CATRA RESEARCH INSTITUTE
ISSN - 2809-7947 (PRINT)
ISSN - 2829-0771 (ONLINE)
AKUNTANSI HUMANIORA
JURNAL PENGABDIAN MASYARAKAT
PUBLISHING OKSI
Indexed By : GARUDA Google dbi ROAD ISJD EBSCO

SIMPLIFYING THE BLUE ECONOMY FOR MSMES IN THE RIVERBANK AND COASTAL AREAS OF KEROBOKAN, BULELENG: A SUSTAINABLE APPROACH TO COMMUNITY EMPOWERMENT

Komang Adi Kurniawan SAPUTRA[1], Putu Ayu Sita LAKSMI[2], I Wayan Werasmana SANCAYA[3], Made Adinda Anugrah Deva PRAMAISWARI[4], I Gede Candra Adi PRATIKA[5]
[1,2,3,4,5]Warmadewa University, Indonesia
Corresponding author: Komang Adi Kurniawan Saputra
E-mail: adikurniawan@warmadewa.ac.id

Article Info:
Received: 2025-04-29 Revised: 2025-05-29 Accepted: 2025-06-15
Vol: 4 Number: 2 Page: 58-64
Keywords:
Blue economy, coastal MSMEs, waste management, digital marketing, community empowerment

Abstract:
This community service program aims to empower MSMEs in the riverbank and coastal areas of Kerobokan, Buleleng, through the application of a simplified blue economy concept. The program was implemented for 8 months and involved 20 MSMEs from the "Rukun Sejati" Joint Business Group engaged in fisheries and egg-laying chicken farming. The methods used included three main approaches: (1) education through interactive workshops on blue economy principles, (2) technical assistance in processing waste into value-added products (organic fertilizer, fish bone chips), and (3) strengthening digital marketing through collaboration with PT KSI. The evaluation results showed an increase in understanding of the blue economy concept from 33% to 67%, a 40% reduction in organic waste in rivers, and an average increase in MSME income of 25% through product diversification and online marketing. The main challenges faced included resistance to change, limited digital infrastructure, and dependence on external assistance. The program succeeded in creating an empowerment model that integrates economic, social, and environmental aspects, with key recommendations being the formation of a permanent working group and the development of advanced training modules. These findings provide practical contributions to the development of sustainable coastal MSMEs and can serve as a reference for replication in areas with similar characteristics.

INTRODUCTION

Indonesia, as the world's largest archipelagic nation, possesses enormous marine and fisheries potential. With a coastline of 108,000 km and a water area of approximately 3.25 million km², Indonesia's marine resources are the backbone of coastal communities' livelihoods. However, the utilization of marine resources has often been suboptimal and tends to be exploitative, ignoring principles of sustainability. The concept of the blue economy emerged as a solution to this challenge by offering an approach that integrates economic growth, social welfare, and environmental conservation (Smith-Godfrey, 2016). The blue economy focuses not only on the fisheries sector but also encompasses marine tourism, renewable energy, marine biotechnology, and integrated coastal area management (Spalding, 2016).

The coastal area of Kerobokan Beach in Buleleng Regency, Bali, is one example of an area with untapped blue economy potential. As an area with a rich coastal ecosystem, Kerobokan is home to many Micro, Small, and Medium Enterprises (MSMEs) operating in the fisheries and tourism sectors. However, MSMEs in this region face various challenges, such as limited knowledge of sustainable business practices, limited access to environmentally friendly technologies, and low awareness of the importance of preserving marine ecosystems (Okafor-Yarwood et al., 2020).

CATRA RESEARCH INSTITUTE
ISSN - 2809-7947 (PRINT)
ISSN - 2829-0771 (ONLINE)
AKUNTANSI HUMANIORA
JURNAL PENGABDIAN MASYARAKAT
PUBLISHING OKSI
Indexed By : GARUDA Google dbi ROAD ISJD EBSCO

Furthermore, many MSMEs still rely on traditional product processing methods, resulting in polluting waste, such as plastic waste and poorly managed seafood (Sara et al., 2021).

This problem is exacerbated by a lack of understanding of the added value that can be gained from implementing blue economy principles. Most MSMEs are unaware that sustainable practices are not only good for the environment but can also increase production efficiency, reduce operational costs, and open up wider market access (Jayawarsa et al., 2024). For example, processing fish waste into high-value products like organic fertilizer or fish bone chips can provide additional income. However, without knowledge and technical support, MSMEs struggle to develop these innovations (Saputra & Laksmi, 2024).

Furthermore, another challenge faced by MSMEs in Kerobokan is the lack of effective marketing strategies. The majority of MSMEs still rely on direct sales to local tourists or traditional markets, limiting their marketing reach. However, by leveraging digital technology, MSME products can be marketed more widely, even nationally and internationally. Unfortunately, limited digital literacy and access to e-commerce platforms are major obstacles (Saputra et al., 2021).

To address these challenges, a holistic and integrated approach is required. Blue economy-based community empowerment programs must be designed to not only provide technical training but also build a supporting ecosystem involving various stakeholders, including government, academia, the private sector, and local communities (Okafor-Yarwood et al., 2020). This collaboration is crucial for creating synergies that strengthen the capacity of MSMEs while ensuring the program's future sustainability.

This community service program aims to simplify the concept of the blue economy to make it easier for MSMEs in Kerobokan to understand and implement. Using a participatory approach, the program actively involves MSMEs in every stage, from problem identification to solution implementation (Saputra et al., 2023). The three main aspects of focus are: (1) sustainable production, by introducing environmentally friendly marine resource processing techniques; (2) waste management, through training in recycling and utilizing waste into value-added products; and (3) digital marketing, to expand market reach and increase product competitiveness.

This program also aligns with the Sustainable Development Goals (SDGs), specifically SDG 8 (Decent Work and Economic Growth) and SDG 14 (Marine Ecosystems). Empowering coastal MSMEs is expected to create sustainable employment while preserving marine ecosystems (M. Bennett et al., 2024). Furthermore, this program supports the Indonesian government's policy of developing a blue economy as a national development strategy (N. J. Bennett et al., 2019).

Through this community service, it is hoped that MSMEs in Kerobokan will not only be able to increase their income but also become pioneers in implementing a blue economy at the local level. The long-term impact is the creation of a coastal MSME empowerment model that can be replicated in other regions with similar characteristics. Thus, the blue economy will not only become a theoretical concept but also a practical practice that provides concrete benefits to communities and the environment.

The concept of the blue economy has emerged as an important paradigm in sustainable development, particularly for archipelagic countries like Indonesia. According to the World Bank definition, the blue economy refers to the sustainable use of marine resources to drive economic growth, improve community well-being, and maintain healthy marine ecosystems (M. Bennett et al., 2011). This concept encompasses various sectors, including sustainable fisheries, marine tourism, marine-based renewable energy, and marine biotechnology (Martínez-Vázquez et al., 2021). Unlike traditional, often exploitative economic approaches, the blue economy emphasizes a balance

CATRA RESEARCH INSTITUTE
ISSN - 2809-7947 (PRINT)
ISSN - 2829-0771 (ONLINE)
AKUNTANSI HUMANIORA JURNAL PENGABDIAN MASYARAKAT
PUBLISHING OKSI
Indexed By : GARUDA Google dof Crossref INDEX COPERNICUS ROAD ISJD OneSearch EBSCO

between resource utilization and environmental conservation, thus providing long-term benefits for coastal communities (Spalding, 2016).

A study by Bennett et al. (2019) shows that the implementation of the blue economy in various countries has successfully increased the incomes of coastal communities while reducing pressure on marine ecosystems. For example, in the Seychelles, a blue economy program supported by international funding successfully developed sustainable fisheries and marine ecotourism, contributing to a 15% increase in the marine sector's GDP in five years (Cisneros-Montemayor et al., 2021). However, the implementation of the blue economy at the local level often faces challenges, particularly related to a lack of understanding and capacity among business actors, as is the case for MSMEs in coastal areas of Indonesia (Martínez-Vázquez et al., 2021).

MSMEs play a key role in the blue economy because they are the backbone of the coastal community economy. However, the community service results by Saputra and Dharmawan (2025) revealed that most MSMEs in coastal areas still face obstacles in adopting sustainable practices. The main obstacles include: (1) limited knowledge of blue economy principles, (2) limited access to environmentally friendly technologies, and (3) difficulties in marketing sustainable products. For example, many fisheries MSMEs still use traditional, non-selective fishing methods, threatening fish stocks and marine biodiversity (Okafor-Yarwood et al., 2020). Furthermore, poorly managed marine waste often pollutes the environment, as is the case at Kerobokan Beach, where fish waste and plastic are a serious problem (preliminary survey data).

Solutions to address these challenges have been proposed in various community service programs. One such approach is an education and training approach specifically designed for coastal MSMEs. According to Valenza et al. (2024), training focused on sustainable resource management, product diversification, and digital marketing can significantly increase MSME capacity. For example, in Malaysia, a training program for fisheries MSMEs successfully increased understanding of the blue economy by 40% in one year and encouraged the adoption of waste treatment technology (Saarani et al., 2023).

In addition to education, multi-stakeholder collaboration is also a key factor in the successful implementation of the blue economy. A study by Kontovas et al. (2022) shows that partnerships between government, academia, the private sector, and local communities can create a supportive ecosystem that strengthens MSMEs. For example, in Kenya, a program involving universities and technology companies successfully helped coastal MSMEs develop value-added processed fish products and market them through digital platforms (Okafor-Yarwood et al., 2020). A similar approach was implemented in Bali, where a collaboration with PT KSI (Keberlanjutan Strategis Indonesia) helped MSMEs in Kerobokan optimize digital marketing (progress report data).

From this literature review, it is clear that implementing the blue economy in coastal MSMEs requires a comprehensive strategy, encompassing education, technology adoption, and strengthening collaboration. These findings formed the basis for this community service project to design an empowerment program tailored to the needs of MSMEs in Kerobokan, with the hope of having a positive impact both economically and environmentally.

METHODS

This community service program was implemented using a participatory, action-research-based approach over eight months in Kerobokan Village, Buleleng, involving 20 MSMEs from the "Rukun Sejati" Joint Business Group (KUB). The implementation method was systematically designed through three main stages: (1) preparation, (2) implementation, and (3) evaluation. During

CATRA RESEARCH INSTITUTE
ISSN - 2809-7947 (PRINT)
ISSN - 2829-0771 (ONLINE)
AKUNTANSI HUMANIORA JURNAL PENGABDIAN MASYARAKAT
PUBLISHING KSI
Indexed By : GARUDA Google dbi Crossref INDEX COPERNICUS ROAD ISJD OneSearch EBSCO

the preparation stage, the team conducted an initial survey to identify partner issues through direct observation, in-depth interviews with MSMEs, and focus group discussions (FGDs) with local stakeholders. The results identified three critical issues: limited understanding of the blue economy (only 33% of MSMEs understood the concept), traditional waste management practices, and reliance on conventional marketing.

The implementation stage included interventions based on three pillars. First, education through interactive workshops with simple modules on blue economy principles, waste management simulations, and case studies of sustainable MSMEs. Second, technical assistance included training on making organic fertilizer from chicken manure using EM4, installing a closed-house system for livestock farming, and training on diversification of processed fish products (bone chips, fish sauce). Third, strengthening digital marketing with PT KSI, including training in content creation, marketplace optimization, and market analysis. All activities involve students as facilitators to ensure a bottom-up approach.

Evaluation is conducted periodically using a mix of quantitative (understanding questionnaires, sales records) and qualitative (partner testimonials, process documentation) methods. Success indicators include increased knowledge (measured by pre-test/post-test), technology adoption (number of MSMEs implementing waste management systems), and economic impact (revenue growth). Results show a 67% increase in understanding of the blue economy, a 40% reduction in organic waste in rivers, and a 25% increase in average MSME income. Collaboration with the village government and PT KSI is a supporting factor for the program's sustainability.

RESULTS AND DISCUSSION

The community service program, Simplifying the Blue Economy for MSMEs in the Kerobokan Riverbank and Coastal Areas of Buleleng, has been implemented for eight months, involving 20 MSMEs from the "Rukun Sejati" Joint Business Group (KUB). Based on monitoring and evaluation results, the program has achieved several significant outcomes in three main aspects: increased understanding of the blue economy concept, implementation of environmentally friendly technologies, and strengthening digital marketing strategies.

Improved Understanding of the Blue Economy Concept. Before the intervention, only 33% of MSMEs understood the basic principles of the blue economy. After attending a series of workshops and intensive mentoring, this understanding increased to 67%. The most effective training material was the module on sustainable resource management and product diversification, with a 75% absorption rate. These results align with the findings of Valenza et al. (2024), who found that a real-life case-based educational approach can improve MSMEs' understanding of sustainable practices. However, challenges remain, particularly in implementing these concepts into daily operations. Some MSMEs still struggle to change old habits, such as the use of single-use plastics or less selective traditional fishing methods. To address this, the community service team presented concrete examples of similar MSMEs that have successfully implemented the blue economy, along with simulations of calculating the potential financial benefits.

Implementation of Environmentally Friendly Technology. In the laying hen farming sector, the program successfully implemented a closed house system with slatted floors, which facilitates the collection of chicken manure for processing into organic fertilizer through the EM4 fermentation process. This technology reduced the volume of waste discharged into rivers by 40% while producing an economically valuable by-product, a liquid fertilizer sold for IDR 15,000 per liter. Meanwhile, in the fisheries sector, previously discarded fish bone and skin waste are now processed

CATRA RESEARCH INSTITUTE
ISSN - 2809-7947 (PRINT)
ISSN - 2829-0771 (ONLINE)
AKUNTANSI HUMANIORA
JURNAL PENGABDIAN MASYARAKAT
PUBLISHING KSI
Indexed By : GARUDA Google dof Crossref INDEX COPERNICUS ROAD ISJD OneSearch EBSCO

into fish bone chips and organic fertilizer. This innovation not only reduces environmental pollution but also increases additional income by 20-30% for MSMEs. These results reinforce the findings of Saarani et al. (2023) regarding the economic potential of fishery waste processing. However, technology adoption has not been smooth. The main obstacle was the initial cost of purchasing equipment such as fish bone grinding machines and fermentation drums. The solution was to utilize group funds and apply for equipment assistance from the village government. Furthermore, the community service team introduced the concept of a sharing economy, where several MSMEs share the use of machines to reduce costs. This approach has proven effective in optimizing limited resources.

Strengthening Digital Marketing. A collaboration with PT Keberlanjutan Strategis Indonesia (KSI) has resulted in a significant transformation in the MSMEs' marketing strategies. The three-month intensive training covered digital content creation, e-commerce platform optimization, and online order management. As a result, 15 of the 20 MSMEs now have active sales accounts on marketplaces like Tokopedia and Shopee, with an average increase in turnover of 25%. Featured products such as organic chicken eggs and fish bone chips have even successfully penetrated the Bali regional market. Furthermore, PT KSI is helping develop sustainability-based product branding, such as "Eco-Friendly" certification for sustainably caught fish. This step aligns with the recommendations of Kontovas et al. (2022) regarding the importance of certification in increasing the competitiveness of blue economy products.

However, digital marketing challenges persist, particularly related to limited internet connectivity in coastal areas and difficulties in attractive product packaging. To address this, the community service team held a special workshop on simple packaging design using local materials and collaborated with the local communications office to expand the internet network.

Economic and Environmental Impact. Overall, the program had a multidimensional impact. Economically, MSMEs saw an average 25% increase in income, with sales of processed products (such as fish bone chips and organic fertilizer) contributing 35% of total revenue. Environmentally, the "Plastic-Free Beaches" campaign successfully reduced organic waste by 40% and reduced the use of single-use plastic by 50%. Social impacts were also evident in the formation of a working group consisting of MSMEs, fishermen, and local youth to continue the regular beach cleanup program.

CONCLUSION

This community service program has successfully demonstrated that a simplified approach to the blue economy concept can be effectively implemented by MSMEs in the coastal area of Kerobokan, Buleleng. Through three main strategies—education, the application of environmentally friendly technology, and strengthening digital marketing—a significant increase in understanding of the blue economy concept (from 33% to 67%), a reduction in organic waste (40%), and a growth in MSME income (25%). Multi-stakeholder collaboration with PT KSI, the village government, and academics was key to the success in creating a holistic supporting ecosystem. These results align with the principles of sustainable development, where economic, social, and environmental aspects can coexist.

To ensure the program's sustainability, several strategic steps are recommended: First, the need to establish a permanent working group consisting of representatives from MSMEs, local youth, and the village government to continue monitoring and developing innovations. Second, the importance of developing advanced training modules covering MSME financial management and value-added product development, while simultaneously expanding marketing networks through

CATRA RESEARCH INSTITUTE
ISSN - 2809-7947 (PRINT)
ISSN - 2829-0771 (ONLINE)
AKUNTANSI HUMANIORA
JURNAL PENGABDIAN MASYARAKAT
PUBLISHING OKSI
Indexed By : GARUDA Google dbi RoAD ISJD EBSCO

partnerships with tourism industry players in Bali. Third, advocacy is needed for local governments to adopt this model as a pilot program in other coastal areas, supported by fiscal incentive policies for MSMEs implementing sustainable practices. Finally, strengthening digital infrastructure and providing ongoing technical assistance are needed to address the technology gap, which remains a major challenge. Implementing these recommendations is expected to expand the program's positive impact while accelerating the transition to an inclusive blue economy at the local level.

REFERENCE

Bennett, M., March, A., & Failler, P. (2024). Blue Economy Financing Solutions for the Fisheries and Aquaculture Sectors of Caribbean Island States. *Fishes*, *9*(8), 305.

Bennett, M., Schaltegger, S., & Zvezdov, D. (2011). Environmental Management Accounting. *Review of Management Accounting Research*, 53–84.

Bennett, N. J., Cisneros-Montemayor, A. M., Blythe, J., Silver, J. J., Singh, G., Andrews, N., Calò, A., Christie, P., Di Franco, A., & Finkbeiner, E. M. (2019). Towards a sustainable and equitable blue economy. *Nature Sustainability*, *2*(11), 991–993.

Cisneros-Montemayor, A. M., Moreno-Báez, M., Reygondeau, G., Cheung, W. W. L., Crosman, K. M., González-Espinosa, P. C., Lam, V. W. Y., Oyinlola, M. A., Singh, G. G., & Swartz, W. (2021). Enabling conditions for an equitable and sustainable blue economy. *Nature*, *591*(7850), 396–401.

Jayawarsa, A. A. K., Narindra, A. A. N. M., & Saputra, K. A. K. (2024). Integrating Green Economy Concepts To Support The Achievement of SDGs Tenganan Dauh Tukad Village, Manggis District, Karangasem Regency. *Akuntansi Humaniora: Jurnal Pengabdian Masyarakat*, *3*(2), 108–113.

Kontovas, C., Bras, A. A., Chang, C.-H., Romano, A., Poo, M. C.-P., Wang, J., McCormack, H., Qu, Z., Paraskevadakis, D., & Lamb, L. (2022). Fostering innovation in the blue economy within the United Kingdom (UK): A stakeholders' perspective. *Ocean & Coastal Management*, *224*, 106143.

Martínez-Vázquez, R. M., Milán-García, J., & de Pablo Valenciano, J. (2021). Challenges of the Blue Economy: evidence and research trends. *Environmental Sciences Europe*, *33*(1), 61.

Okafor-Yarwood, I., Kadagi, N. I., Miranda, N. A. F., Uku, J., Elegbede, I. O., & Adewumi, I. J. (2020). The blue economy–cultural livelihood–ecosystem conservation triangle: The African experience. *Frontiers in Marine Science*, *7*, 542908.

Saarani, A. N., Alias, A., Amran, A., Abbasi, M. A., & Ghobakhloo, M. (2023). Deciphering blue economy for SMEs in Malaysia: A dual approach through scoping review and stakeholder conversations. *Journal of Infrastructure, Policy and Development*, *8*(2), 1–28.

Saputra, K. A. K., & Dharmawan, N. A. S. (2025). The role of environmental accounting in preserving cultural heritage: a case study in Tenganan Pegringsingan Village, Bali, Indonesia. *International Journal of Environmental, Sustainability and Social Science*, *6*(1), 127–133.

Saputra, K. A. K., & Laksmi, P. A. S. (2024). The Influence of Green Governance, Implementation of Energy Accounting, and Green Human Resource Management on Sustainability Performance: An Empirical Study in the Hospitality Industry in Bali. *Jurnal Ilmiah Akuntansi*, *9*(1), 113–136. https://doi.org/DOI:10.23887/jia.v9i1.66630

Saputra, K. A. K., Manurung, D. T. H., Rachmawati, L., Siskawati, E., & Genta, F. K. (2021). Combining the concept of green accounting with the regulation of the prohibition of

CATRA RESEARCH INSTITUTE
ISSN - 2809-7947 (PRINT)
ISSN - 2829-0771 (ONLINE)
AKUNTANSI HUMANIORA JURNAL PENGABDIAN MASYARAKAT
PUBLISHING OKSI
Indexed By : GARUDA Google dof Crossref INDEX COPERNICUS ROAD ISJD OneSearch EBSCO

disposable plastic use. *International Journal of Energy Economics and Policy*, *11*(4), 84–90. https://doi.org/10.32479/ijeep.10087

Saputra, K. A. K., Subroto, B., Rahman, A. F., & Saraswati, E. (2023). Mediation Role of Environmental Management Accounting on the Effect of Green Competitive Advantage on Sustainable Performance. *Journal of Sustainability Science and Management*, *18*(2), 103–115. https://doi.org/10.46754/jssm.2023.02.008

Sara, I. M., Jayawarsa, A. A. K., & Saputra, K. A. K. (2021). Rural Assets Administration and Establishment of Village-Owned Enterprises for the Enhancement of Rural Economy. *Jurnal Bina Praja*, *13*, 81–91. https://doi.org/10.21787/jbp.13.2021.81-91

Smith-Godfrey, S. (2016). Defining the blue economy. *Maritime Affairs: Journal of the National Maritime Foundation of India*, *12*(1), 58–64.

Spalding, M. J. (2016). The new blue economy: the future of sustainability. *Journal of Ocean and Coastal Economics*, *2*(2), 8.

Valenza, G., Zoppelletto, A., & Fazio, G. (2024). Family SMEs and managerial approaches to sustainability in the blue economy. *Journal of Management & Organization*, *30*(3), 521–544.