

Transformasi Sampah Menjadi Peluang Usaha: Pelatihan Ekonomi Kreatif bagi Perempuan Morowali

*Transforming Waste into Business Opportunities: Creative Economy Training for
Women Morowali*

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Abstrak

Program pengabdian masyarakat ini bertujuan untuk memberdayakan perempuan dari Kabupaten Morowali melalui pelatihan intensif pengolahan sampah menjadi produk bernilai ekonomi dalam bingkai ekonomi kreatif. Kegiatan ini dilaksanakan di Surabaya selama lima hari dan melibatkan 80 peserta. Materi pelatihan mencakup pemilahan sampah, pengolahan limbah menjadi produk kerajinan, penetapan harga jual, pengemasan, serta strategi pemasaran digital. Pelatihan ini melibatkan kolaborasi dosen dari tiga perguruan tinggi dan dua praktisi industri pengolahan sampah. Berdasarkan evaluasi, peserta menunjukkan peningkatan signifikan dalam pemahaman teori (dengan 20% kategori sangat baik dan 33% kategori baik) serta keterampilan praktik pembuatan produk kreatif. Program ini tidak hanya meningkatkan keterampilan teknis peserta, tetapi juga membangun semangat kewirausahaan dan kesadaran lingkungan. Hasil pelatihan menunjukkan bahwa perempuan memiliki potensi besar sebagai agen perubahan dalam menciptakan peluang ekonomi dari sampah rumah tangga.

Kata kunci: Pengolahan_Sampah; Ekonomi_Kreatif; Pemberdayaan_Perempuan;
Kewirausahaan_Sosial; Pelatihan_Komunitas

Abstract

This community service program aims to empower women from Morowali Regency through intensive training on transforming waste into economically valuable products within the framework of the creative economy. The activity was held in Surabaya for five days, involving 80 participants. The training materials covered waste sorting, recycling into handicraft products, pricing strategies, packaging, and digital marketing. The program was delivered through collaboration between lecturers from three universities and two waste management practitioners. Based on the evaluation, participants showed significant improvements in theoretical understanding (with 20% rated as excellent and 33% as good) as well as practical skills in product creation. This program not only enhanced technical skills but also fostered entrepreneurial spirit and environmental awareness. The results indicated that women have strong potential as agents of change in generating economic opportunities from household waste.

Keywords: *Waste_Processing; Creative_Economy; Women's_Empowerment; Social_Entrepreneurship; Community_Training*

INTRODUCTION

Morowali Regency in Central Sulawesi is known as one of Indonesia's rapidly developing mining industrial zones. However, industrial growth does not always align with community awareness regarding environmental management, particularly in the area of household and non-organic waste management. Behind the unmanaged piles of waste lies great potential to be transformed into economically valuable products through a creative economy approach (Latifah & Machdum, 2025). Waste, often regarded as worthless residue, can be converted into raw materials for creative products such as handicrafts, accessories, and functional goods with high market value (Sultana et al., 2024).

The urgency of this initiative becomes even more apparent when considering the low participation rate of women in the creative economy sector in this region, especially in utilizing waste as a business opportunity (Kusuma et al., 2025). Women in Morowali possess significant potential as drivers of family and community economies, but limited access to training, information, and market networks continues to hinder the development of waste-based enterprises (Wulandari et al., 2024). Therefore, an empowerment-based approach through technical training becomes a highly strategic step in opening up space for women's participation in an environmentally friendly creative economy (Simondinata et al., 2025).

As a contribution to capacity building particularly for women a five-day Creative Economy Technical Guidance (*Bimbingan Teknis* or *Bimtek*) program was held in March 2025 at Hotel 88, Surabaya. This activity was not only a technical training event but also served as an inspiring and collaborative forum that brought together academic and practitioner perspectives. The service program was conducted by three lecturers from different universities: Dr. Chusnul Rofiah from Institut Teknologi dan Bisnis PGRI Dewantara Jombang, Dr. Idham from Universitas Alkhairaat Palu, and Dr. Diana Rapisari from Universitas Bhayangkara Surabaya. In addition, two waste management practitioners were involved to provide practical and field-based insights.

This *Bimtek* was designed to address the community's challenges in waste management and creative product development. Training materials included identifying recyclable waste types, basic and advanced techniques for turning waste into creative products, digital-based marketing strategies, and community-based small business management (Lodi et al., 2025). The participants, most of whom were women from various communities in Morowali, were guided to develop products such as recycled bags, pencil cases made from used plastic bottles, and accessories from textile scraps.

Throughout the training, participants not only learned theory but also engaged in hands-on practice guided by experienced facilitators. Activities were conducted in the form of interactive workshops, group discussions, case studies, and market

simulations. A highlight of the program was the “Product Demo” session on the fourth day, where participants showcased their processed goods and received feedback from facilitators and peers. On the final day, participants’ competencies were evaluated, and a follow-up plan was formulated to sustain the businesses initiated during the training.

The program was attended by approximately 80 participants from diverse backgrounds, including housewives, PKK (Family Welfare Program) volunteers, and aspiring MSME entrepreneurs. The enthusiasm of the participants was evident in their active involvement throughout the sessions, as well as in the emergence of new waste-based business ideas following the event.

This *Bimtek* is expected to serve as a catalyst for developing a sustainable, environmentally based creative economy ecosystem in Morowali. Through the empowerment of women, the training aims not only to enhance technical skills but also to build confidence, entrepreneurial networks, and collective environmental awareness through innovation and creativity. In the long run, participants are expected to become change agents in their communities, spearheading creative waste management movements and generating inclusive, impactful economic opportunities.

2. METHOD

The implementation of the training program titled “*Developing Local Potential: Transforming Waste into Economic Value*” adopted a structured, participatory, and community-based approach. This method was designed to address the specific socio-economic and environmental contexts faced by women in Morowali Regency, Central Sulawesi particularly those related to limited access to knowledge, market networks, and entrepreneurial skills in the creative economy sector. Pendekatan Participatory Action Research (PAR) dalam kegiatan ini diimplementasikan melalui proses yang berkesinambungan antara observasi, perencanaan kolaboratif, aksi partisipatif, dan refleksi bersama.

Prinsip *cyclical engagement* yang menjadi karakteristik utama PAR dijalankan melalui tahapan berikut:

- **Pra-kegiatan**, dilakukan *needs assessment* melalui wawancara informal dan Focus Group Discussions (FGD) dengan calon peserta di Morowali, yang hasilnya digunakan untuk menyusun materi pelatihan dan menentukan metode yang sesuai dengan kondisi lokal.
- **Selama pelatihan**, keterlibatan peserta tidak hanya sebagai penerima materi, tetapi juga sebagai *co-creator*, dibuktikan dengan partisipasi mereka dalam merancang model bisnis berbasis komunitas, memilih jenis produk daur ulang yang dikembangkan, serta menyusun konten pemasaran.
- **Pasca kegiatan**, dirancang rencana tindak lanjut berupa pembentukan kelompok usaha komunitas, mentoring daring bulanan, serta pameran lokal.

Beberapa peserta juga diusulkan sebagai *duta komunitas* untuk menjembatani replikasi program ke wilayah lain.

Cyclical Training Flowchart: Creative Economy Empowerment in Morowali



Figure: Cyclical Training Flowchart: Creative Economy Empowerment Morowali, 2025

Dengan demikian, pelatihan ini mengoperasionalkan prinsip-prinsip PAR secara utuh, di mana peserta menjadi subjek aktif dalam proses perubahan, bukan sekadar objek pelatihan.

1. Needs Assessment and Contextual Analysis

Prior to the training, a qualitative needs analysis was conducted through informal interviews and participatory observation with local women's groups and community representatives. This diagnostic step revealed key constraints, including:

- Lack of technical skills in waste processing and upcycling.
- Limited confidence and experience in marketing self-made products.
- Minimal exposure to digital tools and platforms for promotion.
- Absence of community-driven business models that promote collaboration and sustainability.

These findings informed the design of the training modules to ensure content relevance, cultural sensitivity, and alignment with the participants' lived experiences.

2. Integrated and Progressive Learning Modules

The training employed a progressive learning method structured across **five consecutive days** in March 2025, held at Hotel 88, Surabaya. The first day was dedicated to **theoretical sessions** delivered by a panel of interdisciplinary experts:

- **Dr. Idham:** Local Economic Strategies—introducing grassroots enterprise development in rural contexts.
- **Dr. Diana Rapisari:** Community-Based Women's Empowerment—focusing on gender inclusion and collective agency.
- **Dr. Chusnul Rofiah:** Creative Economy Concepts and Practices—emphasizing innovation, sustainability, and economic resilience.
- **Syarifudin Hidayat, MM:** Waste Sorting Techniques—explaining classification, safety, and preparation of materials.
- **Daniel Yoga, M.Si.:** Collective Work and Ecosystem Building in Waste Management—highlighting collaboration and environmental ethics.

Each session was designed to foster interactive engagement, combining visual presentations, storytelling, and participatory Q&A forums to encourage knowledge internalization.

3. Hands-On Practical Workshops

From days two to five, the training transitioned into intensive **hands-on workshops** organized into thematic stations and peer-led group activities. These included:

- **Sorting and Preparing Waste:** Participants learned to distinguish recyclable waste types (plastic, textiles, paper, organic matter) and applied basic cleaning and safety techniques.
- **Creative Transformation Techniques:** Through guided demonstrations, participants converted waste into marketable products such as recycled tote bags, flower vases, pencil holders, and fabric-based accessories.
- **Packaging and Pricing:** Sessions on how to design attractive product packaging using low-cost materials, determine break-even points (BEP), and apply simple costing formulas.
- **Digital and Community Marketing Simulation:** Participants practiced promoting their products via mock social media campaigns using smartphones, posters, and storytelling videos. They role-played as sellers, buyers, and content creators, simulating real-market interactions.

4. Peer Discussion and Collaborative Learning

Each practical session was followed by **group discussions**, reflection circles, and micro-consultation clinics. These allowed participants to:

- Share personal experiences and challenges.
- Co-develop ideas for product innovation and collective business models.
- Receive targeted feedback from facilitators and fellow learners.

This structure promoted **mutual learning**, strengthened social cohesion among participants, and stimulated creative thinking through localized problem-solving.

5. Final Evaluation and Reflective Planning

On the fifth day, a **multi-dimensional evaluation** was conducted, including:

- **Written test** on theoretical understanding (15 multiple-choice questions).
- **Practical assessment** of product creation, covering functionality, aesthetic value, and marketability.
- **Self-reflection worksheets** where participants articulated their learning outcomes, business ideas, and future plans.

Facilitators also held a feedback session to identify which aspects of the program were most beneficial and what areas required further support.

6. Follow-Up Planning

The session concluded with collaborative planning for follow-up mentoring, local exhibitions, and digital platform development (Sarkar et al., 2022). The goal is to ensure **sustainability of impact** through continued capacity building, institutional support, and peer-to-peer mentoring among participants.

Teori pemberdayaan menurut Zimmerman (2000) menekankan tiga komponen utama: *intrapersonal empowerment* (self-efficacy), *interactional empowerment* (kemampuan berpikir kritis dan strategis), serta *behavioral empowerment* (keterlibatan dalam aksi nyata). Dalam implementasi pelatihan ini, ketiga dimensi tersebut diakomodasi secara sistemik.

- **Intrapersonal empowerment** terlihat dari peningkatan kepercayaan diri peserta dalam membuat dan memasarkan produk, yang diukur melalui *self-assessment worksheets* dan *role-play simulations*. Sebanyak 20% peserta menunjukkan kategori *excellent*, dan 33% berada pada kategori *good* dalam evaluasi kompetensi akhir, yang menunjukkan peningkatan self-efficacy secara signifikan.
- **Interactional empowerment** dibangun melalui sesi diskusi kelompok dan micro-consultation clinics, di mana peserta dilatih untuk menganalisis peluang usaha, mengidentifikasi hambatan pemasaran, serta merumuskan solusi berbasis sumber daya lokal. Hal ini mencerminkan kemampuan berpikir kritis yang berkembang selama proses pelatihan.
- **Behavioral empowerment** diwujudkan dalam bentuk aksi nyata peserta dalam praktik produksi, pemasaran digital sederhana, serta rencana pembentukan kelompok usaha komunitas pasca pelatihan.

Dengan demikian, penerapan teori pemberdayaan tidak hanya bersifat simbolik, tetapi benar-benar terimplementasi melalui pendekatan *learning by doing* yang dirancang secara progresif dan kontekstual.

This method integrates elements of **experiential learning**, **community empowerment**, and **social entrepreneurship pedagogy**, ensuring that participants are not only equipped with technical skills but also empowered with a growth mindset and entrepreneurial vision. In doing so, the training contributes to the long-term goal of building an inclusive, eco-conscious, and economically resilient community in Morowali. Model Ekonomi Kreatif dari Howkins (2013) menekankan eksplorasi ide, pengolahan nilai tambah dari aset non-material, serta inovasi berkelanjutan sebagai basis pertumbuhan ekonomi. Dalam konteks

Morowali, adaptasi model ini dilakukan dengan pendekatan *glocalization*—yakni penerapan prinsip-prinsip global dengan penyesuaian konteks lokal.

- **Kreativitas lokal** diidentifikasi melalui eksplorasi material limbah yang tersedia di lingkungan peserta, seperti plastik bekas, kain perca, dan botol minuman, yang kemudian diolah menjadi tas, pot, dan aksesoris. Hal ini menunjukkan pemanfaatan potensi lokal secara inovatif.
- **Pasar digital**, meski masih menjadi tantangan, telah diperkenalkan secara bertahap melalui simulasi pemasaran berbasis media sosial (Instagram, TikTok), storytelling produk, dan role play. Kegiatan ini tidak hanya mengenalkan media digital, tetapi juga membangun *digital awareness* dan kesiapan mental untuk masuk ke pasar daring.
- Untuk jangka panjang, program ini merencanakan inkubasi usaha kreatif melalui platform daring yang dikembangkan bersama pusat studi kewirausahaan. Ini menjadi bukti bahwa model ekonomi kreatif Howkins dapat disesuaikan dan diintegrasikan ke dalam ekosistem kewirausahaan perempuan berbasis komunitas. Dengan pendekatan tersebut, ekonomi kreatif tidak hanya menjadi wacana, tetapi dijadikan alat transformatif yang relevan dan aplikatif, bahkan dalam konteks komunitas marginal.

3. RESULTS AND DISCUSSION

Activity Description in the Training "Waste Processing for Economic Value and Creative Economy" for Women of Morowali Regency in Surabaya

1. Introduction and Motivation Session (Day One)

Participants were introduced to the objectives and benefits of the training. Motivation was given regarding the importance of developing local potential from waste and the role of women in supporting environmental sustainability and household economy. Participants were also given the opportunity to express their expectations for the training (Niego et al., 2021).



Figure: Community Service Team Delivering the Training Material, 2025

2. Training Material Delivery (Day One and Day Two)

The materials were delivered by five speakers: Dr. Idham discussed local economic strategies; Dr. Diana Ralitasari focused on community-based women's empowerment; Dr. Chusnul Rofiah explored concepts and practices of creative economy from waste; Syarifudin Hidayat, MM presented waste separation techniques; and Daniel Yoga, M.Si. elaborated on collective work in waste ecosystem management.



Figure: Community Service Team Delivering the Training Material, 2025

3. Practical Sessions (Day Two and Day Three)

Participants engaged in hands-on practice of sorting and processing waste into handicrafts and economically valuable goods. Activities included identifying waste

types, cleaning, creative processing, and product arrangement. Instructors provided both individual and group mentoring during the practice.

4. Group Discussions (Day Three and Four)

Participants were divided into small groups to discuss challenges, opportunities, and marketing strategies for recycled products. The discussions focused on community-based business action plans and product design innovations (Popelo et al., 2021).

5. Role Play (Day Four)

Simulations were conducted to demonstrate the process of selling creative products from waste and the dynamics of consumer interactions. Participants acted as sellers, buyers, and production teams to understand the value chain collaboratively (Rodríguez-Insuasti et al., 2022).



Figure: Group Photo of Participants and Community Service Team, 2025

6. Evaluation and Closing (Day Five)

Evaluations were conducted through written tests and product-making practices. Participants were given the opportunity to share feedback and impressions. Certificates of completion were awarded, and a follow-up plan was formulated including business mentoring and product exhibitions.

Throughout the training, participants engaged in presentations, discussions, case studies, individual and group tasks, and Q&A sessions. The training aimed to equip participants with practical skills and strategic insights in waste management and creative product development (Rosyidin et al., 2024).

The service activity began with a preparation phase, including coordination among the facilitators to schedule and assign tasks based on expertise. The expected outcomes in the next phase included increasing knowledge, technical skills, and participants' confidence to initiate waste-based businesses.

1. Theory

From this activity, 80 participants demonstrated knowledge acquisition. Based on a 15-question multiple-choice test, results showed: 16 participants (20%) achieved

an excellent category, 26 participants (33%) good, and 38 participants (47%) sufficient. None were in the poor category.

2. Waste Product Processing Skills

Practical activities involved demonstrations and the creation of products such as recycled bags, plant pots from used bottles, and decorations from fabric scraps. Days two and three focused on production, while the fourth day emphasized content creation for social media marketing (Agustine et al., 2021).

During practical sessions, participants formed work teams and prepared production media for the following days. They worked through stages such as material preparation and proper production techniques. Some challenges faced included weak products, unproportional shapes, or unappealing colors. Practical evaluations were conducted to assess skill mastery: 12 people (60%) were in the good category, 5 people (25%) in moderate, and 3 people (15%) in poor. The average skill level was moderate.

3. Product Pricing and Packaging

The training also provided knowledge about elements in determining final selling prices, such as material costs, operational expenses, cost price, and profit margins (Sharabati et al., 2024). Participants learned price calculation steps and how to estimate the Break Even Point (BEP). Those who successfully determined BEP showed good understanding of sales projections and business planning.

Participants were also introduced to packaging aspects, including attractive product packaging examples and business logo creation for marketing. Business management knowledge was shared, including basic principles of digital marketing. Activities included group discussions, case studies, role play, and open forums to exchange ideas, clarify doubts, and share experiences.

This training is expected to provide a solid foundation for participants to develop creative production skills from waste and to enhance their understanding of compliance with business management and digital marketing principles.

Participant Success Graph in Understanding Training Materials

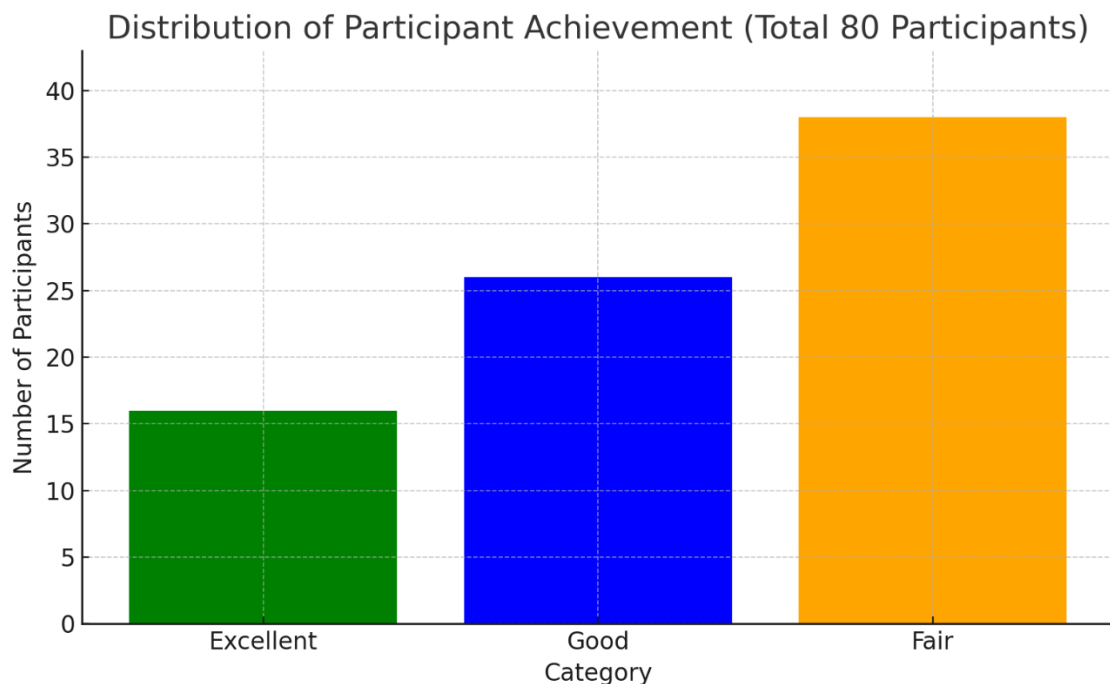


Figure: Participant Achievement Distribution Chart, 2025

The success graph illustrating the distribution of 80 participants by category:

- Excellent: 16 participants
- Good: 26 participants
- Sufficient: 38 participants

1. Distribution Composition

- Excellent (20%): Indicates a minority of participants with in-depth understanding of the material. Likely due to prior knowledge or experience.
- Good (33%): A middle group with strong comprehension, needing further development for advanced analysis and practice. They are potential community mentors.
- Sufficient (47%): The largest group, indicating most participants were newly introduced to creative economy and waste utilization. Needs additional reinforcement and structured practice.

2. Implications for Training Strategy

- Materials were well delivered as there were no participants in the “poor” category.
- Nearly half of the participants are at the basic understanding stage, suggesting adjustments in delivery pace and follow-up training.

- Good and excellent participants can be involved in peer-to-peer mentoring in future sessions.

3. Recommendations

- For sufficient group: Provide visual/audio-based modules and local case studies.
- For good/excellent group: Engage them in community development and as training ambassadors in their local areas.
- Overall, follow-up programs such as advanced training and intensive mentoring are needed to ensure theoretical understanding aligns with practical skills and business success.

SWOT Analysis: Post Creative Economy Training in Morowali

Strengths	Weaknesses
<ul style="list-style-type: none">• 80 active participants from diverse backgrounds• High enthusiasm toward creative economy topics• Strong collaboration between lecturers and practitioners	<ul style="list-style-type: none">• 47% participants with basic understanding• Limited experience in digital marketing• Inadequate practical tools in local areas
Opportunities	Threats
<ul style="list-style-type: none">• Growing market demand for recycled products• Government support for MSMEs and environment• Potential for participants to be local trainers	<ul style="list-style-type: none">• Competition from digital-based craft products• Lack of continuity in post-training programs• Limited access to capital and e-commerce

Figure: Participant SWOT Analysis, 2025

Follow-Up Strategies:

1. S-O Strategy (Strengths–Opportunities):

Leverage the enthusiasm of participants and market opportunities for recycled products. Create a community-based incubator group active on social media like Instagram, TikTok, and WhatsApp Business (Rittl et al., 2025). Activities include:

- Joint social media accounts for product catalogs
- Rotational digital content scheduling
- Storytelling training about recycled products
- Appointing community ambassadors

2. W-O Strategy (Weaknesses–Opportunities):

Address limited experience through practical follow-up training:

- Intensive digital marketing workshops
- Training in basic tools and natural coloring techniques
- Video tutorials in local language
- Light internships at established waste-based MSMEs

3. **S-T Strategy (Strengths-Threats):**

Build a sustainability roadmap through:

- Multi-year service programs
- Partnerships with BUMDes, CSR, Environmental and Cooperative Agencies
- Online community marketplaces
- Regional showcase galleries

4. **W-T Strategy (Weaknesses-Threats):**

Small group mentoring to ensure inclusivity:

- Peer groups led by good/excellent participants
- Monthly coaching via Zoom/WhatsApp
- Simple business management templates
- Regional mentoring and monitoring systems

This approach ensures all participants grow together and are not left behind in facing digital market challenges.

CONCLUSION

Based on the results of the creative economy and waste processing training in Morowali Regency, several general conclusions can be drawn as follows:

1. **Product Diversification from Waste**

Participants' knowledge and skills in processing waste into economic products such as recycled bags, plant pots from used bottles, and crafts from fabric scraps are still at a basic level and require improvement. Many participants were introduced to these techniques for the first time, indicating the need for follow-up training and intensive mentoring.

2. **Cost Efficiency and Digital Marketing Potential**

Most participants still face limitations in understanding digital marketing strategies. Although there is significant potential in using social media to promote recycled products, familiarity with platforms such as Instagram, TikTok, and marketplaces remains low. Intensive training and further technical guidance are needed to enable participants to fully leverage digital tools.

3. **Product Creation and Packaging Skills**

Participants demonstrated the ability to produce and package marketable products. Some even showed high levels of creativity in product design and presentation, though challenges remain in maintaining consistent production quality.

4. **Knowledge of Pricing Strategies and Break-Even Point (BEP)**

The training has equipped participants with basic knowledge of how to determine product selling prices and calculate the break-even point. This forms an essential foundation for launching small-scale home businesses.

5. **Readiness to Develop Home Industries**

Participants are now equipped to develop household businesses based on waste-derived products. These ventures have the potential to improve family welfare while also contributing to environmental solutions.

6. **Introduction to Dewantara Entrepreneurship Study Center**

This activity also served as a platform to introduce participants to institutions that support women's entrepreneurship and sustainable waste management.

7. Synergy among Academia, Government, and Communities

This community service program has strengthened collaboration among academic institutions, local government, and community members through joint efforts in training, facilitation, and small business development (Rumefi et al., 2024).

RECOMMENDATIONS

Based on the above conclusions, the following recommendations are proposed:

- a. Continue to develop skills in producing creative waste-based products, particularly for participants who have shown high potential to become community business pioneers.
- b. Organize advanced training on e-commerce and digital marketing strategies, including the use of platforms like Instagram, TikTok, and YouTube to expand market reach.
- c. Build a community network of women creative entrepreneurs as a space for sharing experiences, conducting collective marketing, and receiving ongoing mentorship.
- d. Local governments and higher education institutions should collaborate to provide training facilities, mentoring programs, as well as access to capital and regular product exhibition opportunities.
- e. Conduct regular monitoring and evaluation to assess participants' business progress and develop adaptive training strategies that meet real field needs.

With this approach, it is expected that training participants can become change agents in their communities, building independent, eco-friendly, and sustainable businesses.

REFERENCE

- [1] Augustine, I. A., Sulistiyowati, I., & Sukrianto, S. (2021). Ekonomi Kreatif Berbasis Daur Ulang Sampah Daun (Tulang Daun). *Prosiding Seminar Nasional Pengabdian Masyarakat LPPM UMJ*, 1(1).
- [2] Kusuma, N. P. D., Serihollo, L. G. G., Pratiwi, R., Amalo, P., Valentine, R. Y., Hariyadi, D. R., Usman, Z., Nomleni, A., & Zulendra, M. F. (2025). Growth Evaluation of the Seaweed *Kappaphycus striatus* F. Schmitz (Solieriaceae: Rhodophyta) with Mass Selection Method. *Egyptian Journal of Aquatic Biology & Fisheries*, 29(2).
- [3] Latifah, N., & Machdum, S. V. (2025). Women's empowerment: Providing advocacy and support for a comprehensive and sustainable waste management in Sembalun. *Asian Journal of Management, Entrepreneurship and Social Science*, 5(03), 107–135.
- [4] Lodi, C., Sacchi, A., & Vidoli, F. (2025). Gender politics, environmental behaviours, and local territories: evidence from Italian municipalities. *The Annals of Regional Science*, 74(2), 1–33.
- [5] Niego, A. G., Rapior, S., Thongklang, N., Raspé, O., Jaidee, W., Lumyong, S., & Hyde, K. D. (2021). Macrofungi as a nutraceutical source: Promising bioactive

- compounds and market value. *Journal of Fungi*, 7(5), 397.
- [6] Popelo, O., Tulchynska, S., Garafonova, O., Kovalska, L., & Khanin, S. (2021). Methodical approach to assessing innovative development efficiency of regional economic systems in the conditions of the creative economy development. *WSEAS Transactions on Environment and Development*, 17, 685–695.
- [7] Rittl, L. G. F., Zaman, A., & de Oliveira, F. H. (2025). Digital Transformation in Waste Management: Disruptive Innovation and Digital Governance for Zero-Waste Cities in the Global South as Keys to Future Sustainable Development. *Sustainability*, 17(4), 1608.
- [8] Rodríguez-Insuasti, H., Montalván-Burbano, N., Suárez-Rodríguez, O., Yonfá-Medrand, M., & Parrales-Guerrero, K. (2022). Creative economy: a worldwide research in business, management and accounting. *Sustainability*, 14(23), 16010.
- [9] Rosyidin, A. L., Chatim, M., Rachmawati, D. R., Dianti, N., Suari, C. I. W., Citrawati, Y., Utami, I. A. P. P., Putri, S. S., Ahmad, L. F., & Pertiwi, D. A. P. (2024). Peningkatan Kualitas Lingkungan melalui Program Penghijauan dan Pengelolaan Sampah di Desa Sesaot: Implementasi KKN PMD UNRAM. *Masyarakat Berkarya: Jurnal Pengabdian Dan Perubahan Sosial*, 1(3), 112–122.
- [10] Rumefi, U., Ningtyas, H. I. R., & Maulim, W. (2024). Optimizing Batik MSMEs through the implementation of green economy and sustainable digitalization. *Abdimas: Jurnal Pengabdian Masyarakat Universitas Merdeka Malang*, 9(4), 1043–1055.
- [11] Sarkar, B., Ullah, M., & Sarkar, M. (2022). Environmental and economic sustainability through innovative green products by remanufacturing. *Journal of Cleaner Production*, 332, 129813.
- [12] Sharabati, A.-A. A., Ali, A. A. A., Allahham, M. I., Hussein, A. A., Alheet, A. F., & Mohammad, A. S. (2024). The Impact of Digital Marketing on the Performance of SMEs: An Analytical Study in Light of Modern Digital Transformations. *Sustainability*, 16(19), 8667.
- [13] Simondinata, G., Widjaja, R., & Ciawi, H. (2025). Empowering Local Communities Through Circular Economy: Transforming Cement Paper Waste into Eco-Friendly Packaging and Handicrafts. *Society: Jurnal Pengabdian Masyarakat*, 4(3), 508–518.
- [14] Sultana, T., Rokis, R., & Al-Attas, F. (2024). Encouraging Women's Empowerment: A Qualitative Analysis on Household Food Waste Management in Bangladesh Utilizing 5R Approach. *Saudi J. Humanities Soc Sci*, 9(8), 238–251.
- [15] Wulandari, A., Utoyo, B., & Caturiani, S. I. (2024). Women's empowerment in coastal areas: waste management based on circular economy paradigm (a case study on Pasaran Island, Bandar Lampung). *Proceeding International Seminar of Science and Technology*, 3, 17–26.