

Building Institutional Foundations for Community-Enterprise Continuity in Flood-Prone Alue Krueng: A Documentary Process Evaluation

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Abstract

Background: Community-service programs in hazard-prone villages often emphasize equipment and products while giving less attention to the records, routines, compliance links, and role distribution needed for organizational continuity. This study examined the institutional foundations created by the 2025 BEM Berdampak program in Alue Krueng Village.

Contribution: The article offers a documentary institutional-foundations pathway connecting co-diagnosis, governance routines, financial and activity records, compliance-service linkage, cross-sector coordination, and handover. It explicitly separates this analysis from two earlier publications on briquette production and Aku Pisang product-market upgrading.

Method: A secondary documentary process evaluation analyzed the program implementation window recorded in student logbooks from 2 October to 20 December 2025, within the broader September-December program. Organizational documents, monitoring notes, stakeholder records, and handover materials were compared across seven domains using a before-after matrix and documentary sequence analysis.

Results: At program completion, the food enterprise retained role allocations, costing and cashbook formats, production planning records, and product-specific SPP-IRT documentation. The farmer group retained a written structure, task assignments, operating procedures, a production logbook, and meeting records. Cross-sector roles and custody arrangements were also documented. The evidence demonstrates asset creation and facilitated use during implementation, but not independent long-term use or performance during a flood.

Conclusion: The program established institutional foundations that make continuity planning more plausible. These findings should not be interpreted as proof of disaster resilience; post-program audits and observation during disruption remain necessary.

Keywords: *Collaborative governance, Community enterprise, Documentary evaluation, Institutional capacity, Organizational continuity.*

INTRODUCTION

Floods and other recurrent hazards do not only damage physical assets. They can interrupt access to fuel, supplies, markets, public services, and working capital; weaken routine coordination; and expose the dependence of small rural enterprises on a limited number of people. A community enterprise may therefore possess a useful product and remain organizationally fragile when the procedures, records, permissions, and support relationships required for continuity are absent. The Sendai Framework emphasizes local action, shared responsibility, and participation by governments, communities, universities, civil society, and the private sector in disaster-risk reduction (United Nations Office for Disaster Risk Reduction

[UNDRR], 2015). For village-scale economic activities, these principles direct attention to the capacities that remain locally available when external support is delayed or interrupted.

Community resilience has been described as a networked set of capacities through which communities absorb disturbance, communicate, organize, learn, and adapt (Norris et al., 2008). Social capital and trusted relationships can accelerate access to information and resources after a shock, but their practical value depends on whether relationships can be converted into coordinated action (Aldrich & Meyer, 2015). Integrated perspectives likewise locate resilience in the interaction among people, institutions, ecological resources, knowledge, and governance rather than in a single intervention (Berkes & Ross, 2013). Place-based disaster-resilience research also identifies institutional and community dimensions alongside infrastructure and economic conditions (Cutter et al., 2014).

At the organizational level, resilience involves anticipation, coping, and adaptation capabilities (Duchek, 2020). These capabilities are difficult to sustain in rural microenterprises that rely on tacit knowledge, leader-centered decisions, irregular records, and informal arrangements. Community capacity increases when local actors can identify problems, mobilize resources, make collective decisions, and maintain organizational infrastructure over time (Chaskin, 2001). In rural Indonesia, however, local capacity and village governance are also shaped by participation, brokerage, and access to institutions; local ownership is more durable when accompanied by accountable and enabling governance (Bebbington et al., 2006).

Formalization is one component of that enabling environment, but it is not an automatic guarantee of performance. Microenterprise registration may reduce uncertainty and open access to programs, finance, procurement, and wider markets, yet its benefits depend on implementation costs and the usefulness of accompanying services (Bruhn & McKenzie, 2014). Informality persists when rules are costly or disconnected from business needs (La Porta & Shleifer, 2014). For Indonesian micro, small, and medium enterprises, managerial capacity, legal status, financial records, and market access remain interrelated constraints (Tambunan, 2019). Simple records can create organizational memory for pricing, planning, accountability, and decisions under constrained cash flow; their value depends on whether financial understanding becomes routine practice (Lusardi & Mitchell, 2014; Ye & Kulathunga, 2019).

Participatory Rural Appraisal shifted rural development from expert-driven diagnosis toward learning with communities and recognizing local knowledge (Chambers, 1994). Participatory research can strengthen relevance and ownership, but it also requires time, role clarity, and reciprocal accountability (Cargo & Mercer, 2008). Repeated interaction may produce trust, capacity, and durable collaboration (Jagosh et al., 2012), while social learning occurs when individual experience becomes shared meaning and changed practice within a group or network (Reed et al., 2010). In community engagement, this implies that training should leave behind more than individual knowledge: it should generate organizational references that a group can retrieve and use.

A related foundation is collaborative governance. Public value can be co-produced when users and communities contribute knowledge, implementation capacity, and evaluation rather than acting only as recipients (Bovaird, 2007; Voorberg et al., 2015). Collaborative governance is supported by inclusive institutional design, facilitative leadership, dialogue, trust building, shared motivation, and capacity for joint action (Ansell & Gash, 2008; Emerson et al., 2012). Cross-sector collaboration further requires clarity about purpose, structure, accountability, and resource contributions (Bryson et al., 2015). Universities can facilitate this process through service learning, but reciprocal partnership and institutional support are more important than

isolated volunteering (Bringle & Hatcher, 1996; Salam et al., 2019). Continuation also needs to be considered during implementation because program sustainability depends on fit, organizational capacity, stakeholder support, adaptation, and monitoring (Scheirer & Dearing, 2011; Stirman et al., 2012; Moore et al., 2017).

Alue Krueng Village in Pasie Raya Subdistrict, Aceh Jaya Regency, provided a relevant setting. Program records described the village as exposed to recurrent flooding and documented two partner organizations: the women-led Alkrueng Pisang home enterprise and the Krueng Tani farmer group (Universitas Teuku Umar, 2025). Two publications from the same umbrella program have already reported product-centered pathways. Aulia et al. (2025) discussed the agricultural-residue briquette initiative, whereas Aulia et al. (2026) analyzed product standardization, managerial mentoring, production technology, and digital marketing in Aku Pisang. The present article does not reproduce those product, energy, livelihood, flavor-variant, production, pricing, or marketing outcomes as new findings. Its unit of analysis is instead the institutional asset: the rule, record, assigned role, public-service connection, or handover arrangement retained by the partner organizations.

This article therefore examines how a university-village partnership translated selected informal activities into documented institutional foundations. It evaluates seven domains: role clarity, operating standardization, financial accountability, activity traceability, legal and public-service linkage, cross-sector coordination, and continuity and handover arrangements. Three questions guide the analysis: What institutional vulnerabilities were documented at baseline? Which organizational assets and relationships were documented by program completion? What can, and cannot, be inferred from those assets about continuity planning in a flood-prone setting? The study does not claim that enterprise performance during a future flood has been proven.

METHOD

1. Design, analytical status, and setting

The study used a secondary documentary process-evaluation design. It reanalyzed institutional materials generated during the 2025 BEM Berdampak community-engagement program rather than collecting a new individual-level survey. The umbrella program operated from September to December 2025, as reported in earlier product-centered publications. The analytical window used here was 2 October to 20 December 2025 because those were the dates covered consistently by the student logbooks and institutional documentation assembled for this evaluation. This distinction reconciles the broader implementation period with the narrower documentary observation window.

Alue Krueng is located in Pasie Raya Subdistrict, Aceh Jaya Regency. Two organizations formed the organizational cases. Alkrueng Pisang had 20 registered members, including seven core members involved in routine operational decisions. Krueng Tani also had 20 registered members; approximately ten were consistently active in equipment use and institutional documentation during the later implementation stage. Registered membership, core participation, and consistent later-stage participation are therefore reported as different categories rather than interchangeable sample sizes. The wider partnership involved three faculty facilitators, 21 students, the Alue Krueng Village Government, and the Aceh Jaya Health Office.

The units of observation were organizational practices, retained documents, and actor linkages. No individual attitude or learning score was treated as an outcome. Seven domains were specified for the final matrix: (1) role clarity and task distribution; (2) operating standardization; (3) financial accountability; (4) activity traceability; (5) legal and public-service linkage; (6) cross-sector coordination; and (7) continuity and handover arrangements.

Table 1. Analytical separation from earlier publications based on the same umbrella program

Publication	Primary analytical focus	Boundary applied in the present article
Aulia et al. (2025)	Krueng Tani and the briquette pathway; technical, energy, livelihood, and product-oriented claims.	Cited to delimit context. Product-performance and household-impact claims are not reanalyzed as findings in this article.
Aulia et al. (2026)	Aku Pisang product innovation, production routines, costing, bookkeeping, packaging, and digital-market activation.	Cited to delimit context. Product variants, production, pricing, and market outcomes are not presented as new findings.
Present analysis	Both partner organizations; governance documents, accountability records, compliance-service linkage, actor roles, and handover arrangements.	Secondary documentary evaluation of seven institutional domains; no claim of causal impact, post-program persistence, or tested disaster resilience.

Source: Authors' scope comparison based on the two published articles and the 2025 program document.

2. Institutionalization sequence

Implementation followed five documented stages. First, observation, informal interviews, and group discussions were used to identify institutional as well as technical constraints. Second, partners and facilitators translated recurring tasks into written roles, production planning, operating procedures, and meeting routines. Third, the program introduced or organized cashbooks, costing forms, production logbooks, meeting minutes, and food-enterprise compliance documentation. Fourth, emerging routines were reviewed through monitoring visits, food-safety guidance, stakeholder meetings, university quality review, and public reporting. Fifth, the program moved toward handover by assigning custody of tools and documents, identifying follow-up responsibilities, and recording support contacts.

The program's 80% and 20% funding phases served as an implementation sequence, not as an experimental treatment. Core training and initial practice were concentrated in the first phase; the final phase emphasized evaluation, document completion, compliance follow-up, quality review, public accountability, and handover. Figure 1 summarizes the analytical pathway without implying that continuity during an actual disruption was tested.

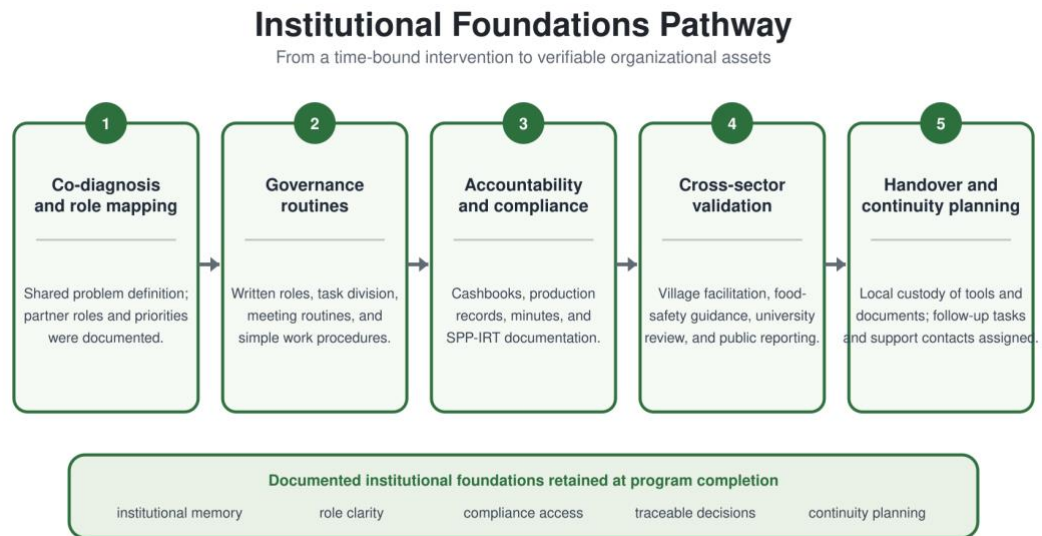


Figure 1. Institutional-foundations pathway used for the documentary analysis.

3. Stakeholder roles and field facilitation

Partner organizations contributed local knowledge, tested the practicality of routines, assigned local roles, and decided which practices could be retained. The village government supported convening and local coordination. The Health Office provided food-safety guidance and an identifiable compliance-service route; the evidence does not establish continuous regulatory oversight after the program. Lecturers designed and reviewed the engagement process, while students facilitated day-to-day practice and documentation. The 160 Student Effective Working Hours (Jam Kerja Efektif Mahasiswa, JKEM) plan is reported as an implementation input, not as evidence of student learning outcomes.

Table 2. Stakeholder roles across the institutionalization process

Actor	Documented role during implementation	Institutional asset sought
Partner organizations	Co-diagnose constraints; test routines; assign local roles; retain records; participate in review and handover.	Locally held rules, records, and responsibility.
Alue Krueng Village Government	Convene actors; provide activity space; coordinate participation; recognize local agreements.	Local coordination and an identifiable support channel.
Aceh Jaya Health Office	Provide food-safety and hygiene guidance; facilitate understanding of SPP-IRT commitments.	Compliance knowledge and a public-service contact route.
Lecturers and university	Design the process; connect disciplines; review documentation; support final recommendations.	Program logic, quality review, and external linkages.
Twenty-one students	Facilitate practice; prepare documents with partners; mentor record keeping; document activities.	Time-bound operational and documentation support.

Source: Synthesis of program assignments, student logbooks, meeting records, and the final report.

4. Evidence sources, documentary coding, and quality procedures

The evidence corpus comprised baseline descriptions; field-observation notes; partner discussions and mentoring records; cashbooks, costing forms, and production plans; organizational structures, standard operating procedures (SOPs), logbooks, and meeting minutes; SPP-IRT and Health Office records; handover records; student logbooks; and program photographs used as contextual documentation. Because the surviving corpus did not contain a complete, dated inventory for every document type, this article does not report unsupported document counts or frequencies.

Analysis used a descriptive before-after matrix and documentary sequence analysis. For each domain, baseline statements were compared with end-of-program records. The sequence from problem recognition to co-design, facilitated practice, documentation, external linkage, and handover was then reconstructed. The term process tracing was avoided because the evidence was not designed to adjudicate competing causal mechanisms. Triangulation compared narrative reports with retained documents, monitoring notes, stakeholder records, and partner review during evaluation meetings.

To avoid equating document possession with institutionalization, evidence was interpreted through three boundaries. Level A indicated that an asset or document existed and had an assigned custodian. Level B indicated facilitated use or review during a monitored program activity. Level C would require repeated independent use after facilitators withdrew or during an actual disruption. The available corpus supports Level A and selected Level B observations; it does not establish Level C. No validated readiness index, weighted score, or inferential statistic was calculated.

Several authors participated in program implementation, which improved access to records but created a risk of confirmation bias. The evaluation therefore restricted conclusions to traceable organizational evidence, reported missing post-program verification, and retained negative or incomplete evidence in the interpretation. The analysis did not include individual questionnaire responses or identifiable photographs. Partner leadership authorized academic use of organizational records generated during the program. No claim of ethics-committee approval is made because the source corpus reports authorization for program evaluation and academic reporting rather than a separate human-subject research protocol.

RESULTS AND DISCUSSION

1. Baseline institutional fragility

Baseline records described dependence on tacit knowledge and informal coordination in both organizations. In the food enterprise, bookkeeping was absent, pricing was based largely on estimation, production planning was irregular, role boundaries were fluid, and the compliance route was incomplete. In the farmer group, the available baseline records did not contain a written structure, task division, SOP, production logbook, routine meeting minutes, or development plan. These findings are documentary descriptions of the starting condition; they are not prevalence estimates for rural enterprises generally.

Informal routines can be flexible and inexpensive, but they concentrate knowledge and authority. When input costs, buyer contacts, or production steps are held by one person, the organization has a single point of failure. In a flood-prone setting, that concentration is relevant because disruption increases the need for task substitution, priority setting, and access to records. Community-capacity theory similarly links individual skills to organizational resources

and collective problem solving (Chaskin, 2001), while social-capital research shows that trust cannot replace operating records or regulatory access (Aldrich & Meyer, 2015).

The baseline did not show an absence of willingness. Partner members attended discussions, contributed local knowledge, and accepted the need for change. The documented gap was the lack of a practical route for converting willingness into organizational references: who performs a task, how it is performed, what is recorded, who checks the record, and where assistance is sought.

2. Organization-specific institutional pathways

For Alkrueng Pisang, end-of-program records showed simple role allocation, planned production periods, a cashbook format, cost-component records, production-planning forms, and product-specific SPP-IRT documentation. These materials overlapped with the operational context reported by Aulia et al. (2026), but the present endpoint is narrower: whether the program left an assigned and retrievable institutional asset. The records support asset presence and facilitated use during mentoring. They do not establish the frequency, completeness, or independent continuation of bookkeeping after the program.

For Krueng Tani, the pathway was more structural. The group prepared a written organizational structure and assigned responsibilities for raw-material collection, equipment operation, processing, record keeping, storage, and coordination. It also retained an SOP, a production logbook, and meeting-minute formats. These records provided common references for monitored activity, but the evidence does not show how consistently members used them after facilitators withdrew. The result is therefore described as documented standardization and facilitated enactment rather than autonomous institutionalization.

From an organizational-resilience perspective, such documents can support anticipation, task reassignment, and learning (Duchek, 2020). Their value, however, depends on enacted practice. The distinction between a retained format and an independently sustained routine is central: the former is an institutional foundation; the latter remains an outcome for longitudinal verification.

3. Legal formalization as a public-service linkage

The food enterprise's internal routines were connected to the public food-safety system through technical guidance and the process for obtaining the Sertifikat Pemenuhan Komitmen Produksi Pangan Olahan Industri Rumah Tangga (SPP-IRT). Program records included certificates for registered product variants with validity extending to 5 December 2030. Under Indonesian Food and Drug Authority Regulation No. 4 of 2024, SPP-IRT is a commitment-based certificate for eligible home-industry food products; it does not replace the producer's continuing obligations regarding hygiene, sanitation, documentation, labeling, and product-specific compliance (Badan Pengawas Obat dan Makanan Republik Indonesia [BPOM], 2024).

The institutional contribution was therefore not simply possession of a certificate. The process clarified which agency could provide guidance, which records should be retained, and which commitments applied to registered products. This constitutes a compliance-service linkage rather than evidence of continuous Health Office oversight. Formalization research similarly cautions that registration generates uneven benefits when disconnected from useful services and daily practice (Bruhn & McKenzie, 2014; La Porta & Shleifer, 2014).

4. Complementary roles across village, public-service, and university actors

The partnership distributed functions that were complementary rather than interchangeable. Partner organizations retained decision authority over local routines. The village government convened residents and provided local legitimacy. The Health Office supplied food-safety knowledge and a compliance-service route that neither the university nor the community could provide independently. Lecturers linked technical, managerial, social, and administrative components, while students provided the intensive but time-limited facilitation needed for practice and documentation.

This arrangement is consistent with collaborative-governance theory, which emphasizes dialogue, facilitative leadership, shared motivation, and capacity for joint action (Ansell & Gash, 2008; Emerson et al., 2012). Its documented intermediate outputs included role agreements, organizational records, food-safety guidance, monitoring meetings, and public reporting. These outputs show that collaboration generated identifiable assets, but they do not demonstrate that the network remained active after funding ended.

The governance fit also matters. Village government did not substitute for the Health Office in compliance matters, and students did not hold final authority over community decisions. The partnership used each actor's comparative role, consistent with research emphasizing purpose, structure, accountability, and resource contributions in cross-sector collaboration (Bryson et al., 2015). Figure 2 represents this role structure without implying permanent post-program commitments.

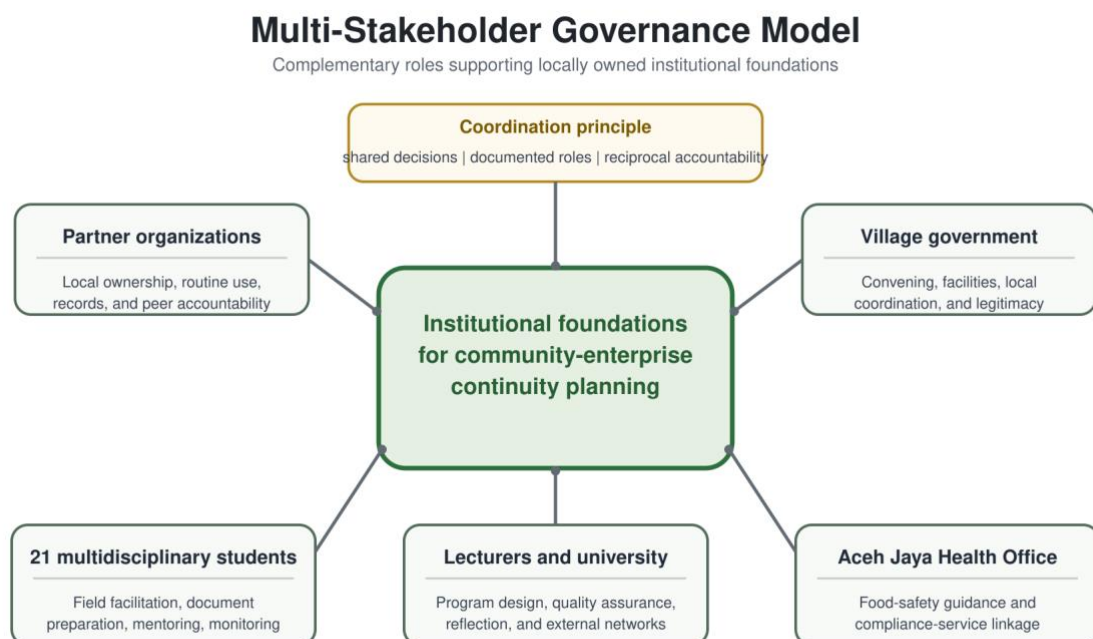


Figure 2. Multi-stakeholder governance model supporting locally owned institutional foundations.

5. Documentary matrix of institutional foundations

Table 3 separates the two organizational cases and states the evidentiary boundary for each domain. This structure avoids attributing food-enterprise evidence to the farmer group or vice versa. It also distinguishes an asset retained at program completion from independent continuity after the intervention.

Table 3. Organization-specific before-after documentary matrix

Domain and level	Documented baseline	End-of-program evidence	Interpretation boundary
Role clarity Both organizations	Informal task allocation; dependence on key persons.	Written roles, task divisions, and assigned record keepers.	Asset presence and facilitated use documented; independent task substitution not tested.
Operating standardization Both organizations	Recurring tasks were not consistently governed by shared written procedures.	Simple SOPs and agreed work sequences retained by partners.	Common references documented; post-program adherence frequency unavailable.
Financial accountability Alkrueng Pisang	No routine cashbook; price decisions relied largely on estimation.	Cashbook and costing formats used during facilitated mentoring.	Facilitated use documented; completeness and independent continuation not audited.
Activity traceability Krueng Tani	No production logbook or routine meeting record in the available baseline corpus.	Production logbook, meeting-minute formats, and monitoring records.	Traceability assets present; sustained update frequency unavailable.
Legal/public-service linkage Alkrueng Pisang	Product-compliance route was incomplete or unclear.	Food-safety guidance and product-specific SPP-IRT documentation linked to the Health Office.	Compliance access documented; certificate does not prove continuing operational compliance.
Cross-sector coordination Partnership level	Support was ad hoc and actor responsibilities were not mapped in one reference.	Documented roles for partner groups, village government, Health Office, lecturers, and students.	Coordination occurred during implementation; post-program network activity not verified.
Continuity and handover Both organizations	No documented post-program custody and follow-up arrangement in baseline records.	Local custody of tools/documents, final review, and assigned follow-up responsibilities.	Handover documented; actual continuation and recovery performance not tested.

Source: Descriptive synthesis of baseline records, partner documents, monitoring notes, SPP-IRT materials, and final evaluation records.

The strongest documentary changes occurred where a baseline gap could be matched with a simple, retrievable asset. Role ambiguity was addressed through written task division; inconsistent execution through SOPs; weak accountability through cashbooks, logbooks, and minutes; uncertain compliance access through SPP-IRT documentation and Health Office guidance; fragmented support through a mapped actor structure; and post-funding uncertainty through handover records. The matrix is not a validated readiness index and should not be converted into a numerical score.

Financial records are particularly relevant because they may support faster and more transparent decisions when supplies or demand change. Financial-literacy research indicates that knowledge matters when it influences decisions (Lusardi & Mitchell, 2014), and SME sustainability benefits when that knowledge becomes routine record keeping (Ye & Kulathunga, 2019). In Alue Krueng, the evidence shows that formats and users were introduced; it does not show how often or how accurately records were maintained after the intervention.

Documentation may also improve communication with public agencies, buyers, funders, and future facilitators by creating a common evidence base. In rural Indonesia, external resources are often mediated through local institutions (Bebbington et al., 2006). Nevertheless, documents reduce neither information asymmetry nor leader dependence automatically. Their value depends on accessibility, updating, and use by more than one member.

6. Public accountability, handover, and the limits of facilitation evidence

Program records documented food-safety technical guidance, monitoring meetings, a village launch and expo, and final handover activities. These events made responsibilities and outputs visible to community, village, regency, and university stakeholders. Public presentation can support accountability when partners are required to explain what was produced, who is responsible, and what is expected to continue. An event, however, is temporary and cannot by itself demonstrate sustained accountability.

The final funding phase shifted attention from training delivery to document refinement, compliance follow-up, review, recognition, and continuity planning. Sustainability research distinguishes initial implementation from continued activities, continued benefits, adaptation, and the capacity of a setting to maintain an intervention (Scheirer & Dearing, 2011; Stirman et al., 2012; Moore et al., 2017). In this case, tools without local custody would have been incomplete, but custody records without subsequent use would also be insufficient.

The 21 students supported this institutional architecture through a 160-JKEM implementation plan. Their involvement is evidence of facilitation capacity and traceable program inputs. Because the study did not analyze student reflections, competence assessments, or learning instruments, it does not report student learning as an empirical outcome.

7. Implications for continuity planning in a flood-prone setting

The program did not test enterprise performance during a flood, measure avoided losses, estimate recovery time, or use a control group. Its documented contribution was the creation of institutional foundations that may support continuity planning: distributed responsibilities, retrievable procedures, financial and activity records, product-compliance documentation, known support contacts, and a handover arrangement. In community-resilience terms, these assets relate to information, organizational, and network capacities (Norris et al., 2008; Berkes & Ross, 2013), but the causal step from assets to resilient performance remains untested.

Internal and external capacities play different roles. Internal routines can reduce dependence on a single facilitator or leader; external linkages can help a group seek authoritative support when a problem exceeds local capacity. Social capital may accelerate access, but documented relationships and clear roles can make networks more usable under pressure (Aldrich & Meyer, 2015). The village government's convening role and the Health Office's compliance-service role therefore represent different institutional resources.

The pathway is potentially transferable as a modular design: define the institutional problem alongside the technical problem; identify the minimum routine and evidence needed; assign local ownership before finalizing documents; connect the routine to an appropriate public or market institution; and reserve time for review and handover. Replication should adapt to hazard exposure, literacy, public-service access, and group history. Participatory research warns that unmanaged time, power, and expectations can undermine partnerships (Cargo & Mercer, 2008), whereas repeated interaction and mutual learning can create benefits beyond the original intervention (Jagosh et al., 2012).

8. Limitations and priorities for follow-up

Six limitations qualify the findings. First, the two purposively selected organizations do not support causal or statistical generalization. Second, most outcome records were produced near program completion; continued use at six or twelve months was not independently audited. Third, the study did not apply a validated disaster-resilience measure or observe organizational

performance during a comparable flood. Fourth, several records were prepared with substantial student facilitation, so independent updating remains uncertain. Fifth, the authors' implementation roles create a risk of confirmation bias despite documentary triangulation. Sixth, this secondary analysis shares an umbrella program and source archive with two previous publications; the analytical separation in Table 1 reduces, but does not eliminate, the need for transparent disclosure to the journal editor.

Follow-up should examine use rather than possession. Suitable indicators include the proportion of production sessions recorded, completeness and frequency of cashbook updates, meetings with minutes, compliance actions completed, task substitution when a core member is absent, number of active support contacts, and time required to resume operations after disruption. Measurements at six, twelve, and twenty-four months, combined with observation during an actual flood or supply interruption, would allow future work to move from documented institutional foundations to demonstrated organizational continuity and resilience.

CONCLUSION

The Alue Krueng BEM Berdampak program can be understood as an institutional-foundation process in addition to a technical empowerment program. By program completion, organizational records showed written roles, simple operating procedures, cashbook and costing formats, production records, logbooks, meeting minutes, product-specific SPP-IRT documentation, mapped stakeholder roles, and handover arrangements. These assets created retrievable references and clarified responsibilities across two partner organizations.

The principal contribution of the article is a transparent documentary pathway that links co-diagnosis, governance routines, accountability records, compliance-service linkage, cross-sector coordination, and local handover while separating these endpoints from product outcomes already published elsewhere. The evidence supports the creation and facilitated use of institutional assets; it does not prove independent long-term use or resilience during an actual flood. Universities implementing similar programs should plan institutional assets and post-program verification from the outset. Longitudinal monitoring must now determine whether the routines remain active, reduce dependence on key individuals, and shorten interruption and recovery time.

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