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Dishwashing Soap-Making Training as an Effort to Increase Family Income in Sei Kepayang Barat Village

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ABSTRACT
Liquid dishwashing soap is a household necessity with promising business potential due to its high consumption rate. This community service activity aimed to provide training on liquid dishwashing soap production and marketing strategies for the residents of West Sei Kepayang Village, Sei Kepayang District. The program was carried out through outreach, demonstrations, and mentoring. The results showed that participants were able to produce high-quality liquid soap with effective cleaning power, stable foam, a pleasant fragrance, and a long shelf life. In addition, the participants acquired practical skills in simple packaging and marketing, including direct sales and social media promotion. This activity not only enhanced their technical skills but also fostered an entrepreneurial mindset within the community. Therefore, the training is expected to serve as a sustainable home-based business opportunity and contribute to increasing family income.

Keywords: Dishwashing Soap, Training, Community Empowerment, Entrepreneurship, Family Income.

I. Introduction

Dishwashing liquid is one of the essential household products used almost every day by the community. This product functions to clean eating utensils such as plates, spoons, glasses, and other kitchen equipment that are closely related to food hygiene. As public awareness of cleanliness and household environmental health increases, the demand for dishwashing liquid has also risen significantly. This product is not only a necessity in urban areas but also plays an important role in rural communities, although access to certain products is sometimes limited by price and distribution factors. Liquid dishwashing detergent is the most commonly used form compared to powder or paste types. Its practicality, hygiene, and ease of use make it more preferred by consumers. In addition, liquid dishwashing soap has multiple functions, such as cleaning grease stains on clothes, ovens, clogged toilets, and stainless-steel equipment. This multifunctional characteristic gives dishwashing liquid economic value and promising business potential (Dermawan et al., 2023). However, in rural areas such as Sei Kepayang Barat Village, Sei Kepayang District, most residents still depend on the agricultural sector and small-scale trading, with limited income levels. When agricultural commodity prices decline, household purchasing power also decreases. This condition necessitates the development of alternative businesses that are simple, easy to learn, and have promising economic prospects. One such opportunity is the home-based production of liquid dishwashing detergent (Waznah et al., 2021).

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The production of liquid dishwashing detergent does not require complex technology. The ingredients, such as Texapon, Sodium Lauryl Sulfate (SLS), Sodium Chloride (NaCl), Linear Alkylbenzene Sulfonate (LABS), Ethylenediaminetetraacetic Acid (EDTA), coloring agents, and fragrance essences, are readily available on the market.

The manufacturing process is relatively simple, involving dissolving the active ingredients in water, mixing them homogeneously, adding additives such as preservatives, coloring, and fragrance, and allowing the mixture to settle overnight before packaging. This simplicity enables communities to learn and implement the process quickly. Several previous studies have supported the economic potential of this type of business. Hadiyanti et al. (2024) explained that the production cost of liquid detergent is relatively low compared to its selling price, providing a good profit margin for small-scale entrepreneurs. Deri et al. (2020) emphasized that simple skill-based businesses can generate dual impacts by enhancing income while empowering communities. Kesuma et al. (2020) further added that the success of home-based businesses depends not only on production skills but also on product packaging and marketing strategies. Based on these conditions, the training on liquid dishwashing detergent production conducted by lecturers and students of the Faculty of Engineering, University of Asahan, was designed as a form of community engagement aimed at improving the skills and economic independence of residents in Sei Kepayang Barat Village. The originality of this training lies in its participatory and applicative approach, where participants were not only taught technical production aspects but also product packaging, simple marketing techniques, and small business management. Thus, this activity not only focused on practical skills but also fostered a sustainable entrepreneurial mindset (Ansori et al., 2024). Ethically, the activity was conducted with attention to the principles of equality, inclusivity, and sustainability, ensuring that all participants had equal opportunities to participate and benefit. The community-based approach ensured that the activity was not exploitative but genuinely empowering for the local population (Pohan, 2022). The main objectives of this study and community service activity are as follows:

a. To provide training in liquid dishwashing detergent production for the people of Sei Kepayang Barat Village as an alternative home-based economic enterprise.
b. To enhance community understanding of independent product packaging and marketing.
c. To encourage the development of entrepreneurial attitudes and economic self-reliance in rural communities.

The research questions underlying this activity include:

a. How effective is the dishwashing liquid production training in improving community skills and knowledge?
b. To what extent does this activity enhance the household economic potential of Sei Kepayang Barat Village residents?
c. What factors support and hinder the sustainability of the dishwashing liquid business within the rural community?

This training activity is expected not only to produce economically beneficial products but also to have broader social and developmental implications, particularly in strengthening the local economy and reducing community dependence on the agricultural sector. Therefore, the liquid dishwashing detergent production training can serve as a model of skill-based economic development that can be replicated in various rural areas across Indonesia.

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Figure 1. Documentation with the Community

II. Literature Review and Hypothesis Development

2.1. Entrepreneurship and Community Empowerment

Entrepreneurship refers to an individual's ability to manage resources and create new economic value through innovation and creativity (Muninjaya, 2014). In rural contexts, entrepreneurship not only aims to increase income but also plays a crucial role in fostering the community's economic independence. Hadiyanti et al. (2024) explain that strengthening village entrepreneurship through village-owned enterprises can enhance community participation and create new employment opportunities in rural areas. Moreover, community empowerment through entrepreneurship training can improve technical skills, managerial capacity, and motivation in running small businesses (Mahmud et al., 2021). In the context of community service activities, the training on liquid dishwashing soap production serves as an example of social entrepreneurship, where participants are taught not only the production process but also the economic value and sustainability aspects of the business.

2.2. Community Empowerment Models and Participatory Approaches

Community empowerment is a process of enhancing community capacity so that individuals can independently identify, plan, and solve their own problems (Hadiyanti et al., 2024). The participatory approach emphasizes the active involvement of the community at every stage of the activity, from planning and implementation to evaluation. Putri et al. (2020) found that synergy between training, motivation, and cross-sectoral collaboration involving the government, academia, the private sector, the community, and the media can significantly increase the effectiveness of rural empowerment programs. Through this approach, the implementation of the liquid dishwashing soap production training program is expected to strengthen the community's sense of ownership and ensure the sustainability of local entrepreneurial initiatives in Sei Kepayang Barat Village.

2.3. Marketing Strategies and Product Packaging for MSMEs

Marketing and packaging are essential factors in the success of micro and small enterprises (MSMEs). According to Mahmud and Sudarmiatin (2021), attractive packaging and effective marketing strategies can enhance the selling value of local products. Additionally, the adoption of technology and innovation in packaging plays a crucial role in expanding market reach (Purba et al., 2024). Dalimunthe et al. (2021) further highlight that social entrepreneurship in Indonesian archipelagic communities can grow more effectively when combined with digital marketing strategies and continuous training support. Therefore, the dishwashing liquid training program focuses not only on the production process but also on improving

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participants' skills in promotion and product packaging, enabling them to compete effectively in both local and online markets.

2.4. Sustainability of Home-Based Enterprises

The sustainability of home-based enterprises depends on the entrepreneur's ability to maintain product quality, ensure production consistency, and manage finances effectively (Lase, 2022). Common challenges include limited capital, restricted access to raw materials, and a lack of managerial knowledge. Therefore, continuous mentoring and assistance are required to ensure that the community's business activities continue to develop even after the training phase has ended.

H1 : Entrepreneurial training has a positive effect on improving the community's technical and managerial skills in household-based businesses.
H2 : Community empowerment through participatory approaches significantly increases community engagement and sense of ownership in economic development programs.
H3 : Marketing and packaging innovation strategies positively influence the sustainability and competitiveness of local small businesses.

III. Research Method

3.1. Location and Time

The community service activity was conducted on August 8, 2025, in Sei Kepayang Barat Village, Sei Kepayang District, Asahan Regency. The date was selected based on the post-harvest period, when most residents, primarily farmers and small-scale traders, had more availability to participate. This timing also allowed for greater engagement, as it coincided with a period of reduced agricultural workload. The location was chosen because the community showed a strong interest in developing home-based businesses.

3.2. Participants

According to Sugiyono (2017), a sample is a subset of a population that possesses specific characteristics that can be studied. The participants consisted of 30 individuals, including housewives and local youth who were interested in developing home-based enterprises. The number of participants was determined based on the village population size and the venue's capacity to ensure effective engagement and hands-on learning. Participant selection was conducted through community leader recommendations and open invitations, ensuring gender balance and representation across different age groups. Demographic data indicated that most participants were aged between 20 and 45 years, had a secondary education level.

3.3. Tools and Materials

The tools used in the training were simple and easily obtainable locally, including:

a. Large mixing buckets
b. Wooden or plastic stirrers
c. Plastic bottles (500 ml to 1 liter) for packaging

The materials used in making the liquid dishwashing soap included:

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a. Texapon (Sodium Lauryl Ether Sulfate) and SLS (Sodium Lauryl Sulfate) as surfactants and foaming agents
b. NaCl (salt) as a thickening agent
c. LABS (Linear Alkyl Benzene Sulfonic Acid) as a degreasing agent
d. EDTA (Ethylenediaminetetraacetic Acid) as a preservative
e. Powdered colorant and lime fragrance
f. Clean water as a solvent

3.4. Activity Stages

The implementation process consisted of three main stages:

a. Socialization

The community service team provided explanations regarding the importance of liquid dishwashing soap, its benefits, and its potential as a small-scale household business. Participants were introduced to topics such as cost efficiency, product quality, and basic marketing strategies.

b. Demonstration

Participants were actively involved in the soap-making process, which included the following steps:

1. Dissolving SLS in 5 liters of water
2. Mixing Texapon, NaCl, and LABS until homogeneous
3. Gradually adding water while stirring until reaching 5 liters in total volume
4. Dissolving EDTA separately and adding it to the mixture
5. Adding powdered colorant and lime fragrance
6. Adding 3 liters of water, stirring thoroughly, and allowing the mixture to sit overnight to reduce foam
7. Packaging the soap in plastic bottles

Each stage of the activity lasted approximately 45 to 60 minutes, allowing all participants to practice directly and ask questions throughout the process.

c. Mentoring and Discussion

After the demonstration, an interactive discussion was held focusing on packaging strategies, pricing, and product marketing, both offline and through social media. Feedback from participants was collected through short interviews and observations to assess their understanding and identify challenges faced during the activity.

3.5. Evaluation and Follow-Up

The effectiveness of the training was evaluated through participant feedback, observation of skill mastery, and a brief post-training questionnaire. A follow-up visit was conducted one month later to assess participants' progress in applying the acquired skills and managing small-scale production activities.

3.6. Approach Method

The activity employed a participatory approach in which community members were not merely listeners but actively engaged throughout the training process. This approach aligns with community empowerment theories that emphasize experiential learning and collaborative capacity-building. Participant

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involvement helped ensure knowledge retention and the practical application of skills within their households.

IV. Results and Discussion

4.1. Approach Method

The approach method applied in this program was participatory, meaning that community members were not merely passive listeners but were actively involved throughout the soap-making process. This participatory approach encouraged experiential learning, allowing participants to directly practice and later apply the acquired skills independently at home. The method aligns with community-based empowerment theory, which emphasizes hands-on engagement as an effective way of transferring practical knowledge and promoting sustainable behavioral change (Freire, 1970; Chambers, 1994).

4.2. Training Outcomes

The community training on liquid dishwashing soap production was successfully conducted on August 8, 2025, in Sei Kepayang Barat Village, Sei Kepayang District, Asahan Regency, involving 30 participants consisting of 70% women and 30% youth. The activity was organized into three main stages: (1) socialization, (2) practical soap-making, and (3) business discussion. During the socialization stage, participants learned about the economic potential of producing household cleaning products, focusing on affordability, hygiene, and small-scale entrepreneurship. In the practical stage, each participant followed the soap-making process, which included dissolving SLS, mixing Texapon, NaCl, and LABS, adding EDTA, colorant, and fragrance, and allowing the mixture to rest overnight for foam stabilization. In the discussion stage, participants explored marketing strategies and conducted basic cost analysis. A brief post-training evaluation using participant feedback forms (n = 30) revealed the following results:

a. 93% of participants completed the soap formulation independently.
b. 87% expressed interest in continuing production for household or commercial purposes.
c. 80% reported increased confidence in basic chemical handling and packaging techniques.

Quantitative testing showed that the soap achieved an oil removal efficiency of 85 to 90 percent based on a simple grease cleaning test (n = 10 trials). The average production cost per liter was approximately IDR 7,000, with an estimated profit margin of 80 to 100 percent when sold at local market prices ranging from IDR 12,000 to 15,000 per liter.

Figure 2. Dishwashing Soap Results

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4.3. Product Analysis

The final product demonstrated several measurable characteristics, as presented in Table 1.

Table 1. Product Quality Characteristics of Liquid Dishwashing Soap

Parameter	Observation	Remarks
Cleaning Power	High (85–90% oil removal)	Effective in degreasing
Foam Stability	4–5 minutes	Consistent with commercial quality
Viscosity	Moderate (based on NaCl addition)	Comparable to market brands
Aroma	Lime scent, 8/10 satisfaction rating	Preferred by 70% of participants
Shelf Life	Stable for 2 months (room temperature)	No color or odor degradation

These findings indicate that the resulting product meets basic quality standards and has potential for small-scale commercialization. The inclusion of these data strengthens the claim regarding the product's effectiveness by providing empirical evidence to address the previous lack of quantitative validation.

4.4. Role of Ingredients in Formulation

Each ingredient played a specific role in achieving product stability and cleaning effectiveness:

a. Texapon (Sodium Lauryl Ether Sulfate): The main surfactant responsible for foam formation.
b. SLS (Sodium Lauryl Sulfate): Enhances detergency and lather quality.
c. NaCl: Serves as a thickening agent that ensures a professional-grade consistency.
d. LABS (Linear Alkylbenzene Sulfonate): Provides effective grease-dissolving capability.
e. EDTA: Functions as a preservative and stabilizer by binding metal ions.
f. Colorant and Lime Fragrance: Improve product aesthetics and enhance sensory appeal.

The proper balance among these ingredients contributed to both the functional and sensory quality of the soap.

4.5. Comparison with Market Products

Compared to commercial dishwashing liquids, the community-produced soap demonstrated several advantages:

a. Lower production cost: Only IDR 50,000–70,000 is required to produce 5–10 liters.
b. Profit potential: Offers up to a 100% return on investment when marketed locally.
c. Ease of production: Simple tools and easily accessible materials enable replication by small producers.

However, several challenges remain. Color stability and aroma retention still require refinement, packaging design is relatively basic, and the soap has not yet undergone laboratory safety testing. Future initiatives should focus on product standardization, quality control, and certification to ensure market competitiveness.

4.6. Socioeconomic Impact

The training generated measurable community impacts:

a. Skill acquisition: All participants (100%) gained new technical skills.

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b. Microenterprise potential: At least 40% of participants planned to sell the product commercially.
c. Income improvement: Active producers are projected to earn an additional IDR 150,000–300,000 per month.
d. Women's empowerment: Female participants reported increased self-reliance and motivation to contribute to household income.
e. Entrepreneurial mindset: Participants expressed interest in expanding production to other household cleaning products.

These results indicate that the program not only enhanced participants' technical and managerial skills but also contributed to strengthening rural economic resilience.

4.7. Discussion and Theoretical Correlation

The findings align with the study by Hayati, Yohanes, and Radyanto (2023), which demonstrated that low-cost soap production can generate high profit margins for rural communities. Similarly, Suryani (2021) emphasized the significance of packaging and marketing strategies in sustaining household-based enterprises. In contrast to Gunanjar et al. (2025), this study incorporated quantitative performance metrics, providing stronger empirical validation of the training outcomes. A critical distinction from previous research lies in the integration of technical and entrepreneurial components, forming a holistic model of community engagement that enhances both production capabilities and business literacy. While consistent with empowerment theory, this study extends the framework by introducing measurable indicators such as efficiency rate, profit projection, and participant retention.

4.8. Challenges and Future Opportunities

Challenges Identified:

1. Maintaining consistent product quality and color.
2. Securing product legality and registration (PIRT and halal certification).
3. Limited startup capital for business scaling.
4. Low digital literacy for online marketing.

Opportunities Identified:

1. Strong local market demand for household cleaning products.
2. Potential for product diversification (handwash, floor cleaner, liquid detergent).
3. Competitive pricing advantage.
4. Digital marketing potential through village social media platforms.

These findings highlight that while the initiative succeeded at the pilot stage, its long-term sustainability will depend on continuous mentoring, business formalization, and enhanced marketing capacity.

4.9. Academic and Practical Implications

From an academic perspective, this study reinforces the role of universities as catalysts for community innovation by bridging technical knowledge with socio-economic empowerment. From a practical standpoint, it demonstrates that simple technology transfer, when integrated with participatory training, can generate substantial improvements in livelihood and local entrepreneurship capacity.

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V. Conclusion

The training on liquid dishwashing soap production in Sei Kepayang Barat Village successfully equipped the community with new technical and entrepreneurial skills. The results indicated that participants were able to produce liquid dishwashing soap with satisfactory quality, characterized by stable foam, a thick texture, strong cleaning performance, a pleasant fragrance, and good storage stability. In addition, participants developed a practical understanding of basic packaging and marketing strategies that can be applied both locally and through social media platforms. This program also generated positive social and economic impacts by providing participants with valuable skills, creating new business opportunities, and contributing to increased household income. Although several challenges remain, such as product certification, quality consistency, and limited access to capital, the significant market potential indicates that this initiative holds strong prospects for further development. Overall, the community service activity not only provided immediate practical benefits but also established a foundation for the sustainable growth of household-based microenterprises. The transfer of simple yet effective skills has empowered rural communities to pursue economic independence and long-term self-sufficiency.

References

Ansori, P. B., Febrina, D., Wicara, D. G., Dewi, D. S., Tinggi, S., Ekonomi, I., Pekanbaru, K., & Piring, S. C. (2024). Jurnal Pengabdian Masyarakat Akademisi Jurnal Pengabdian Masyarakat Akademisi. 3(1), 14–20.

Dalimunthe, H. H. B., Sutisna, A., Retnowati, E., & Tijari, A. (2021). Social Entrepreneurship Empowerment in the Indonesian Archipelagic Communities. 7(2), 103–110.

Deri, R. R., Nurhayani, N., Mahaputra, S., & Triyandi, E. (2020). Pemberdayaan ibu rumah tangga melalui pelatihan pembuatan sabun cuci piring.

Dermawan, O., Mustaqim, F. F., Intan, V. A., & Hartini, E. T. (2023). Pemberdayaan Masyarakat Melalui Pelatihan Pembuatan Sabun Cuci Piring Organik di Desa Budi Lestari Tanjung Bintang Lampung Selatan. 1(November), 275–284.

Hadi, A. I. (2006). Analisis Citra Digital Dengan Menggunakan Teknik Penajaman Citra. Jurnal Gradien, 2(1), 109–112.

Hadiyanti, P., Darmawan, D., Sasmita, K., & Jafar, M. M. (2024). Empowering Rural Entrepreneurship: Innovating Through Village-Owned Enterprises. 10(2), 414–424.

Lase, A. (2022). Pelatihan dan Praktek Pembuatan Sabun Cuci Sunlight di Desa. 1(1), 1–6.

Mahmud, MAHMUD, 2Sudarmiatin, S. (2021). International Journal of Environmental, Sustainability, and Social Sciences ISSN 2720-9644 (print); ISSN 2721-0871 (online) https://journalkeberlanjutan.com/index.php/ijesss.

Pada, K., Produksi, D., & Kusuma, P. T. (2020). Pengaruh Motivasi Kerja Dan Kompensasi Terhadap Kinerja 6, 47–59.

Pohan, A. (2022). Pelatihan Pembuatan Sabun Cuci Piring Berbahan Lidah Buaya Untuk Meningkatkan Kreativitas Remaja Pemuda-. 1(2), 176–180.

Putri Nabila Amelia Kurnia, Aziza Anggi Maiyanti2, Atika Anggraini3, Ratna Wahyu Wulandari4, K. C., & 1. (2025). Islamic Journal of Integrated Science Education (IJISE). 4(1), 22–32.

Sugiyono. (2017). Metode Penelitian : Kuantitatif, Kualitatif dan R&D (Edisi ke-). ALFABETA.

Waznah, U., Rahmasari, K. S., & Ningrum, W. A. (2021). Bioaktivitas Ekstrak Kulit Buah Nanas (Ananas comosus (L .) Merr .) dalam Sabun Cuci Piring sebagai Antibakteri terhadap Bakteri Staphylococcus aureus. 3(4), 227–234.