



Perceptions and Community Participation in The Waste Bank Program: Case Study of Waste Bank in Traditional Village of Kubu Bangli

Ni Wayan Sintya Dewi¹, Ketut Nurhayani²,
Elina Rudiastari³, I Ketut Suwintana⁴,
I Gusti Agung Oka Sudiadnyani⁵,
I Made Agus Putrayasa⁶, and Luh Mei Wahyuni⁷

¹ Tourism Department, Politeknik Negeri Bali, Bali, Indonesia

^{2,4,5,6,7} Accounting Departement, Politeknik Negeri Bali, Bali, Indonesia

³ Informatika Departement, Politeknik Negeri Bali, Bali, Indonesia

sintya-dewi@pnb.ac.id

Abstract. The focus of this study is on the community's perception and participation in the waste bank program. The research methodology includes interviews with 60 respondents, supplemented by observational techniques. This study employs a Mixed Methods approach, integrating both qualitative and quantitative analyses. Quantitative data were collected through purposive surveys utilizing questionnaires directed at the community and the management of the village traditional waste bank in Kubu. Qualitative data were gathered using a descriptive qualitative approach. The findings indicate that the establishment of the Waste Bank in Kubu is a significant initial step in waste management. It has facilitated a transformation in the community's perception of waste, changing it from being viewed as useless items to being recognized as resources that can generate income. Key factors supporting the sustainability of the Waste Bank include active community participation in waste management. This participation begins with the selection and sorting of waste based on criteria such as organic, non-organic, and residual waste. Furthermore, the ability to convert waste into monetary value through the waste bank program serves as an additional motivation for community engagement in its management.

Keywords: Green Economy, Participation, Perception, Waste Bank, Waste Management

1. Introduction

Unconsciously, the increasing population growth, consumer habits, and daily human lifestyle have led to an increase in waste production on this Earth (Muarif et al., 2020). According to dataindonesia.id data for the year 2022, households contribute the most waste at 42.23%, followed by businesses at 19.11%, markets at 15.26%, and offices at approximately 67.2%. From various aspects of human life, it can be understood that human activities are essentially part of waste production. There are various definitions

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of waste; According to McDougall (2001) in Mahyudin (2017), waste is something that is less useful or valuable. Kahfi (2017) defined waste as leftover materials from human activities that are no longer desired. Therefore, waste can be defined as the result of human activities that are considered no longer beneficial because they lack value. (Kurniawan & Santoso, 2020). Waste management has not yet utilized environmentally friendly methods, considering proper waste management techniques because waste disposal and management will impact the environment (Amrina, 2021). Many waste-handling activities have been successful in the short term, as they only address the waste itself and not human behavior.

The importance of educating the public about proper waste processing will lead to more sustainable waste management and adequate handling of waste from source to disposal is one of the factors affecting the sustainability of waste issues (Mahyudin, 2017). In Indonesia, in big cities, waste management is done at the final disposal site (TPA), but only 70% of the waste can be disposed of there, while the remaining 30% is scattered in various areas. For example, in Jakarta, the largest city, the garbage problem cannot be avoided anymore. The most crucial issue in waste management in Jakarta is that the garbage doesn't go through proper processing. The waste management strategy in Jakarta can be implemented by turning organic waste into compost and utilizing plastic waste to create economically valuable products. In the Sleman Regency, waste management is carried out through the implementation of the Community-Based Waste Management (PSBM) program. This program aims to reduce the amount of waste in the Final Disposal Site (TPA), and it can be considered successful, although it requires consistency and comprehensive community involvement. The issue of waste is not only present in large cities; as a result of human activities, waste also exists in rural areas. The habit of rural communities in managing their waste is by disposing of it in rivers, burning it, or burying it in the ground. Such waste management practices can pollute the environment, such as air pollution from waste incineration. Public awareness must take responsibility for their waste. Widyowati (2019) in Agung et al. (2021) assert that the level of awareness in Indonesian society in managing waste properly is very low various factors contribute to this awareness level, including the public perception that waste is dirty, useless, and lacks value, as well as the limited literacy regarding the negative impact of waste on the environment. In 2008, the term waste Bank emerged. It is a breakthrough in addressing waste issues. Despite the challenges in waste management through the Reduce, Reuse, and Recycle (3R) program, such as the lack of awareness among the public, a breakthrough has emerged: the concept of a waste bank as part of implementing the 3R program. The existence of waste banks will change the community's perception of waste. Previously considered economically worthless, waste now contributes to a circular economy through the waste bank program (Purwanti, 2021). The continuity of development without neglecting the environment is a model of circular economy we need to understand that the correlation between Natural Resources (SDA) and Human Resources (SDM) occurs when SDA can no longer be renewed and SDM is no longer healthy due to an unhealthy environment. In such a situation, sustainable development will also be further from achieving its goals. Local wisdom, in Batoro (2017), is the main asset in building the economy of a

community without disrupting the social order and the natural environment Tri Hita Karana. As the local wisdom of the Balinese community, it governs human life in three aspects: actions that harmonize with the creator (*Prahyangan*), interactions among fellow humans (*Pawongan*), and behavior towards the environment (*Palemahan*). Society must be aware that knowledge of the green economy is essential in facing climate change and ensuring sustainable development in terms of building a circular economic model. Therefore, waste banks are part of implementing green economy knowledge using a circular economic model.

2. Methodology

This research is of the mixed methods type, utilizing both qualitative and quantitative analysis. Quantitative data was obtained through purposive surveys using a questionnaire directed at respondents, namely the community and the management of the Village Traditional Waste Bank in Kubu. Qualitative data, on the other hand, was collected through observation, interviews, and literature review, and drawing from various previous research findings related to waste bank existence. This study aims to assess the community's perception of waste bank presence and their participation in its sustainability within the Village Traditional Waste Bank in Kubu Bangli.

3. Result and Discussion

3.1 Result

The Perception of The Community Toward The Waste Bank Program in The Traditional Village Of Kubu Bangli. The perception of the waste bank program in the traditional village of Kubu Bangli is being studied to understand the views and align the community's perception towards the waste bank program in the traditional village of Kubu. In this research, perception is measured by asking questions to respondents, who are given five response options: (SS) strongly agree, (S) agree, (C) neutral, (KS) disagree, (TS) strongly disagree. The following are some of the statements and responses from the respondents presented.

The 3R principle, which stands for reuse, reduce, and recycle, is one of the best ways to manage and handle various types of plastic waste. Reduce means reducing waste, specifically by minimizing the use of products that could potentially become waste. The second step is reuse, which involves using items again. Lastly, recycling means to process materials for reuse. According to respondents, the reduce principle has a 47% approval rate, while 40% agree with the reuse principle, and 58% support the recycle principle. Based on Table 1, it can be seen that the majority of respondents tend to view the principle of recycling as the most effective way to reduce the amount of waste in the environment, by recycling household waste into useful items and making the environment appear cleaner.

Table 1. Respondents perception of the 3R Principle (Reduce, Reuse, Recycle) in household waste management

Statement	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	N	%	N	%	N	%	N	%	N	%
Efficient reduce principles in addressing waste issues	28	47%	24	40%	8	13%	0	0%	0	0%
Efficient reuse principles in addressing waste issues	24	40%	18	30%	15	25%	3	5%	0	0%
Efficient recycling principles in addressing waste issues	35	58%	20	33%	5	8%	0	0%	0	0%
Mean	47%		33%		13%		0%		0%	

Table 2. Respondent's perception of household waste management

Statement	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	N	%	N	%	N	%	N	%	N	%
Waste must be managed every day	47	78%	13	22%	0	0%	0	0%	0	0%
The accumulated waste has a negative impact on the environment	48	80%	12	20%	0	0%	0	0%	0	0%
Waste must be sorted before disposal	38	63%	20	33%	2	3%	0	0%	0	0%
Reducing the use of plastic, paper, etc.	34	57%	16	27%	3	5%	4	7%	3	5%
Recyclable waste should be reused	27	45%	30	50%	3	5%	0	0%	0	0%
Waste recycling is taken to the waste bank	20	33%	26	43%	14	23%	0	0%	0	0%
There is a trash bin available inside the house	23	38%	20	33%	12	20%	5	8%	0	0%
Indoor-covered trash in	28	47%	20	33%	12	20%	0	0%	0	0%
There are some types of trash bins are available at home	20	33%	20	33%	10	17%	5	8%	5	8%
Managing waste by incineration	15	25%	12	20%	16	27%	8	13%	9	15%
Mean	46%		33%		11%		0%		0%	

Household waste is waste that is managed every day by the community, both organic and inorganic waste. Considering the significant impact of household waste on the environment, proper waste management is necessary. From the questionnaire distributed to respondents regarding household waste management, the following findings emerged: 78% of the community strongly agrees that waste should be managed daily, while 80% strongly agrees that accumulated waste negatively impacts the environment. Additionally, 3% believe that sorting waste before disposal is sufficient, and 5% disagree with efforts to reduce the use of plastic, paper, and similar materials.

Moreover, 45% strongly agree that usable waste should be reused, and 33% strongly agree that recyclable waste should be taken to a waste bank. Furthermore, 43% agree that there should be trash bins inside the house, and 47% agree that these bins should be covered. However, 8% disagree with the idea that there should be three types of trash bins at home, while 15% disagree with the statement that waste should be incinerated.

Table 3. Perceptions of respondents regarding household waste recycling

Statement	Strongly agree		Agree		Neutral		Disagree		Strongly disagree	
	N	%	N	%	N	%	N	%	N	%
Making compost is easy	30	50%	12	20%	18	30%	0	0%	0	0%
Creating handicrafts from recycled material is easy	18	30%	16	27%	16	27%	10	17%	0	0%
Recyclable waste has economic value	38	63%	22	37%	0	0%	0	0%	0	0%
Mean	47%		32		13%		8%		0%	

Table 3 shows that 50% of the community strongly agree with the statement that composting is easy to do, 30%. A significant 63% of respondents strongly agree that crafting from recycled materials is easy, and the same percentage strongly believes that recycling holds economic value. Recognizing the importance of a circular economy as a means to achieve a green economy, it is essential to foster a change in community behavior regarding waste management to promote a cleaner environment. Therefore, establishing a waste bank will serve as a foundational step in enhancing community awareness about environmental management.

The Community’s Participation in The Waste Bank Program in The Traditional Village of Kubu Bangli. The waste management program in the village of Ada Kubu Bangli involves the community as active participants in reducing waste volume. The community’s involvement is both direct and indirect. The village has established a waste bank managed by a committee, which is legally regulated by the village’s customary law. The waste bank committee consists of 60 members, primarily housewives, who are expected to be pioneers in waste management within their households. The waste bank established in the Traditional Village of Kubu is called *Bantas* (free from trash), with the hope that the Kubu Village can be free from waste.

The waste bank activities have been carried out for the first time, where the community members, as customers of the waste bank, save household waste. This participation activity is done directly. According to an interview with the Head of the Traditional Village of Kubu, Mr I Nengah Miasa, during the waste bank program in the Traditional Village of Kubu Bangli, the community members actively participated both directly by sorting, collecting, and weighing waste, and indirectly contributing ideas and thoughts regarding the waste bank program. The waste bank activity has been carried out for the first time, where community members, especially housewives, act as waste bank customers to save household waste. Currently, only new inorganic waste can be deposited, which includes plastic waste, tin/bottle waste, paper waste, and residual waste. Later, this waste will be sorted according to its classification and collected at the community hall or village hall, and then sold to Dwik Bank Sampah Bali. The waste bank operates similarly to a banking system, where the waste collected by community members can be exchanged for money that will be deposited into their respective accounts. The purpose of the waste bank is to assist in waste management to raise awareness about the importance of cleanliness and to ensure a clean, orderly, and healthy environment. The community must manage waste and turn it into economic value.

3.2 Discussion

This research aims to assess the public perception of the existence of waste banks, as well as the community's participation in the sustainability of the waste bank in Desa Adat Kubu Bangli, through the distribution of questionnaires to respondents who are actively involved. From the results of Table 1, respondents' perception towards the 3R principle (Reduce, Reuse, Recycle) in household waste management, the highest percentage was obtained for the statement on efficient recycling principles in addressing waste issues, with a percentage of 58%. The community considers recycling to be very effective because it is easy to understand and involves utilizing recyclable materials such as paper, plastic, metal, and glass. These materials can be recycled into new raw materials for new products, thus providing economic value for the traditional village community. Meanwhile, the statement on efficient reuse principles in waste management received a 5% disagreement rate, as some people still use disposable items like tissues and single-use bottles for drinking. Therefore, there is a need to motivate the community to switch to reusable bottles or tumblers for drinking purposes. From the results of Table 2, respondents' perceptions regarding household waste management, there are 10 statements with the highest percentage value in the statement that accumulated waste harms the environment, with a value of 80%. Desa Adat Kubu is a village adjacent to the tourist village of Pengli-puran, so it is deemed necessary for Desa Kubu to pay attention to waste issues, as a support system for the continued success of Penglipuran Tourism Village as the cleanest tourist village in the world. Therefore, there needs to be policies and continuous efforts in waste management. Furthermore, with a value of 78%, the statement that waste must be managed every day is important, as household waste is the largest contributor to both organic and inorganic waste. Proper waste management is crucial to avoid a decline in health and

environmental quality, as well as negative impacts on social and economic aspects. Therefore, the community needs to understand the principles of 3R (Reduce, Reuse, Recycle). The third highest percentage is 63%, with the statement that waste should be sorted before disposal proper waste sorting facilitates waste management, based on its characteristics such as dry and wet, organic and inorganic. Sorted waste can also be repurposed into useful items. There were 2 respondents (15%) who disagreed with waste management through incineration, due to limited information available in the traditional Kubu village community. By burning waste, will certainly have an impact on the environment and be dangerous for health. The smoke from burning trash can pollute the air and cause pollution, so there is a need to motivate the community to manage waste properly and wisely. Lastly, there is an 8% disagreement stating that at home, there are 3 types of trash bins available. Not all people have 3 trash bins, but they understand how to sort waste. This limitation is due to the lack of facilities and economic constraints, which sometimes lead people to use only 1 trash bin or even just place it in a corner of their yard.

Table 3 that 50% of the community strongly agrees with the statement that composting is easily achievable. This is because the majority of the community in Desa Adat Kubu is engaged in farming and gardening, making composting a familiar activity in their daily lives. Additionally, 30% of the community strongly agree that creating handicrafts from recycled materials is easy, as it generates economic value to support their livelihoods. Furthermore, 63% of the community strongly agree that recycling waste has economic value. Recognizing the importance of circular economy in achieving a green economy, there is a need for a change in community behavior towards waste management for a cleaner environment. Therefore, a waste bank will serve as the starting point for community awareness in environmental management.

Community participation plays a crucial role in the waste bank program. It is hoped that the community will take the lead in this initiative. Despite initial challenges such as differing opinions on the importance of waste management, the perception that waste is not a critical issue, and difficulties in educating the public about sorting and choosing waste using the 3R method (Reuse, Reduce, Recycle). This is one of the best ways to manage and handle various types of plastic waste. Therefore, it can be concluded that the main issue in waste management in the village of Kubu is a lack of understanding or education regarding the importance of waste processing. The community greatly needs education about waste, starting from recognizing, selecting, sorting, and treating waste. The Kubu Customary Village Waste Bank has collaborated with the Environmental Agency and the Taman Bali Village Waste Bank, which currently serves as the central waste bank in Bangli Regency. This is done as an effort to educate the community that waste, which is considered useless, can generate income through the Waste Bank.

Thanks to the support of the community and the participation of the Adat Kubu Village community, a waste bank has been established to assist in waste management and raise awareness among the public about a clean and healthy environment. Additionally, it serves as a support system for the Penglipuran tourism village, which is part of the Kubu sub-district. Furthermore, it enhances community resources related to environmental awareness, leading to a change in behavior towards waste generation.

Lastly, it contributes to increasing the income of the community through waste-saving movement at the waste bank and the establishment of a circular economy.

4. Conclusion

Based on the research results, it can be concluded that the waste bank program in Kubu Bangli Customary Village received a very favorable score of 47% in respondents' perception of the 3R principles (Reduce, Reuse, Recycle) in household waste management. It also received a score of 46% in respondents' perception of household waste management and 47% in respondents' perception of household waste recycling. These scores are considered very good because the respondents are starting to understand waste management at the Kubu Customary Village Waste Bank, and the enthusiasm of the Kubu Customary Village community has led to the establishment of the *Bantas* waste bank, which is legally regulated in the village's customary regulations. The waste bank committee consists of 60 members. All of whom are housewives expected to be pioneers in waste management within the community.

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