaken, identified aspects considered useful, and highlighted issues requiring further attention. These sessions created opportunities for participants to reflect collectively on implementation experiences, emerging constraints, and possible areas for improvement. The monitoring and evaluation process also provided an additional dialogical space in which community members, facilitators, and local stakeholders could discuss the progress and limitations of rehabilitation activities.

Despite these participatory outcomes, differences in the extent of engagement were observed among participants. Some community members were more active in expressing views, contributing ideas, and participating in collective discussions, whereas others remained less engaged. Observations during the program suggested that differences in educational background, social position, cultural factors, communicative confidence, and the relatively short period of facilitation influenced the extent to which individuals participated. These findings indicate that providing participatory spaces does not automatically result in equal levels of involvement among all community members.

Across the implementation process, the most apparent change concerned the pattern of interaction between community members and facilitators. Communication that had initially tended to emphasize one-way information delivery was increasingly complemented by dialogue, deliberation, feedback, and collective problem-solving. Participants were provided with greater opportunities to articulate local concerns, contribute to priority setting, and participate in decisions concerning program activities. Accordingly, the findings indicate that participatory development communication created conditions that supported more substantive forms of community engagement during the rehabilitation process.

Overall, the program produced several practical outputs, including community-identified rehabilitation priorities, locally formulated action plans, environmental rehabilitation activities, community working arrangements, participatory disaster-risk mapping, and community feedback generated through reflective monitoring and evaluation. Taken together, these outputs provide descriptive evidence that the integration of participatory development communication and PAR supported community involvement across multiple stages of the rehabilitation process. However, because the program did not employ a quantitative baseline–endline design, standardized participation measures, or statistical testing, the findings should be interpreted as evidence of observed participatory processes and tangible program outputs rather than as proof of causal effectiveness.

Discussion

The findings suggest that participatory development communication contributed to creating a more dialogical environment for community involvement in post-disaster rehabilitation. Its contribution was not primarily associated with the transmission of information but with the creation of communicative spaces in which community members could articulate local concerns, exchange perspectives, negotiate rehabilitation priorities, and participate in collective decision-making. This interpretation is consistent with participatory development communication, which emphasizes dialogue, local knowledge, and community agency rather than one-way information dissemination (Yudarwati & Gregory, 2022). Similar evidence from disaster-affected communities shows that participatory communication can enable local knowledge and lived experience to become part of collective responses to disaster and recovery (Harris, 2025). Community-centred disaster communication has also been shown to strengthen the visibility of local voices and facilitate community engagement in disaster management and resilience-building processes (Kanjilal et al., 2025). In the present program, therefore, the observed shift toward dialogue and deliberation indicates a change in the communicative position of community members from recipients of information toward more active contributors to rehabilitation activities.

The mechanism underlying this change can be understood through the integration of dialogical communication with the participatory sequence of PAR. Community members were involved in identifying post-disaster problems, formulating priorities, implementing agreed activities, and reflecting on implementation experiences. These interconnected stages created repeated opportunities for participants to contribute local knowledge and lived experience to decisions concerning rehabilitation activities. PAR emphasizes collaborative knowledge production and collective action by linking reflection with action in addressing context-specific problems (de Oliveira, 2023). In post-disaster settings, such participation is particularly important because the relationship between community knowledge, institutional actors, and decision-making may be shaped by differences in power and access to resources (Pyles, 2015). Participatory communication in this program therefore functioned not as an isolated communication activity but as a mechanism embedded throughout the participatory process.

Participation appeared to become more substantive when communicative engagement was connected to tangible decisions and practical outputs. Community-formulated rehabilitation priorities, environmental rehabilitation activities, community working arrangements, and participatory disaster-risk mapping illustrate how facilitated dialogue moved beyond the exchange of opinions toward collective problem-solving. This pattern is consistent with participatory development communication, in which community involvement becomes more meaningful when participants are able to influence priorities and contribute to decisions concerning program implementation (Egiwirantia & Destrity, 2023). Recent analysis of community-based disaster risk reduction similarly demonstrates that the quality of participation depends on who participates, how participation is facilitated, the purposes for which communities are engaged, and the stages at which their involvement occurs (Ravazzoli et al., 2025). The findings therefore reinforce the distinction between merely providing opportunities for participation and establishing processes through which community contributions become connected to identifiable decisions and outputs.

From the perspective of Arnstein's ladder of citizen participation, the processes observed in this program appear to extend beyond involvement limited solely to information provision. Participants contributed to identifying needs, discussing rehabilitation priorities, developing action plans, undertaking collective activities, and providing evaluative feedback. Nevertheless, these activities should not automatically be interpreted as evidence that the program reached the higher levels of citizen power described by Arnstein (1969). Strategic authority, control over institutional decisions, and the allocation of rehabilitation resources were not systematically examined. Recent post-disaster research similarly demonstrates that visible community participation can coexist with unequal power relations, institutional distrust, and differences in access to decision-making opportunities (Erdurak, 2026). Moreover, evidence of participatory failure in disaster risk governance

shows that formally established mechanisms of engagement may remain ineffective when communities have limited access to information and insufficient influence over governance processes (Asibey et al., 2026). The findings of the present program are therefore more appropriately interpreted as movement toward more substantive participation rather than as evidence of delegated power or full community control.

Several conditions appeared to facilitate community participation during the program. Facilitated dialogue allowed participants to articulate concerns in a more interactive communication environment, while participatory planning connected those concerns with proposed rehabilitation actions. The incorporation of local knowledge strengthened the contextual relevance of discussions concerning environmental conditions, livelihoods, and disaster risks. This finding is consistent with participatory development approaches that recognize community knowledge and experience as important resources for locally responsive planning (Sulaiman et al., 2024). Recent experience with disaster risk reduction Living Labs further demonstrates that integrating technical expertise with local knowledge through co-learning and multi-stakeholder collaboration can help shift disaster management from a predominantly top-down orientation toward more collaborative and community-led forms of engagement (Siow et al., 2026). The present findings similarly suggest that participation becomes more meaningful when communication structures allow community knowledge to inform the rehabilitation process rather than merely communicating decisions that have already been determined externally.

At the same time, participation was not equally distributed among all community members. Some participants were more active in articulating views, proposing ideas, and contributing to collective discussions, whereas others remained less engaged. Differences in educational background, social position, cultural factors, communicative confidence, and the relatively short period of facilitation appeared to influence the extent of involvement. These observations support the argument that the existence of participatory forums does not automatically produce equal opportunities to participate or influence collective decisions. Ravazzoli et al. (2025) similarly found that participation in community-based disaster risk reduction can vary considerably across stakeholder groups, with marginalized groups remaining underrepresented in some participatory processes. Research in vulnerable communities has also identified communication barriers, institutional limitations, and differences in preparedness as factors influencing community participation in disaster risk reduction (Jum'a & Hamdan, 2026). Participatory interventions should therefore pay attention not only to the number of participants but also to differences in voice, representation, communicative confidence, and opportunities to influence discussion.

The findings also suggest that community participation functioned both as a means of implementing rehabilitation activities and as a process through which participants engaged in collective problem-solving. Community involvement in identifying needs, determining priorities, undertaking agreed activities, and evaluating implementation provided opportunities for participants to exercise greater agency within the program. However, because no standardized measure of empowerment or capacity development was employed, these observations should not be interpreted as evidence of measurable increases in empowerment. Instead, they represent qualitative indications of more active communicative engagement and participation within the specific context of the program. This distinction is important because observable participation during a facilitated intervention does not necessarily demonstrate that community agency will be sustained after external facilitation has ended.

A further contribution of the program lies in extending participation across several stages of the rehabilitation process. Community engagement was not limited to initial consultation or problem identification but also encompassed planning, collective action, and reflective monitoring and evaluation. This is relevant because contemporary reviews of community-based disaster risk reduction indicate that participation is often concentrated in the earlier stages of disaster-related interventions, whereas community involvement becomes less evident during subsequent monitoring, evaluation, and recovery processes (Ravazzoli et al., 2025). The present program therefore offers a practice-based illustration of how participatory development communication and PAR can be integrated across multiple stages of rehabilitation. Nevertheless, this should be understood as an operational approach rather than as a newly validated communication model.

The sustainability of participatory engagement remains an important concern. Continued community involvement requires follow-up facilitation, institutional support, mechanisms for maintaining community working arrangements, access to disaster information, and opportunities for community-generated priorities to enter formal local decision-making processes. This issue is particularly relevant in Aceh, where challenges related to the continuity of disaster risk reduction forums, village preparedness, community participation, funding, and sustainable recovery have been identified at the subnational level (Sufri et al., 2025). Evidence from Indonesia further indicates that community resilience can be strengthened when participation, disaster knowledge, access to information, community networks, and adaptive capacity are incorporated into local disaster mitigation policies (Esariti et al., 2026). Similarly, participatory disaster risk reduction initiatives in Malaysia emphasize the importance of sustained investment in local networks, continuous engagement, and shared responsibility between institutions and communities (Siow et al., 2026). These findings suggest that the participatory mechanisms initiated through short-term community service programs require institutional continuity if they are to contribute to longer-term rehabilitation and resilience.

The practical contribution of this community service program therefore lies in demonstrating how participatory development communication can be operationally integrated with PAR in a post-disaster

rehabilitation context. The program connected dialogical problem identification, participatory planning, collective action, observation, and reflective evaluation within a single community engagement process. This integration enabled community knowledge and locally perceived needs to become more visible within rehabilitation activities while also creating opportunities for participants to contribute beyond the initial consultation stage. Rather than proposing a universally applicable model, the program offers practice-based lessons regarding how communication can be embedded throughout rehabilitation processes to support locally responsive participation.

Finally, the findings should be interpreted within the contextual and methodological limitations of the program. The relatively short implementation period did not permit assessment of whether the observed forms of engagement were sustained over time. The available evidence does not support a systematic comparison between Aceh Tamiang and Langkat, nor does it establish causal effectiveness through controlled or quantitative baseline–endline evaluation. Differences in local social structures, institutional capacity, disaster severity, available resources, access to information, and patterns of community organization may influence how participatory communication operates in other settings. Recent evidence consistently indicates that community participation in disaster risk reduction is highly context-dependent and shaped by institutional, social, and communicative conditions (Asibey et al., 2026; Jum’a & Hamdan, 2026; Ravazzoli et al., 2025). The integration of participatory development communication and PAR should therefore be regarded as a context-sensitive practice-based approach that may be adapted and further evaluated in other post-disaster communities rather than as a universally transferable model.

Conclusion

This community service program indicates that the integration of participatory development communication and Participatory Action Research supported more active community involvement in post-disaster rehabilitation in Aceh Tamiang and Langkat. Through dialogical problem identification, participatory planning, collective action, and reflective evaluation, community members were provided with opportunities to articulate local concerns, contribute to rehabilitation priorities, participate in agreed activities, and provide feedback on program implementation. Tangible outputs included community-formulated rehabilitation priorities, environmental rehabilitation activities, community working arrangements, participatory disaster-risk mapping, and reflective community feedback. These outcomes illustrate how communication can function not merely as a means of disseminating information but as an integral component of participatory rehabilitation processes.

The principal contribution of the program lies in demonstrating how participatory development communication can be operationally integrated with PAR across multiple stages of post-disaster rehabilitation. Rather than proposing or validating a new communication model, the program provides a practice-based illustration of how local knowledge, lived experience, dialogue, collective decision-making, and reflection can be connected within a single community engagement process. This approach also demonstrates the importance of extending community participation beyond initial consultation toward involvement in planning, action, and evaluation. Nevertheless, the observed forms of participation should be interpreted as context-specific outcomes of the program rather than as evidence of measurable empowerment or causal effectiveness.

Several limitations should be acknowledged. The relatively short implementation period limited the ability to assess whether the observed patterns of participation were sustained over time. The program did not employ a quantitative baseline–endline design, standardized measures of participation or empowerment, or statistical testing; therefore, the magnitude of change cannot be quantified. Participation also varied among community members, while differences in educational background, social position, cultural factors, communicative confidence, and access to decision-making opportunities may have influenced the extent of engagement. In addition, the available evidence does not permit a systematic comparison between Aceh Tamiang and Langkat, which limits the extent to which location-specific differences can be interpreted.

Future community service initiatives should provide longer periods of facilitation, establish clearer indicators of participation from the outset, strengthen systematic documentation of participatory processes and outputs, and, where feasible, incorporate baseline–endline evaluation. Village governments, local organizations, and community groups should also support regular participatory forums, community working arrangements, access to disaster information, and community-based preparedness initiatives so that engagement can continue beyond the period of external facilitation. The integration of participatory development communication and PAR may be adapted and further evaluated in other post-disaster settings, provided that local social structures, institutional capacity, available resources, community organization, and disaster characteristics are carefully considered.

Acknowledgments

The authors express their appreciation to the participating communities, local community representatives, and village authorities in Aceh Tamiang and Langkat for their participation, local knowledge, and support during the program.

References

- Arnstein, S. R. (1969). A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*, 35(4), 216–224. <https://doi.org/10.1080/01944366908977225>
- Asibey, M. O., Agyei, F., Bekoe, S. A. E., & Aboribo, J. (2026). Ecosystem-based disaster risk reduction governance, participatory failure, and the co-governance imperative in Ghana's Kumasi informal settlements. *Environmental Science & Policy*, 183, 104474. <https://doi.org/10.1016/j.envsci.2026.104474>
- Badan Nasional Penanggulangan Bencana. (2026, January 30). *Kepala BNPB dampingi Wapres sapa warga Aceh Tamiang di huntara*. Badan Nasional Penanggulangan Bencana. <https://www.bnpb.go.id/berita/kepala-bnpb-dampingi-wapres-sapa-warga-aceh-tamiang-di-huntara>
- de Oliveira, B. (2023). Participatory action research as a research approach: Advantages, limitations and criticisms. *Qualitative Research Journal*, 23(3), 287–297. <https://doi.org/10.1108/QRJ-08-2022-0101>
- Egiwirantia, E. D., & Destrity, N. A. (2023). Participatory development communication for family food security during the Covid-19 pandemic. *Jurnal ASPIKOM*, 8(1), 29–44. <https://doi.org/10.24329/aspikom.v8i1.1211>
- Erdurak, Y. (2026). Community participation and power relations in post-disaster recovery: A qualitative study from an anti-oppressive social work perspective. *Journal of Evidence-Based Social Work*. <https://doi.org/10.1080/26408066.2026.2713490>
- Esariti, L., Kharisma, D. A., Mahadewi, A. Z., Risna, A., & Salsabila, D. K. (2026). The integration of community resilience factors into local policy for disaster mitigation in the coastal areas of Indonesia. *Development in Practice*. <https://doi.org/10.1080/09614524.2026.2676893>
- Harris, U. S. (2025). Recovery and resilience in the Manning Valley through a participatory environmental communication lens. *Media International Australia*, 195(1), 7–20. <https://doi.org/10.1177/1329878X241300769>
- Jum'a, L., & Hamdan, S. (2026). Disaster risk reduction and resilience building in vulnerable communities: The role of community participation in Jordan. *Disasters*, 50(1), e70038. <https://doi.org/10.1111/disa.70038>
- Kanjilal, M. K., Malik, K. K., & Kapoor, P. (2025). Fostering resilience: Community radio and disaster communication in Odisha, India. *Media, Culture & Society*, 47(2), 319–335. <https://doi.org/10.1177/01634437241282243>
- Pemerintah Kabupaten Langkat. (2025, December 16). *Bupati Langkat Syah Afandin pimpin evaluasi tanggap darurat banjir, status diperpanjang*. Pemerintah Kabupaten Langkat. <https://www.langkatkab.go.id/berita/5620/bupati-langkat-syah-afandin-pimpin-evaluasi-tanggap-darurat-banjir-status-diperpanjang>
- Pyles, L. (2015). Participation and other ethical considerations in participatory action research in post-earthquake rural Haiti. *International Social Work*, 58(5), 628–645. <https://doi.org/10.1177/0020872815581912>
- Ravazzoli, E., Lavarello-Schettini, R., Oberti, B., & Maino, F. (2025). Community-based approaches in disaster risk reduction and climate change adaptation: An analysis of applied participatory processes. *Climatic Change*, 178, 225. <https://doi.org/10.1007/s10584-025-04078-0>
- Siow, Y. M., Razak, K. A., Abu Samah, N., & Wan Mohd Rani, W. N. M. (2026). Bridging institutions and communities through Living Labs: Lessons learned from disaster risk reduction in Hulu Langat, Malaysia. *International Journal of Disaster Risk Reduction*, 106385. <https://doi.org/10.1016/j.ijdrr.2026.106385>
- Sufri, S., Oktabina, R. W., Fazli, F., Lassa, J. A., & Dwirahmadi, F. (2025). Progress and challenges in implementing the Sendai Framework for Disaster Risk Reduction at sub-national levels: Insights from Aceh, Indonesia. *Environmental Hazards*, 24(5), 455–482. <https://doi.org/10.1080/17477891.2024.2412351>
- Sulaiman, A. I., Rosyadi, S., Handoko, W., Masrukin, M., Putri, D. D., Wijayanti, I. K. E., & Faozanudin, M. (2024). The importance of participatory communication in development planning deliberations for agritourism village enhancement. *Journal of Intercultural Communication*, 24(1), 144–160. <https://doi.org/10.36923/jicc.v24i1.246>
- Yudarwati, G. A., & Gregory, A. (2022). Improving government communication and empowering rural communities: Combining public relations and development communication approaches. *Public Relations Review*, 48(3), 102200. <https://doi.org/10.1016/j.pubrev.2022.102200>