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From Costing Literacy to Digital Financial Readiness: Community Service for Lohloh Cemcem MSMEs in Penglipuran Village, Bali

Unggul Purwohedi[1], Muhammad Yusuf[2], Ria Rahma Nida[3,*], Sabo Hermawan[4], Yeti Lastuti[5], Ellis Annisa[6]

[1] Faculty of Economics and Business, Universitas Negeri Jakarta, Jakarta, Indonesia
[2] Faculty of Economics and Business, Universitas Negeri Jakarta, Jakarta, Indonesia
[3] Faculty of Economics and Business, Universitas Negeri Jakarta, Jakarta, Indonesia
[4] Faculty of Economics and Business, Universitas Negeri Jakarta, Jakarta, Indonesia
[5] Faculty of Economics and Business, Universitas Negeri Jakarta, Jakarta, Indonesia
[6] Faculty of Economics and Business, Universitas Negeri Jakarta, Jakarta, Indonesia
* Corresponding Author: riarahmanida@unj.ac.id

Abstract.
Lohloh Cemcem is a traditional beverage that represents both the cultural identity and the tourism-based micro, small, and medium enterprise (MSME) potential of Penglipuran Village, Bali. As Bali's tourism economy increasingly interacts with digital payment systems and cash-flow documentation, local MSMEs require stronger financial habits before they can sustain digital financial practices. This community service program aimed to strengthen costing literacy and develop initial digital financial readiness among Lohloh Cemcem MSME actors in Penglipuran Village. The program was conducted as part of the Sustainable International Community Service (SICS) 2 Bali 2026 through participatory observation, dialogue with local stakeholders, production process mapping, cost component identification, pricing discussion, and simple bookkeeping assistance. Data were collected through field notes, informal interviews, group discussion, photo-video documentation, and reflective analysis. The findings indicate that MSME actors possess strong product knowledge and cultural commitment, but their financial management practices remain largely experience-based. Several hidden cost components, including labor, utilities, packaging, transportation, equipment maintenance, and simple depreciation, were not consistently included in pricing decisions. The activity introduced a practical costing template and connected cost calculation with digital financial readiness, particularly the ability to record transactions, separate business and household cash, and prepare for QRIS-based reconciliation. The program contributes to SDG 8 by supporting decent work and local economic growth through culturally grounded MSME empowerment.
Keywords: *Costing literacy; Digital financial readiness; Lohloh Cemcem; MSMEs; Penglipuran Village; SDG 8.*

I. INTRODUCTION

Community-based tourism in Bali has become an important platform for strengthening local economic resilience, cultural preservation, and micro-enterprise development. In village tourism settings, MSMEs are not merely sellers of goods; they are part of the visitor experience, cultural

storytelling, and local value creation. The Sustainable International Community Service (SICS) 2 Bali 2026, organized by the Faculty of Economics and Business, Universitas Negeri Jakarta, was designed to connect global academic collaboration with direct community empowerment in Bali. The program emphasized local community strengthening, SDGs advancement, tourism sustainability, and MSME development through activities conducted in Penglipuran Village and other community sites (Universitas Negeri Jakarta, 2026).

Penglipuran Village offers a relevant setting for community service because it combines a strong customary foundation, a high-value tourism landscape, and growing household-based enterprises. In this article, Penglipuran's customary governance is correctly understood as being carried out by Desa Adat Penglipuran, an autonomous customary village institution. The development of tourism and MSMEs in this context should therefore be interpreted not only as an economic issue but also as part of a broader customary, cultural, and communal system that protects local identity while allowing economic adaptation.

One of the local products that reflects this intersection of culture and economy is Lohloh Cemcem, a traditional beverage associated with local ingredients, local taste, and the visitor experience in Penglipuran. Field dialogue with MSME actors indicated that the product has been produced and sold through local distribution channels, including direct selling, reseller arrangements, and merchant-based sales. However, the sustainability of this enterprise depends on more than product uniqueness. MSME actors also need the ability to understand costs, determine prices, record transactions, and manage cash flows in ways that are compatible with modern tourism demand and digital payment systems.

The research proposal that frames the wider academic agenda focuses on the sustainability of QRIS use among Bali MSMEs by examining financial habits, continuance intention, and digital financial literacy. That agenda is relevant for Penglipuran because digital payments can only be used sustainably when MSMEs have underlying financial routines, including cost recording, transaction checking, and reconciliation. In practical terms, QRIS adoption without costing literacy may only create a payment channel without improving business decision-making. Therefore, this community service article positions costing literacy as an entry point toward digital financial readiness.

Costing literacy in this article refers to the ability of MSME actors to identify, classify, record, allocate, and use cost information for pricing and profit evaluation. Digital financial readiness refers to the capacity to use transaction records, digital payment histories, simple bookkeeping applications, and reconciliation habits to support business decisions. These two concepts are connected: MSMEs cannot fully benefit from digital payments if they do not understand what costs should be recovered through the selling price or how daily transactions should be translated into cash-flow information.

Based on this background, the community service program aimed to strengthen the financial governance capacity of Lohloh Cemcem MSMEs in Penglipuran Village through participatory observation, cost component identification, simple cost-of-production calculation, pricing discussion, and preliminary digital financial readiness mapping. The article contributes to the literature and practice of community service by showing how a culturally rooted culinary MSME can be supported through a simple yet strategic transition from manual costing awareness to digital financial readiness.

II. METHODS

2.1 Location, Time, and Participants

The community service activity was conducted in Penglipuran Village, Bali, during the SICS 2 Bali 2026 program held from June 29 to July 2, 2026. The field activity related to Lohloh Cemcem MSMEs was conducted through direct observation and dialogue during the community service agenda in Penglipuran Village. The participants involved the community service team from the Faculty of Economics and Business, Universitas Negeri Jakarta, local facilitators, representatives of local community stakeholders, and MSME actors involved in Lohloh Cemcem production and distribution.

The activity was designed as a practical community engagement rather than a survey-based causal test. Accordingly, it did not aim to test a statistical model, but to document financial management issues, introduce basic costing literacy, and formulate follow-up recommendations that are consistent with the broader research agenda on financial habits and digital financial literacy among Bali MSMEs.

2.2 Community Service Design

The community service method consisted of six integrated stages, as presented in Table 1.

Table 1. Stages of the community service activity

Stage	Main Activity	Output
1. Context mapping	Observation of the tourism village environment and dialogue on local MSME conditions	Understanding of Penglipuran's tourism-based MSME ecosystem
2. Stakeholder dialogue	Discussion with local stakeholders on customary governance, tourism development, and MSME roles	Clarification that customary governance is administered through Desa Adat Penglipuran
3. Production observation	Observation of Lohloh Cemcem production, ingredients, tools, packaging, and workflow	Production process map and list of visible cost components
4. Cost identification	Dialogue on raw materials, labor, utilities, packaging, transport, reseller margins, and equipment use	Comprehensive cost checklist for one production batch
5. Costing and pricing assistance	Introduction of simple HPP/cost-of-production calculation and pricing discussion	Draft costing template and pricing reflection

6. Digital readiness reflection	Discussion on bookkeeping, business-household cash separation, transaction recording, and QRIS reconciliation readiness	Initial digital financial readiness map and follow-up agenda

2.3 Data Collection and Analysis

Data were collected using participant observation, informal interviews, group discussion, direct production observation, documentation review, and photo-video documentation. The questions used during the field discussion focused on production flow, cost components, selling price formation, labor involvement, distribution channels, seasonality of raw materials, reseller relationships, and current bookkeeping practices.

The data were analyzed using descriptive qualitative analysis. Field notes and discussion results were grouped into themes: customary and tourism governance, product value chain, cost structure, pricing and distribution, bookkeeping practices, digital payment readiness, and SDGs contribution. Triangulation was carried out by comparing observation notes, documentation, and stakeholder narratives. This approach follows the logic of community-based qualitative inquiry in which field engagement is used to identify capacity gaps and formulate practical empowerment strategies (Creswell & Poth, 2018; Nowell et al., 2017; Sugiyono, 2021).

2.4 Documentation of the Field Activity



Figure 1. Community service team at Penglipuran Village during SICS 2 Bali 2026

III. RESULT AND DISCUSSION

3.1 Penglipuran Village, Customary Autonomy, and Tourism-Based MSME Ecosystem

The first finding concerns the institutional context of Penglipuran Village. Field dialogue emphasized that economic activities in the village cannot be separated from customary values, cultural preservation, and tourism governance. The relevant customary institution is Desa Adat Penglipuran. This distinction is important because the community service intervention must respect the autonomy of customary governance and avoid imposing purely market-driven solutions that may conflict with communal norms.

Within this institutional environment, MSMEs play a dual role. Economically, they create income for households and help retain local economic value from tourism. Culturally, they translate local knowledge, ingredients, stories, and daily practices into visitor experiences. Lohloh Cemcem is therefore more than a beverage product; it is also a medium through which tourists encounter local taste, local resources, and local identity.

The tourism-based MSME ecosystem in Penglipuran also creates specific managerial challenges. Demand may fluctuate according to visitor flows, holidays, group tourism, and seasonality. Products must be available, affordable, consistent, and culturally authentic. These conditions require MSME actors to have a practical understanding of production planning, cost control, and pricing flexibility. Without such understanding, local products may remain attractive but financially fragile.

3.2 Lohloh Cemcem Production and Local Value Chain

Observation of the Lohloh Cemcem production process showed that the product is prepared through a combination of local raw materials, household-scale tools, manual labor, packaging activities, and distribution coordination. The discussion identified ingredients such as cemcem leaves and other supporting materials for taste formation. Production also involved equipment such as blender or processing tools, containers, bottles, caps, and labels.

The value chain begins with raw material sourcing, continues with processing and packaging, and ends with distribution to consumers, resellers, or merchants. In this chain, producers do not only bear the cost of visible ingredients. They also absorb the time and labor required for preparation, washing, blending, filtering, bottling, labeling, cleaning, and handling. These activities represent economic costs even when they are performed by family members or community members.

The field discussion also revealed that reseller and merchant relationships shape final market prices. A product may have one price at the producer level, another price at the reseller level, and a higher price at the final merchant or consumer level. The challenge is to ensure that the producer's price reflects the true cost of production and provides a reasonable margin without disrupting the wider distribution network.

3.3 Costing Literacy: Identifying Hidden Costs in Lohloh Cemcem Production

The central finding of the community service activity is that the MSME actors had practical production knowledge but still needed assistance in translating production activities into cost information. Pricing practices were influenced by experience, market habits, and reseller expectations. However, several cost components were not always included in the calculation of the selling price.

The hidden costs identified during the activity included labor, utilities, packaging, transportation, maintenance of production tools, and simple depreciation. In addition, the availability and price of cemcem leaves may change due to seasonal conditions. If these cost changes are not recorded, producers may maintain the same selling price even when the real cost of production increases. This can reduce profit margins and weaken business sustainability.

Table 2 presents the main cost components and the type of assistance provided during the activity.

Table 2. Cost components and assistance direction for Lohloh Cemcem MSMEs

Cost Component	Field Observation	Assistance Direction
Raw materials	Cemcem leaves and supporting ingredients were recognized as visible costs, but quantity-price records were not consistently structured.	Record raw material quantity and purchase price per production batch.
Labor	Several people may be involved in production, bottling, and packaging activities.	Include labor as a production cost, even when labor comes from family or community members.
Packaging	Bottles, caps, labels, and supporting packaging materials directly affect unit cost.	Calculate packaging cost per bottle and include it in HPP.
Utilities	Water and electricity are used in washing, processing, cleaning, and equipment operation.	Allocate a simple overhead estimate for utilities per batch.
Equipment	Tools such as blender and containers are used repeatedly and require maintenance or replacement.	Introduce simple depreciation and maintenance allocation.
Transportation and distribution	Procurement and product delivery may involve transport cost and reseller margin.	Separate production cost, distribution cost, and selling margin.

The practical costing template introduced during the activity used a simple formula: total production cost divided by the number of bottles produced. The resulting cost per bottle becomes the basis for determining a selling price after adding the desired margin. This simple formula was

intentionally selected because it can be applied without complex accounting software. It also creates a bridge between traditional production knowledge and modern bookkeeping routines.

The discussion further emphasized that costing literacy is not intended to eliminate flexibility or local wisdom. Instead, it helps producers understand the minimum price required to protect business continuity. A culturally rooted product can remain affordable for visitors while still providing fair returns for the producers when cost information is transparent.

3.4 Pricing, Reseller Relationship, and Producer Margin

Pricing emerged as a sensitive issue because Lohloh Cemcem is distributed through a chain involving producers, resellers, merchants, and final consumers. The field dialogue indicated that price changes cannot be made unilaterally. A producer-level price that is too low can weaken producers, while a price that is too high may create resistance from resellers or reduce consumer demand. Therefore, pricing should be based on transparent cost information and negotiated understanding among actors in the value chain.

The community service team suggested separating three layers of price analysis: production cost, producer margin, and distribution margin. Production cost is the minimum cost required to produce one bottle. Producer margin represents the income needed to sustain the producer's business. Distribution margin is the compensation received by resellers or merchants for bringing the product to the final consumer. This layered approach helps avoid confusion between business profit and sales turnover.

This discussion is closely related to financial literacy. Many MSME actors can estimate daily sales but may not fully identify profit after deducting all costs. When hidden costs are ignored, a business may appear profitable in cash terms but actually operate with weak margins. Community service in this area therefore needs to focus not only on bookkeeping templates but also on changing the way entrepreneurs interpret costs, price, and profit.

3.5 From Simple Bookkeeping to Digital Financial Readiness

After the costing discussion, the next step was to connect manual financial habits with digital financial readiness. Digital readiness does not begin with an application; it begins with the habit of recording transactions. If MSME actors already record raw material purchases, labor payments, packaging costs, sales, and remaining stock, then they can more easily use digital tools, QRIS transaction histories, or bookkeeping applications for reconciliation.

In this program, digital financial readiness was defined through four practical indicators. First, the MSME actor can separate business cash from household cash. Second, the actor can record daily expenses and sales. Third, the actor can calculate production cost per batch and per unit. Fourth, the actor can compare cash sales and digital payment records when QRIS or other digital channels are used. These indicators are simple but fundamental for sustainable digital finance.

This finding is consistent with the wider argument that digital payment sustainability is not determined only by access to digital infrastructure. It also depends on financial habits and digital literacy. When MSME actors understand the purpose of transaction records, QRIS can become more than a payment option; it can become a source of transaction evidence, reconciliation data, and business decision support.

Table 3 summarizes the transition pathway from costing literacy to digital financial readiness.

Table 3. Transition from costing literacy to digital financial readiness

Capacity Area	Initial Condition	Readiness Pathway
Cost recording	Costs are remembered or estimated based on experience.	Use a daily/batch cost sheet for ingredients, packaging, labor, and overhead.
Cash separation	Business cash and household cash may still be mixed.	Use a separate cash box, bank account, or digital wallet for business transactions.
Pricing decision	Selling price follows market habit and reseller pressure.	Set price using HPP plus producer and distribution margins.
Digital payment use	Digital payment may be available but not yet linked to bookkeeping.	Use QRIS history as supporting evidence for daily sales reconciliation.
Business evaluation	Profit is interpreted from remaining cash.	Evaluate profit after all production and distribution costs are deducted.

3.6 Contribution to SDGs and Sustainable Tourism

The activity contributes primarily to SDG 8, namely decent work and economic growth, by strengthening the capacity of local MSMEs to manage costs, protect margins, and improve business continuity. It also supports SDG 11 because Penglipuran's tourism development depends on preserving local identity while enabling community-based economic participation. In addition, the program supports SDG 17 through collaboration among university actors, local communities, and international community service participants.

The sustainability contribution of the program lies in its practical orientation. Instead of introducing complicated accounting systems, the activity began with the real production process of Lohloh Cemcem. From that process, the team identified cost items, discussed pricing, and introduced a simple template that can be adopted gradually. This approach respects local capacity while opening a pathway toward digital financial practices.

The findings also show that community service in tourism villages should avoid separating economic empowerment from cultural governance. MSME development must be aligned with the values and autonomy of Desa Adat Penglipuran. When local products are strengthened through costing literacy and digital readiness, the benefits may extend beyond individual entrepreneurs to the wider community through more resilient local value chains and better visitor experiences.

IV. CONCLUSION

This community service program demonstrated that the strengthening of Lohloh Cemcem MSMEs in Penglipuran Village should begin with costing literacy before moving toward digital financial readiness. The field activity identified that MSME actors have strong production knowledge and cultural commitment, but several cost components remain hidden or are not

consistently included in pricing decisions. These include labor, utilities, packaging, transportation, equipment maintenance, and simple depreciation.

The assistance provided by the community service team introduced a practical way to calculate production cost per bottle, separate production cost from distribution margin, and interpret profit more accurately. This costing literacy foundation is essential for digital financial readiness because digital payment systems such as QRIS will only support business sustainability when MSME actors are able to record, classify, and reconcile transactions.

The article also emphasizes the importance of contextual accuracy in describing Penglipuran. Customary governance is administered by Desa Adat Penglipuran as an autonomous customary institution. Therefore, any MSME empowerment initiative should respect customary governance, cultural identity, and community-based tourism principles. Future programs should include follow-up mentoring, structured bookkeeping templates, digital transaction reconciliation training, and, if possible, pre-test and post-test measurement to evaluate changes in financial literacy and digital readiness.

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