

INNOVATION OF KUTA MIMBA MOBILE: ENHANCING EFFICIENCY AND PARTICIPATION IN DIGITAL WASTE BANKS

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Abstract

Waste issues constitute a global problem, requiring public awareness of the importance of proper waste management. Waste management initiated at the household level is carried out by the Family Welfare Empowerment community of Banjar Buni Kuta through the Bumiku Resik Waste Bank, followed by manual recording of each transaction for every customer. This process has led to several problems and challenges; therefore, an innovation in digital waste bank management was implemented through collaboration with the Kuta Mimba Savings and Loan Cooperative via the Kuta Mimba Mobile Digital Waste Bank application. This study employs a descriptive method with a qualitative approach. Informants were selected purposively, consisting of three key informants and fifteen secondary informants. Data were collected through observation, interviews, and documentation to obtain information relevant to the research focus. Data analysis was conducted using the interactive model of Miles, Huberman, and Saldana. The results indicate benefits experienced by cadres, customers, and the Kuta Mimba Savings and Loan Cooperative through the collaboration in implementing digital waste bank innovation. Cadres benefit from time efficiency, accountability, and transparency for customers. Customers benefit from additional alternative income, the sustainability of a clean environment, and access to various digital services provided by Kuta Mimba Mobile. The Kuta Mimba Savings and Loan Cooperative benefits as a social media platform, a promotional medium for increasing membership, and for product and service development. The implications of this study show that community participation is able to maintain environmental sustainability in line with the Sustainable Development Goals, as well as enhance digital financial literacy within the community.

Keywords: innovation, efficiency, digital waste bank, Kuta Mimba Mobile, circular economy

INTRODUCTION

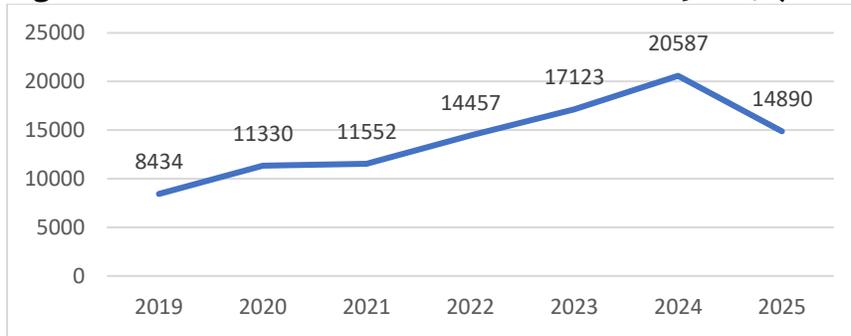
Waste has become a problem in all countries, including Indonesia as a developing country. The issue of continuously increasing waste generation has made waste problems in Indonesia increasingly complex, driven by population growth, increased consumption, increased urbanization, and a lack of public awareness regarding the importance of waste management (Wastec International, 2025). Based on data from The Atlas of Sustainable Development Goals 2023, Indonesia achieved unfavorable outcomes. In 2020, Indonesia was ranked as the fifth largest waste-producing country in the world (Indonesia Re, 2023). According to data from the National Waste Management Information System (Sistem Informasi Pengelolaan Sampah Nasional, SIPSN) of the Ministry of Environment and Forestry in 2023, 60.44 percent of waste originated from household activities, followed by market activities at 11.63 percent (Tim Indonesia Asri, 2025). As of April 17, 2025, based on SIPSN data, a total of 33.621 million tons of waste generation per year was recorded as being managed by

the Ministry of Environment (Y. Adiningsih, 2025). Therefore, the Ministry of Environment has implemented a nationally integrated waste management system reform strategy to accelerate the transition toward a circular, equitable, and sustainable waste management system (Public Relations of the Ministry of Environment, 2025).

One of the waste management approaches in Indonesia is the waste bank system, which has been introduced since 2008. Waste management regulated under Law Number 18 of 2008 is divided into two categories, namely household waste management and specific waste management. Specific waste management is fully the responsibility of the government as stipulated in Government Regulation Number 27 of 2020 (Indonesia Re, 2023). Household waste is the largest contributor to waste generation in Indonesia, encompassing various types of waste ranging from food residues, plastics, paper, to household products (Nestle, 2024). Therefore, every individual is obliged to conduct waste reduction and handling. According to the Regulation of the Minister of Environment and Forestry Number 14 of 2021 concerning waste management in Waste Banks, a waste bank is defined as a facility for managing waste based on the 3R principles (Reduce, Reuse, and Recycle) as a means of education, behavioral change in waste management, and the implementation of a circular economy. A waste bank represents an innovation in waste management that integrates environmental and economic principles by utilizing waste as a resource with economic value. Study results indicate that household waste management has a direct effect on public health (Ompusunggu et al., 2025). Thus, waste banks play an important role in creating a cleaner and healthier environment while simultaneously improving community welfare.

Government and community support is reflected in the increase in the number of waste banks in Indonesia, which in 2024 reached 20,587 units (Figure 1) distributed across 311 regencies and cities. This increase resulted from government efforts to encourage waste reduction starting at the household level. This was achieved by encouraging communities to separate organic and inorganic waste and subsequently deposit it at waste banks as part of recycling efforts (Maheswara, 2025a). The implementation of waste banks has several significant objectives and benefits, including reducing waste volume, increasing environmental awareness, economic empowerment, job creation, and environmental conservation. Research findings by Ratnaningsih et al. (2024), Wandira et al. (2024), and Marwaji and Hasibuan (2025) reveal that through the role of waste banks, communities can contribute to environmental conservation while obtaining income from the sale of collected waste. However, findings by Permatasari et al. (2022) indicate that waste banks are less effective and community involvement remains limited in waste bank programs, as communities more frequently dispose of waste without sorting it for self-management. Restu et al. (2025) further reveal that the role of waste banks has not been optimal due to low community participation. This condition is reflected in the decrease in the number of waste banks in 2025 to 14,890 units.

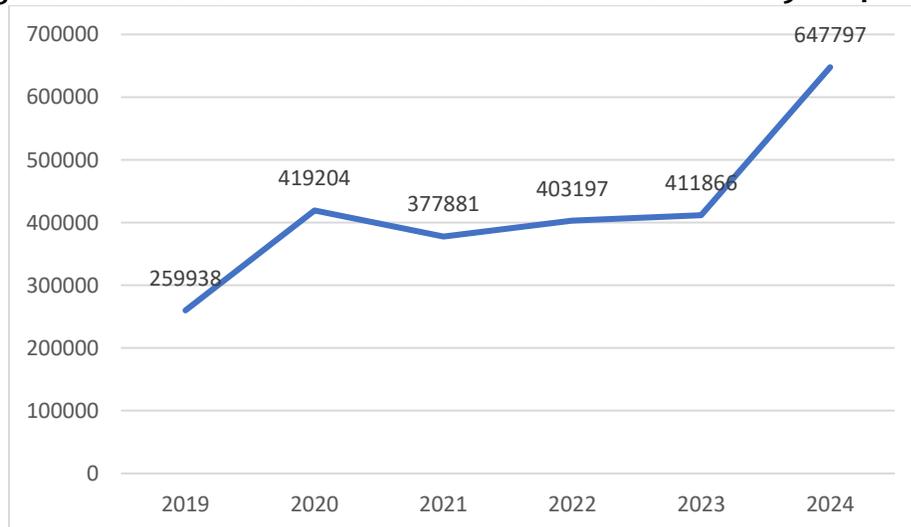
Figure 1. Number of Waste Banks in Indonesia 2019-2025 (units)



Source: Maheswara(2025a)and the Ministry of Environment(2025)

In line with the increase in the number of waste banks, the number of waste bank customers in Indonesia also increased, reaching 647,797 individuals in 2024 (Figure 2). This figure represents a 57 percent increase compared to the previous year, indicating an increase in community participation in household waste sorting activities (Maheswara, 2025b). Cholifah et al. (2025) reveal that waste banks are able to increase public awareness in sorting and managing waste while simultaneously providing economic benefits to members. Consistent with these findings, Yazirin et al. (2024) indicate that the economic sustainability of waste banks opens opportunities for business collaboration and partnerships through digital platforms. In contrast, Dhifira and Khotami (2025) report that low community participation and limited outreach activities have resulted in customer growth that does not meet expectations. This condition is caused by low public awareness of environmental concern and low awareness of waste sorting, as such activities are perceived by the community as time consuming.

Figure 2. Number of Waste Bank Customers in Indonesia 2019-2024



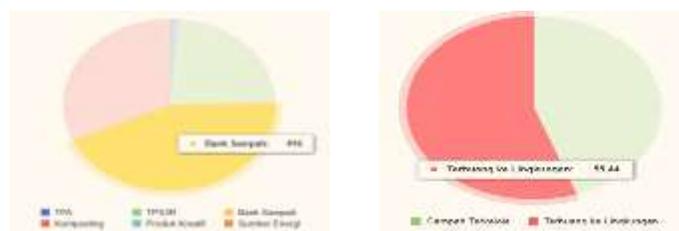
Source: Maheswara(2025b)

Waste problems in Bali are not significantly different and have become a highly urgent issue requiring serious intervention to prevent adverse environmental, social, and economic

effects on the Balinese community (Institute for Essential Services Reform, 2025). Waste management in Bali has become a super priority program, where handling waste cannot rely solely on downstream solutions but must be supported by management strategies from upstream to downstream. The upstream sources of waste originate from households, industrial activities, production processes, and the tourism sector (Bali Provincial Forestry and Environment Office, 2025). Waste issues must be addressed at their source rather than merely relocated, in order to prevent threats to public safety and environmental sustainability (Ministry of Environment, 2025).

During the period 2012–2025, the number of active waste bank units continued to increase, reaching more than 650 active waste banks in 2024 (Portal Bali News, 2025). In 2025, based on Figure 3, the number of waste banks in Bali increased by 416 units. Waste banks in Bali managed 55.44 percent of waste disposed into the environment (Figure 3). This waste primarily originated from household activities. According to Portal Bali News (2025), waste bank activities have generated economic benefits through waste absorption, with an economic value reaching IDR 13 billion.

Figure 3. Waste Bank and Waste Management in Bali in 2025



Source:

Ministry of Environment(2025)

The phenomenon of declining numbers of active waste banks in Badung Regency has led to the establishment of waste banks initiated at the banjar level (Tabelak, 2021). One such waste bank is owned by Banjar Buni of Kuta Traditional Village, established on May 12, 2019, under the name Bumiku Resik Waste Bank. A strategic initiative was undertaken by the women members of the Family Welfare Empowerment group of Banjar Buni, Kuta Traditional Village, by sorting waste and selling it to the banjar owned waste bank. Waste bank cadres carried out manual calculations by recording each customer’s waste savings individually. This process was highly time consuming, often requiring several hours to complete. Customers were also unable to accurately determine the amount of their waste bank savings, as the waste bank passbooks were held by the cadres. This condition is consistent with the findings of Fithri et al. (2024), which indicate that the realization of waste bank savings calculations conducted manually results in less effective and efficient waste bank management. Therefore, innovation through a digital application is required to strengthen transparency and effectiveness in waste management, while also supporting the achievement of the Sustainable Development Goals as a key factor in successful waste management (Burhan, 2025; Cholifah et al., 2025; Wiratama et al., 2026).

Based on this phenomenon, this community empowerment initiative was implemented through the adoption of a digital based application innovation for the cadres of Bumiku Resik Waste Bank in Banjar Buni, Kuta. The transaction recording system, which remained manual, had the potential to cause recording errors, delays in information delivery, and increasing public distrust regarding the benefits of waste bank existence. The objective of this empowerment program is to advance the management of Bumiku Resik Waste Bank through collaboration with the Kuta Mimba Savings and Loan Cooperative, which already operates the Kuta Mimba Mobile digital application service. Through this collaboration, Bumiku Resik Waste Bank is expected to become a pioneer of digital based waste banks in Kuta Traditional Village.

METHOD

This study employs a descriptive method with a qualitative approach. Informants were selected purposively, consisting of three key informants and fifteen secondary informants. Data collection techniques included observation, interviews, and documentation to obtain information relevant to the research focus. Data analysis was conducted using the interactive model of Miles, Huberman, and Saldana (Miles et al., 2014), which comprises three main stages: data reduction, data presentation, and conclusion drawing and verification. This research method is considered appropriate for providing a comprehensive understanding of the contribution of waste management. This is consistent with the findings of Kuseno and Waseh (2024), Cholifah et al. (2025), Biantara and Udayanie (2025), Fadhil et al. (2025), and Ayu et al. (2025), which emphasize that the success of waste bank management is highly dependent on the active involvement of local communities in every activity.

This activity was conducted in Banjar Buni, Kuta Traditional Village, with resource persons including waste bank cadres, the Chairperson of the Management Board, and the Chief Manager of the Kuta Mimba Savings and Loan Cooperative. The objective of this program is to improve waste bank management in Kuta Traditional Village through the implementation of a digital based application, as well as assistance and training on how to sort organic and inorganic waste. The method applied in this study is persuasive in nature and consists of several steps, including understanding problem conditions through observation, interviews, on site surveys, and interviews with stakeholders.

RESULTS AND DISCUSSION

Bumiku Resik Waste Bank was established on May 12, 2019, initiated by the Chairperson of the Family Welfare Empowerment group of Banjar Buni, Kuta Traditional Village. This initiative aimed to emphasize the active role of women in Banjar Buni in community empowerment through household level waste sorting practices. The initiative was warmly welcomed by the Head of the Banjar Buni neighborhood and supported by the Bali Wastu Lestari Foundation, led by Ni Wayan Riawati, commonly known as Bu Ria. Members of the Family Welfare Empowerment group also showed strong enthusiasm in becoming cadres of Bumiku Resik Waste Bank. This collaboration was regarded as positive and highly expected to increase awareness and participation among women in maintaining environmental cleanliness starting from their respective households. This is particularly important as housewives are the primary producers of household waste, and therefore have a key

responsibility in maintaining environmental sustainability. The operations of Bumiku Resik Waste Bank are conducted every Sunday each month, as announced by the Chairperson of the Waste Bank through the WhatsApp groups of each Family Welfare Empowerment group. Each type of waste deposited by customers is recorded in a savings book according to the category of waste submitted. Customers are encouraged to sort their waste savings into organic and inorganic types prior to submission.

1. Sorting of Waste Savings of Bumiku Resik Waste Bank Customers

The waste savings of Bumiku Resik Waste Bank customers are predominantly plastic waste, although some consist of paper, cardboard, used cooking oil, and dried frangipani flowers. Based on Figure 4, it is evident that customer waste savings have not yet been sorted in detail, particularly for plastic bottle waste. Plastic waste is an inorganic type of waste generated from daily household activities of members of the Family Welfare Empowerment group. The plastic waste deposited by customers includes plastic bags, plastic bottles, food packaging, beverage packaging, liquid soap sachets, shampoo sachets, and other household product packaging. If not managed properly, plastic waste can cause soil, air, and marine pollution, disrupt ecosystems, and pose risks to human health and other living organisms. The participation and awareness of members of the Family Welfare Empowerment group in depositing waste through household level sorting practices represent a commendable initiative.

The active actions undertaken by these women reflect the success of education and assistance programs, although further assistance is still required, particularly regarding more detailed sorting of plastic bottles. More detailed sorting of plastic bottles can increase their economic value while simultaneously improving efficiency in waste management at the central waste bank level. When customers understand how to sort plastic bottles based on bottle caps, brand, and bottle material, the value of their waste savings will be higher compared to unsorted plastic bottles. With improved understanding and more detailed sorting practices among waste bank customers, waste banks can function not only as facilities for depositing waste, but also as collective learning platforms to foster environmentally friendly behavior, increase economic benefits for the community, and operate more effectively as supporting instruments for sustainable environmental management.

Figure 4 Waste Savings of Bumiku Resik Customers



Source: primary data (2026)

2. Manual Recording of Waste Savings of Bumiku Resik Waste Bank Customers

The next stage carried out by the waste bank cadres is the recording of customer waste savings. The recording of waste bank savings is conducted manually, beginning with the receipt of waste deposits, followed by a sorting process according to waste type, such as plastic, plastic bottles, cardboard, paper, and other inorganic waste. This sorting process is necessary to calculate the economic value of each type of waste, as each category of plastic waste has a different selling value. Subsequently, weighing is carried out separately using manual scales. The weighing process serves as the basis for calculating the value of each customer's waste savings, thereby requiring high accuracy from the waste bank cadres to avoid recording errors that would inevitably affect customer trust in waste bank management.

The final stage of this activity is recording the weighing results into each customer's savings book. Waste bank cadres manually record the type of waste, quantity, weight, and selling value obtained as the customer's savings balance in the savings book. Each customer's savings book functions as administrative evidence as well as an educational medium for both cadres and customers, demonstrating the weighing results and the economic value of the waste savings deposited by customers. Through this manual recording system, waste bank cadres require a considerable amount of time, often several hours, from 09:00 to 16:00 Central Indonesia Time. The manual recording of customer savings at Bumiku Resik Waste Bank has proven to be highly time consuming and labor intensive, particularly for waste bank cadres who mostly perform dual roles as housewives.

The manual recording process demands a high level of accuracy in sorting, weighing, and recording each customer's waste savings, resulting in customer service that often takes a very long time and is less efficient. This condition frequently leads to delays in domestic responsibilities and other economic activities, while also increasing the risk of recording errors that inevitably affect customer trust in the management of Bumiku Resik Waste Bank.

Based on the field phenomena described above, it is therefore essential to implement innovation in waste bank management toward a digital waste bank system. The application of a digital system enables the processes of savings recording, weighing, and reporting to be carried out directly. This digital transformation is expected to enhance transparency and accountability in the management of Bumiku Resik Waste Bank, while simultaneously strengthening customer trust. Digital waste bank innovation also opens opportunities for the development of additional benefits, such as ease of performance monitoring, expansion of partnership networks, integration with environmental and creative economy programs, and enhancement of digital financial literacy among members of the Family Welfare Empowerment group. The transition toward a digital waste bank not only increases operational efficiency but also strengthens the role of waste banks as technology based waste management models that are sustainable and beneficial for the community.

Figure 5. Manual Recording of Waste Savings of Bumiku Resik Waste Bank Customers



Source: primary data (2026)

3. Socialization of the Digital Waste Bank through the Kuta Mimba Mobile Application

Various problems arising from the manual recording system implemented by the cadres of Bumiku Resik Waste Bank led to the socialization of digital waste bank implementation through the Kuta Mimba Mobile application. This initiative represents a collaborative effort among the Family Welfare Empowerment group of Banjar Buni, Bumiku Resik Waste Bank, and the Kuta Mimba Savings and Loan Cooperative. The implementation of the digital waste bank is expected to operate sustainably with ongoing assistance and capacity building for both cadres and customers. Through innovation in digital based recording via the Kuta Mimba Mobile application, waste bank customer data management can be conducted more quickly, optimally, efficiently, and transparently, as the data are automatically integrated. This system facilitates performance evaluation, accountability in waste bank management, and reporting to waste collectors. With a more modern digital application system, both cadres and customers are expected to enhance their understanding of digital finance through their waste savings activities.

This collaboration also opens opportunities for service development by the Kuta Mimba Savings and Loan Cooperative through the Kuta Mimba Mobile application. Accordingly, waste bank customers will automatically have waste savings recorded through a holding account, which will subsequently be transferred to their respective savings accounts in accordance with the provisions applied by the Kuta Mimba Savings and Loan Cooperative. This integration represents a positive aspect of waste bank participation, as becoming a waste bank customer simultaneously enables membership in the Kuta Mimba Savings and Loan Cooperative. The integration of waste savings with cooperative savings provides distinct advantages and serves as an attraction for other waste bank customers. This synergy not only contributes to environmental preservation but also expands social and economic benefits for members of the Family Welfare Empowerment group of Banjar Buni, Kuta. Thus, the socialization and implementation of the digital waste bank constitute a tangible manifestation of effective, inclusive, and sustainable waste management.

Figure 6. Education and Socialization of the Kuta Mimba Mobile Digital Waste Bank Innovation for Bumiku Resik



Source: primary data (2026)

4. Implementation of the Bumiku Resik Digital Waste Bank Innovation

Bumiku Resik Waste Bank implemented digital waste bank innovation in response to the increasing volume of waste savings deposited by customers. The manual recording system became less optimal, leading to the adoption of digital waste bank innovation through the Kuta Mimba Mobile application. This innovation addresses the problems experienced by waste bank cadres and responds to the challenges encountered during waste bank operations. The implementation of this digital application strengthens the synergy between Bumiku Resik Waste Bank and the Kuta Mimba Savings and Loan Cooperative as institutional partners that support the creative economy, economic inclusion, digital financial literacy, and clean and healthy environmental management.

a. Benefits Experienced by Bumiku Resik Digital Waste Bank Cadres through the Implementation of the Digital Waste Bank via the Kuta Mimba Mobile Application

The initial stage undertaken by waste bank cadres is opening the digital waste bank application through Kuta Mimba Mobile (Figure 7). In the main menu, digital waste bank cadres act as administrators who input data for each waste bank customer by logging into the application system using the waste bank code and password. The next stage allows the application administrator to access the main homepage of the digital waste bank. As shown in Figure 7, the main homepage of the digital waste bank application contains menus for members, transactions, balances, cancellations, reports, employees, price lists, settings, and logout. This homepage serves as the initial interface for application administrators in recording customer waste savings, registering new waste bank customers, canceling transaction records in case of recording errors, viewing customer balances, and generating overall reports. All of these activities, which were previously carried out manually by waste bank cadres, now provide substantial benefits and bookkeeping convenience through the use of the Kuta Mimba Mobile application via the Digital Waste Bank service.

Figure 7. Main Menu and Homepage of Bumiku Resik Digital Waste Bank



Source: Kuta Mimba Mobile Digital Waste Bank (2026)

The next stage involves the application administrator (waste bank cadre) inputting data in the transaction report menu for each customer (Figure 8). Transaction reports are recorded for each customer and facilitated by menu options for item lists (waste types), quantities, and prices. Previously, manual recording required a considerable amount of time, often several hours, due to the need to calculate each item type, quantity, and price per customer individually. By using the digital application through Kuta Mimba Mobile Digital Waste Bank, waste bank cadres are greatly assisted in terms of time efficiency, labor, and cost savings, as there is no need to print individual savings books for each customer. Once the application administrator completes inputting all waste bank savings for each customer, transaction reports are automatically sent via the Telegram application to each customer’s mobile phone. This process represents a form of transparency in transactions achieved through the implementation of digital waste bank innovation.

Figure 8: Customer Recording Transactions for Bumiku Resik Digital Waste Bank

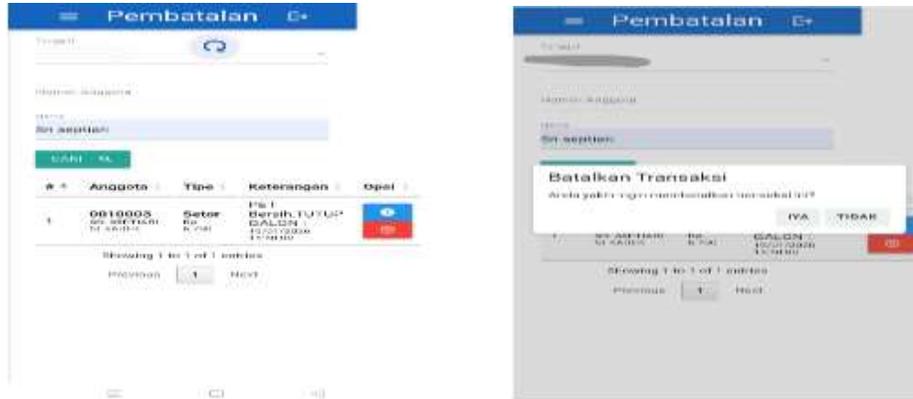


Source: Kuta Mimba Mobile Digital Waste Bank (2026)

As shown in Figure 9, the transaction input cancellation menu allows waste bank cadres to correct errors in customer transaction entries. If a cadre inputs incorrect transaction data, such as the type of waste savings or the quantity of waste deposited by a customer, the transaction can be canceled through the cancellation menu. After clicking the red button, the system initiates the transaction cancellation process, followed by a notification prompt in which the user selects “Yes.” Once this

process is completed, the transaction input is successfully canceled and can then be re entered correctly, as illustrated in Figure 8.

Figure 9. Cancellation of Customer Transaction Input in the Waste Bank



Source: Kuta Mimba Mobile Digital Waste Bank (2026)

After all stages of customer waste savings transaction input have been completed, the cadre, as the manager of the digital waste bank application, can access various types of reports, including transaction reports by period, customer balance lists, item quantity recapitulation, lists of new members, withdrawal transaction reports, price lists, and other menus (Figure 10). Figure 10 shows the report menu, which serves as a recap record at the end of the cadre's work activities, after all customer waste savings transactions have been entered in the transaction menu. In the final customer transaction report menu, when viewed by period (middle image), the report presents the waste savings of each waste bank customer based on item type, weight, price, and total savings, which reflect the economic value of customer waste savings.

Recording through the digital application provides convenience for waste bank cadres in recapitulating all types of waste items, making the process more effective, efficient, and accurate in calculation. Within the system, the economic value of each type of customer waste savings is automatically calculated after entering the item type and weight. In the subsequent stage, the total amount of waste savings for each customer can be identified, and waste bank customers receive notifications via the Telegram application regarding the amount of waste savings deposited at that time. This process represents transparency and accountability in waste management by the managers of Bank Sampah Bumiku Resik. The right section of Figure 10 shows the final balance of each Bank Sampah Bumiku Resik customer at the time transactions are conducted on the same day. As a result, each customer is motivated to carry out waste segregation starting from their own households. Community awareness and participation through PKK women in Banjar Buni also contribute to maintaining environmental cleanliness and ensuring the sustainability of Bumiku Resik for future generations.

Figure 10. Final Transaction Recording Report, Periodic Transaction Report, and Customer Balance Report of Bank Sampah Bumiku Resik Digital Waste Bank



Source: Kuta Mimba Mobile Digital Waste Bank (2026)

Registration of new members of Bank Sampah Bumiku Resik customers can be conducted directly by cadres, as managers of the Kuta Mimba Mobile Digital Waste Bank application, as shown in Figure 11. The registration process is carried out by entering the customer’s name, Telegram ID, national identity number, phone number, address, cooperative account number at Kuta Mimba Savings and Loan Cooperative, and member code. After clicking the save button, the data are automatically recorded in the system, officially registering the individual as a customer member of Bank Sampah Bumiku Resik.

Figure 11. New Member Registration Form through the Kuta Mimba Mobile Application and List of New Customer Members of Bank Sampah Bumiku Resik



Source: Kuta Mimba Mobile Digital Waste Bank (2026)

The waste savings owned by each Bank Sampah Bumiku Resik customer are deposited into the waste bank account. The economic value of customer savings, with a minimum requirement of IDR 50,000.00 per customer, is automatically transferred to the customer's account at the Kuta Mimba Savings and Loan Cooperative, where it can be utilized for various services available in the Kuta Mimba Mobile digital application. The Kuta Mimba Savings and Loan Cooperative facilitates the application from the initial recording stage and holds customer funds derived from waste savings deposits. Customer waste bank savings with a minimum value of IDR 50,000.00 and its multiples can be used to access services within the Kuta Mimba Mobile application, including electricity token payments, mobile phone credit purchases, shopping transactions at Kuta Mimba merchants using QRIS payments, BPJS payments, top up services for OVO and GoPay, as well as cash withdrawals. Figure 12 presents the customer transaction report indicating that once the minimum nominal requirement of IDR 50,000.00 is met, the funds are automatically withdrawn to each customer's cooperative account. Customers are informed of this transaction transfer through notifications sent via Telegram.

Figure 12. Withdrawal Transaction Report from Bank Sampah Bumiku Resik Waste Savings to Customer Accounts at the Kuta Mimba Savings and Loan Cooperative

BANK SAMPAH BUMIKU RESIK UNIT BR BUNI
JL. BUNI SARI LINGK. BUNI KUTA

Laporan Transaksi Withdraw
Periode: 20-12-2025 s/d 19-01-2026

#	No. Anggota	Nama	Tanggal	Nomer SISUKOP	Jumlah
1	0010002	SURYA DEWI RUSTARIYUNI	21-12-2025	0400.683059-TB	250.000
2	0010004	SRI RAHAYU S.SI APT NYOMAN	21-12-2025	0400.683060-TB	50.000
3	0010006	DEWA AYU IDARIANI	21-12-2025	0400.683062-TB	150.000
4	0010011	EKA LISTIANA NI PUTU	21-12-2025	0400.683068-TB	50.000
5	0010033	AYU SAVITRI DEWI I GUSTI	21-12-2025	0400.683124-TB	300.000
6	0010049	EKA SULIASTUTI	21-12-2025	0400.683066-TB	50.000
7	0010051	I RETUT WIRGA ASTANA	21-12-2025	0400.691602-TB	50.000
Total					900.000

Source: Kuta Mimba Mobile Digital Waste Bank (2026)

After waste bank cadres complete the input of all waste savings transactions for all customers, the recapitulation report of item quantities for collectors is automatically generated and can be downloaded directly from the application, as shown in Figure 13. This report contains the transaction data of all customers and is subsequently submitted to waste collectors. When performed manually, this task is highly time consuming, often taking several hours until late in the day. This is due to the increasing volume of customer waste savings, the wide variety of waste item types, and the need for high accuracy in manual calculations and weighing.

With the implementation of digital waste bank innovation, cadres benefit from greater efficiency in time and labor, as well as improved accountability in calculating total waste savings from each transaction activity. The digital application significantly

supports and facilitates the work of cadres, providing substantial benefits. As the final result of all transaction inputs, the economic margin value from the sale of customer waste to the waste bank and subsequently from the waste bank to collectors can be obtained. The difference between the selling price and the purchase price constitutes profit for Bank Sampah Bumiku Resik, which is automatically deposited into the waste bank account held at the Kuta Mimba Savings and Loan Cooperative.

Figure 13. Price List Report and Item Quantity Recapitulation for Collectors

No.	Nama Barang	Harga Beli	Harga Jual
1	PET Kotor	Rp. 1.500	Rp. 1.700
2	Aluminium Tebal/Panci	Rp. 8.000	Rp. 9.000
3	KOMPOS TAKAKLURA/ POC	Rp. 500	Rp. 0
4	PET Campur	Rp. 1.000	Rp. 0
5	PET Bersih	Rp. 2.700	Rp. 3.000
6	PET Werna Bersih	Rp. 1.400	Rp. 0
7	GELAS/SOK K	Rp. 1.500	Rp. 2.000
8	GELAS/SOK B	Rp. 2.500	Rp. 3.000
9	ALES, KARDIFEX, TEH GELAS	Rp. 1.500	Rp. 3.000
10	OLI/PUTIHAN	Rp. 1.400	Rp. 1.500

BANK SAMPAH BUMIKU RESIK UNIT BR BUNI JL. BUNI SARI LENGK. BUMI KUTA						
Rekap Jumlah per Barang						
Periode: 21-12-2025 s.d 19-01-2026						
No.	Nama Barang	Beli	Jual	Qty	Jumlah	
		Beli	Jual		Beli	Jual
Item Baru						
1	SAKSI BUNYI 01	0,000	0,000	10,00	0,0000	100,000
Item Kuda Kuda						
1	PER BUKAN BENDARBA	1,000	1,000	100,00	100,000	100,000
2	PER BUKAN BENDARBA	400	800	0,00	0,00	1,000
3	PER BUKAN BENDARBA	100	400	1,00	1,00	1,00
4	PER BUKAN BENDARBA	50	0	0,00	0,00	0
Item Lama						
1	PER BUKAN BENDARBA	1,000	1,000	0,00	0,00	10,000
2	PER BUKAN BENDARBA	500	0,00	0,00	0,00	0,00
3	PER BUKAN BENDARBA	1,000	1,000	0,00	0,00	0,00
4	PER BUKAN BENDARBA	1,000	1,000	0,00	0,00	0,00
5	PER BUKAN BENDARBA	1,000	1,000	0,00	0,00	0,00
Item Lupa						
1	PER BUKAN BENDARBA	4,000	10,000	10,00	10,00	100,000
2	PER BUKAN BENDARBA	500	1,000	0,00	0,00	0,00
3	PER BUKAN BENDARBA	4,000	4,000	10,00	10,00	100,000
4	PER BUKAN BENDARBA	1,000	1,000	0,00	0,00	0,00
5	PER BUKAN BENDARBA	500	0,00	0,00	0,00	0,00
Item Lain						
1	PER BUKAN BENDARBA	0,000	0,00	0,00	0,000	0
2	PER BUKAN BENDARBA	0,000	0,000	1,00	0,000	0,000
3	PER BUKAN BENDARBA	7,000	0,000	1,00	1,000	10,000
4	PER BUKAN BENDARBA	4,000	0,000	10,00	0,000	0,000
5	PER BUKAN BENDARBA	1,000	1,000	0,00	0,00	0,00
6	PER BUKAN BENDARBA	1,000	1,000	0,00	0,00	0,00
7	PER BUKAN BENDARBA	0,00	0,00	0,00	0,00	0,00
Item Baru						
1	PER BUKAN BENDARBA	400	400	0,00	1,000	0,000
2	PER BUKAN BENDARBA	300	300	10,00	1,000	0,000
3	PER BUKAN BENDARBA	4,000	4,000	0,00	0,000	0,000
4	PER BUKAN BENDARBA	800	800	0,00	0,000	0,000
5	PER BUKAN BENDARBA	300	300	0,00	0,00	0,000
6	PER BUKAN BENDARBA	1,000	1,000	0,00	0,000	0,000
7	PER BUKAN BENDARBA	600	1,000	0,00	0,00	0,000
8	PER BUKAN BENDARBA	3,000	3,000	10,00	0,000	0,000
9	PER BUKAN BENDARBA	1,000	1,000	0,00	0,000	0,000
10	PER BUKAN BENDARBA	1,000	1,000	0,00	0,000	0,000
11	PER BUKAN BENDARBA	4,000	4,000	0,00	10,000	0,000
12	PER BUKAN BENDARBA	2,000	2,000	0,00	0,000	0,000
Total				510,14	991,000	1.012,400

Source: Kuta Mimba Mobile Digital Waste Bank (2026)

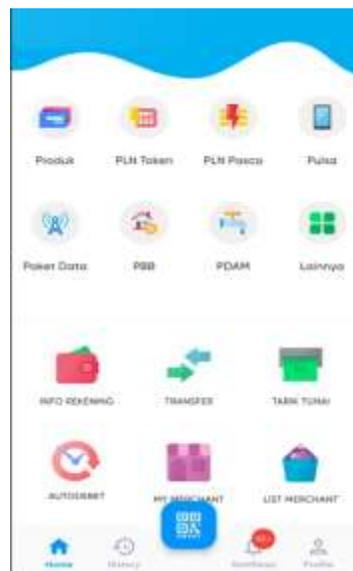
b. Benefits Experienced by Customers of the Bumiku Resik Digital Waste Bank

Based on interviews conducted with PKK women in Banjar Buni, Kuta, who are customers of Bank Sampah Bumiku Resik, it was conveyed that saving waste at the waste bank provides tangible economic benefits. Waste that has been deposited at the waste bank is sorted, weighed, and its value calculated by waste bank cadres, then recorded as customer savings balances. Customers of Bank Sampah Bumiku Resik expressed several benefits experienced from having waste savings at Bumiku Resik. One benefit is that customers who previously did not understand how to use digital applications have gained new knowledge regarding digital application services through Kuta Mimba Mobile. This condition indicates an improvement in digital financial literacy through collaborative partnerships between Bank Sampah Bumiku Resik and the Kuta Mimba Savings and Loan Cooperative via the implementation of digital innovation in the waste bank system.

Other customers also stated that by participating in waste savings activities, the deposited waste has economic value, provides an alternative source of income, and can be converted into cash, thereby helping support household economic conditions. The more waste that is saved, the higher the value of the customer's savings balance at the waste bank. The collaboration between Bank Sampah Bumiku Resik and the Kuta Mimba Savings and Loan Cooperative through the Kuta Mimba

Mobile Digital Waste Bank application provides specific benefits for customers. Customers are able to enjoy the convenience of digital services and access various types of digital services available in the Kuta Mimba Mobile application. Customers can directly monitor their waste savings balances in real time through notifications received via the Telegram application. With the presence of Kuta Mimba Mobile, customers are able to purchase mobile phone credit, electricity tokens, conduct transactions with hundreds of merchants affiliated with Kuta Mimba, make payments for BPJS Health and BPJS Employment, top up OVO and GoPay balances, as well as perform cash withdrawals. The digital innovation implemented by Bank Sampah Bumiku Resik transforms waste saving activities into not only an effort to preserve the environment, but also a form of community participation in a community based circular economy ecosystem. This innovation expands customer access to digital financial services derived from their waste savings while simultaneously supporting sustainable efforts to maintain a clean and healthy environment.

Figure 14. Kuta Mimba Mobile Application



Source: Kuta Mimba Mobile (2026)

c. Benefits Experienced by the Kuta Mimba Savings and Loan Cooperative

The collaboration between the Kuta Mimba Savings and Loan Cooperative and Bank Sampah Bumiku Resik in Banjar Buni, Kuta, provides strategic benefits in building a community based circular economy ecosystem. The waste bank savings holding account managed by the Kuta Mimba Savings and Loan Cooperative offers strategic advantages for the cooperative, as it enables financial system integration. Through this collaboration, the cooperative gains additional members from waste bank customers, thereby expanding its membership base and increasing the potential for community fund mobilization. Furthermore, funds deposited into the cooperative through the holding account are transferred to individual member accounts who are simultaneously waste bank customers, and these funds can subsequently be managed as savings products or utilized through digital based services available in the Kuta

Mimba Mobile application. This condition also creates opportunities for broader development and marketing of the digital services owned by the Kuta Mimba Savings and Loan Cooperative through the Kuta Mimba Mobile application.

Through cooperation involving digital innovation, waste bank members do not only function as waste depositors but also automatically become cooperative members, thereby gaining broader access to financial services and economic empowerment. Savings generated from waste deposits are recorded in the waste bank system, and once they reach the minimum value of IDR 50,000.00, members are able to transfer their balances to savings accounts at the Kuta Mimba Savings and Loan Cooperative. This provision ensures that each transaction has significant economic value and allows administrative integration between these two community based institutions.

After waste savings funds are successfully transferred to cooperative accounts, members are able to utilize services available in the Kuta Mimba Mobile application, including balance inquiries, transaction history, and direct cash withdrawal services. For the cooperative, this collaboration serves as an opportunity to expand its membership base while increasing the circulation of community savings derived from environmental activities. In addition, the cooperative has the potential to develop new products and services based on the needs of waste bank members, such as microcredit, social services, and entrepreneurship training. Therefore, this cooperation not only strengthens the institutional capacity of both parties but also promotes financial inclusion, women empowerment, and the achievement of sustainable development goals more concretely at the local level. This collaboration also increases the adoption of digital waste bank applications in other regions that have recognized the significant benefits obtained by both waste banks and customers.

d. Benefits of Environmental Sustainability Toward a Clean and Healthy Environment

The involvement of PKK women in Banjar Buni, Kuta, in the activities of Bank Sampah Bumiku Resik indicates strong community participation and concern for a clean, healthy, and sustainable environment. Women, as the primary actors in household waste collection and sorting activities, also become agents of change within the community by encouraging women empowerment in environmental issues and household economic management, while strengthening sustainability practices that begin at the family level. With the broad involvement of PKK in waste bank programs, the waste bank becomes a concrete example of sustainable development implementation that integrates social, economic, and environmental dimensions within a mutually reinforcing system.

The waste bank plays an important role in maintaining environmental cleanliness, particularly at the household level, by fostering collective awareness to sort waste and deposit it into waste banks where it holds economic value. Household waste that previously had the potential to pollute the environment can be managed responsibly. These activities align with the Sustainable Development Goals, specifically the creation of sustainable cities and communities (Goal 11), responsible consumption and production (Goal 12), and efforts to combat climate change (Goal 13). Through

empowerment and participation, PKK contributes to transforming the Banjar Buni environment into an inclusive and resilient urban community that ensures sustainable consumption patterns while creating a clean, healthy, and sustainable environment.

CONCLUSION

Community empowerment carried out by PKK women in Banjar Buni, Kuta, through the establishment of Bank Sampah Bumiku Resik provides various benefits. The manual recording of transactions for each customer presents several challenges, which highlights the need for innovation in digital based waste bank management. Therefore, Bank Sampah Bumiku Resik collaborated with the Bali Waste Lestari Foundation and the Kuta Mimba Savings and Loan Cooperative to implement a digital waste bank system through the Kuta Mimba Mobile Digital Waste Bank application. The benefits experienced by waste bank cadres after implementing the digital waste bank include convenience in bookkeeping activities. Prior to using the digital waste bank application, cadres recorded transactions manually, a process that required substantial time and effort throughout the day, ranging from 10.00 to 15.00 WITA. Manual recording also required calculations of total savings and profit margins obtained from waste collection. Through the digital application, cadres are able to register new members directly without the need for physical savings books, thereby creating cost efficiency. In addition, transparency is enhanced, as every waste bank transaction is received in real time and customers obtain transaction notifications through their respective Telegram applications. Another benefit is that waste bank managers are able to access information regarding profit margins from waste sold to collectors after being purchased from customers, as well as improve their knowledge of digital based financial service applications.

PKK women in Banjar Buni, Kuta, who act as customers of Bank Sampah Bumiku Resik also expressed various benefits, including access to an alternative source of additional income as an economic benefit and improved household environmental cleanliness. With the savings balance they accumulate, customers are able to utilize various digital services available through the Kuta Mimba Mobile application. Furthermore, the collaboration between Bank Sampah Bumiku Resik in Banjar Buni, Kuta, and the Kuta Mimba Savings and Loan Cooperative provides institutional benefits, such as serving as a promotional medium, introducing the cooperative and its social mission through the Kuta Mimba Mobile digital application, expanding the membership base, increasing the potential for community fund mobilization, and creating opportunities for the development and broader marketing of digital services owned by the Kuta Mimba Savings and Loan Cooperative through the Kuta Mimba Mobile application, which ultimately promotes financial inclusion.

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