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Recycled Pacific Craft in Serangan Village, Bali: Community Empowerment Innovation Through Recycling Plastic Waste into Craft Products with Economic Value

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Abstract.
Serangan Village, Denpasar City, Bali, is a coastal area facing plastic waste issues resulting from household activities, fishing, tourism, and trade. Unmanaged plastic waste has the potential to pollute the marine environment and disrupt coastal ecosystems. This community service activity aims to raise public awareness of plastic waste management and develop community skills in processing plastic waste into recycled crafts with economic value. The methods used include outreach, training, production assistance, and product marketing. The results of the activity indicate an increase in community knowledge about the circular economy, improved skills in making crafts from recycled plastic, and the emergence of new environmentally-based business opportunities. This program supports sustainable development through community empowerment and waste reduction coastal environmental pollution.
Keywords: *Plastic recycling; Community empowerment; Circular economy; ra craftsmah environment; Serangan Village.*

I. INTRODUCTION

Plastic waste is one of the biggest environmental challenges in Indonesia's coastal areas. Bali, a global tourist destination, faces similar challenges, primarily due to the high use of single-use plastics. Approximately 90% of waste in Bali is not properly managed.(Ministry of Environment, 2025)Plastic waste that is not handled properly can pollute beaches and the sea, and threaten the sustainability of coastal ecosystems.(Yu & Singh, 2023)Various environmental organizations in Bali have stated that plastic pollution has become a serious threat to the environment, marine wildlife, and the quality of life of coastal communities.This condition encourages various agencies to implement the concept of a circular economy as a waste management strategy that emphasizes waste reduction, material reuse, and recycling processes so that waste can be reused as an economic resource.(Muliarta, 2023).

In April 2026, Bali experienced an increase in the number of tourists by 17.21%.(BPS, 2026)Serangan Village is a coastal area in Denpasar City that is frequently visited by tourists for vacations.However, the very rapid development of the tourism sector has caused an increase in the volume of plastic waste in coastal areas.(Gideran & Merdeka, 2021)Serangan Village has great potential for developing an environmentally-based creative economy. The Serangan community, along with various stakeholders, has developed a circular economy approach to plastic waste management, transforming waste into valuable craft products.(Jong et al., nd). A collaborative program carried out between communities, waste management groups, and the private sector to create sustainable environmental solutions.(Kujala et al., 2023).

Processing plastic waste into crafts or recycled Pacific crafts is a form of innovation that not only reduces environmental pollution but also increases people's income.(Natsir et al., 2026)Through appropriate training and mentoring, communities can produce a variety of creative products, such as bags, tissue holders, home decorations, tourist souvenirs, and other decorative items with high economic value.In addition to improving community skills and creativity, this activity also opens up new business opportunities, strengthens local economic empowerment, and supports the implementation of the circular economy concept by reusing plastic waste into products with sales value.(Podleisek et al., 2024).

II. METHODS

Community service activities were carried out in the plastic waste craftsman community in the village.Attack, Denpasar City, Bali. The methods used were observation and semi-structured interviews. Observation is an important method in formative research, conducted continuously throughout the study to identify factors influencing the research context and support the development of other data collection instruments.(Weston et al., 2021). Data obtained from interviews with one of the community managers regarding the community's history, plastic waste management process, marketing system, and the benefits of activities for the environment and the community's economy. The implementation began with coordination with the community manager, followed by field observations, interviews, and documentation of the plastic waste management process. The data obtained were then analyzed descriptively through processes, data presentation, and drawing conclusions to describe the implementation of community-based plastic waste management in Serangan Village.

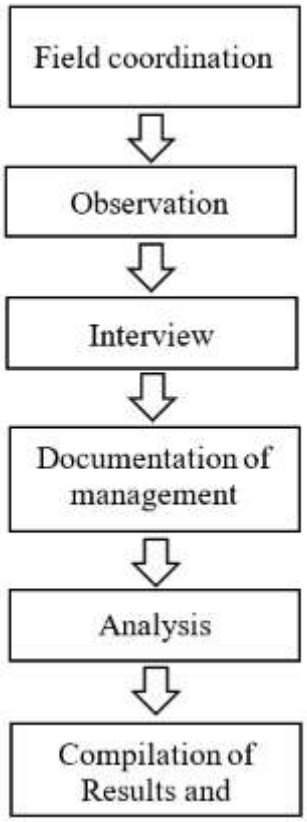


Figure 1. Community Service Flow

III. RESULTS AND DISCUSSION

Community service activities are carried out in the Angen Bali community. Angen Bali is a plastic waste management community located in Serangan, South Denpasar, Denpasar City, Bali. This community was initially formed to raise public awareness so they can manage their household waste independently. The community's main goal is not to gain economic profit, but rather to reduce environmental pollution due to the increasing volume of plastic waste in coastal areas. As activities develop, plastic waste, previously considered worthless, is being processed into various products with sales value, thus providing economic benefits to the community and the community. These findings indicate that community-based waste management is one form of circular economy implementation that places the community as the main actor in the waste reduction process. The application of a circular economy in source-based waste management can reduce environmental pollution while increasing the added value of waste through reuse.

materials that still have economic potential.



Figure 2. Observation and Interview Process

Based on on-site observations, the raw materials used come from plastic waste collected from the Serangan community. To increase community participation, the community purchases sorted plastic waste for around IDR 7,000 per kilogram. This mechanism not only encourages people to sort their waste at home but also provides an economic incentive so that the waste has a selling value. The types of plastic that can be processed are still limited to PE, PET, and HDPE due to limited production machine capacity. Polyethylene (PE) is a thermoplastic polymer derived from the polymerization of ethylene and is one of the most widely used types of plastic in the world. Polyethylene Terephthalate (PET) are common items soda bottles, cooking oil bottles, peanut butter jars, microwaveable ready-to-eat food containers. High-Density Polyethylene (HDPE) is used in common items such as milk bottles, juice bottles, shampoo bottles, grocery and retail plastic bags, detergent bottles, and cereal box linings. The processing process involves sorting, shredding, washing, drying, heating, pressing, and cutting according to product design. This process reflects the principles of a circular economy, which aims to extend the life cycle of materials and reduce plastic waste.



Figure 3. Milling Process



Figure 4. Drying Process

The resulting product is a plastic board that is then processed into various creative products, such as tissue holders, decorative boards, souvenirs, and various other products made from recycled plastic. All products are made in order to prevent inventory buildup. Prices start at around Rp 35,000, depending on the size and design requested by the customer.



Figure 5. Product Results



Figure 6. Board Product Results

In addition to selling plastic waste to the community, residents have begun sorting their waste at home. The community also actively promotes environmental education through various activities, including the "July Zero Waste Month" program, which aims to raise public awareness of the importance of managing plastic waste in coastal areas.

Table1. Comparison of the existence of programs

Aspect	Before the program	After the Program
Waste management	Garbage is not sorted	People start to sort their waste
Economic Value	Trash is just thrown away	Garbage has a selling value
Recycled products	There isn't any yet	Produce various creative products
Community participation	Low	Communities are involved in waste collection and waste sorting.
Environmental education	There isn't any	Educational program implemented

Based on observations with community managers, Angen Bali still faces several obstacles in carrying out its plastic waste management activities. The main obstacle is the manual production process, which requires a relatively long time and limits production capacity. This condition prevents the community from producing goods in large quantities to meet market demand. Furthermore, limited production machinery hinders the plastic waste processing process. The community also faces limitations in sales, which only uses a made-to-order system. The community implements a made-to-order system, meaning production is carried out only based on customer

orders. This strategy is chosen to prevent stockpiling that could potentially become new waste and to maintain efficient use of raw materials. Furthermore, product marketing is still carried out through direct communication via telephone and social media, while the use of marketplaces is still in the planning stage, so marketing reach is not yet optimal.

Observations and interviews show that the Recycled Pacific Craft community has raised awareness in Serangan Village about the importance of plastic waste management. Before the community's development, most plastic waste was still viewed as worthless waste.The community has had various positive impacts on the environment in Serangan Village. This activity contributes to reducing the amount of plastic waste that could potentially pollute coastal areas and encourages people to practice waste sorting at home. Furthermore, this program also raises public awareness that plastic waste can be utilized as a valuable resource through recycling into value-added products. Overall, this activity supports efforts to preserve coastal ecosystems by reducing the generation of plastic waste that could potentially pollute the environment.

IV. CONCLUSION

Community service activities through the Recycled Pacific Craft program in Serangan Village have successfully increased environmental awareness and community skills in processing plastic waste into economically valuable craft products. This program supports the reduction of coastal environmental pollution while opening new business opportunities based on a circular economy. The program's success demonstrates that plastic waste can be transformed into a productive resource with the support of ongoing training, mentoring, and collaboration.

The findings from this community service activity indicate that a community empowerment model that integrates plastic waste collection, providing economic incentives to the community, processing waste into value-added products, and production based on a made-to-order system is an effective approach in supporting the implementation of a circular economy at the community level. This model is not only able to reduce environmental pollution, but also increases community participation and opens up economic opportunities based on local potential. Thus, the Recycled Pacific Craft model has the potential to be replicated in other coastal areas facing similar problems as a strategy for sustainable plastic waste management and supports the achievement of Sustainable Development Goals (SDGs), especially SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 14 (Life Below Water).

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