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Coastal Community Empowerment by Mitra Bentala Indonesia and Academics in Formation Waste Bank Group in Kota Karang Subdistrict (Baskora)

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ABSTRACT

The waste problem in the coastal areas of Bandar Lampung City is a complex environmental challenge, primarily due to the high volume of household waste and limited management systems. This study aims to analyze the *co-creation model* in empowering coastal communities through the establishment and operation of the BASKORA Waste Bank in Kota Karang Village, Bandar Lampung. The approach used was descriptive qualitative supported by quantitative data, including field observations, interviews, and waste volume analysis during seven weeks of activity. The results showed that community participation increased significantly, from 11 customers in the first week to 40 customers in the seventh week, with a total of 624.1 kg of managed waste. The dominant types of waste included plastic bottles and cups (144.1 kg), hard plastic (91.36 kg), and mixed/other (94.6 kg), indicating public awareness of the economic value of high-value waste. The increase in the volume and frequency of waste deposits showed a positive correlation between community participation and the effectiveness of mentoring. Conceptually, BASKORA demonstrates that collaboration between communities, academics, and non-governmental organizations through *co-creation mechanisms* can transform ecological behavior while creating a circular economic system at the local level. Therefore, this model can be replicated in other coastal areas as an empowerment strategy that integrates social, economic, and environmental sustainability aspects.

1. Introduction

Mitra Bentala Indonesia, as institution self-reliance the community that has operate since 1995 in Bandar Lampung, has record footsteps long in empowerment public coastal and management source Power natural in a way sustainable. This institution has play a role active handle issues strategic, including pollution sea, degradation mangrove ecosystem, as well as limitations

access public to management trash and opportunities economy alternatives. Various programs have been implemented, starting from mangrove rehabilitation, training economy circular, until establishment of waste banks in several ward Coastal area. The success of Mitra Bentala reflected from management more from four thousands of tons of waste coast and formation network public care solid environment. Experience This become base for Mitra Bentala for play a role strategic in

revitalization of the Karang City Waste Bank (BASKORA), with focus on strengthening institutional and program sustainability.

Problems management garbage in the area coast, including Kota Karang Subdistrict is a issue complex environment. Based on data from the Ministry of Environment and Forestry (KLHK, 2023), approximately 35 million tons of waste are produced in Lampung every year. year, almost one third No managed in a way effective and potential pollute ecosystem sea. In Coral City, the piles waste House stairs, waste activity fisheries, and limitations system transportation make things worse problem This. The impact that appears No only in the form of degradation environment, but also threatens health society and reduce productivity economy local.

The history of the establishment of the Karang City Waste Bank shows importance strengthening institutional For program sustainability. In 2014, Mitra Bentala foster group waste bank managers in sub-districts this, however activity the only endure until 2019 before Finally disband. Failure This especially caused by weakness structure organization, low formal support from government sub-districts, and the lack of capacity social as well as participation member community. Experience the confirm that success of the waste bank No only determined by aspects technical, but also by legitimacy institutional, structure clear management, and participation active public.

One of effort For overcome problem sustainability group the that is with procurement letter statement (SK) or legality Group. Decision of the Head of Karang City Village (September 2025) regarding The establishment of the Karang City Waste Bank (BASKORA) became a very important formal instrument. This decree give base law for group manager, determine structure legitimate administrator, and regulate mechanism systematic operations, starting from sorting, weighing, recording, up to management savings members. With with the existence of the SK, the BASKORA Waste Bank can operate formally and have foundation strong institutions, so that risk dissolution return can minimized.

Approach management waste based community through the waste bank model has proven effective in various area. The 3R principle (*reduce, reuse, recycle*) allows transformation waste become source Power worth economy, at the same time increase awareness environment society. In addition to the impact

ecological, waste banks also open opportunity economy new, especially for women who often become driving force main in activity environment. However, the sustainability of waste banks is highly dependent on strengthening institutional, capacity social members, as well as formal legitimacy granted by the government. With support of the Village Head's Decree, BASKORA Waste Bank can build participation active community, foster a sense of ownership, and strengthen social capital as well as literacy environment at the level community.

With Thus, the formation of return of the Karang City Waste Bank through the Village Head's Decree no just focused on the collection and utilization trash, but also stress strengthening institutional, independence groups, and program sustainability. This program aim push participation active public in management waste based community, implementing principle collaboration between government, society and institutions self-reliance community (NGOs), as well as evaluate impact social, economic, and ecological from BASKORA Waste Bank operations. Approach This expected capable change group the previous society passive become independent, productive and sustainable partners.

2. Methodology

Study implemented in coastal areas which are location *waste bank* program assistance together Mitra Bentala Indonesia. Activities done during the program implementation period, including stage planning, implementation, to evaluation.

Study This use approach descriptive qualitative with quantitative data support simple For describe condition social, environmental, and dynamics empowerment public through the *waste bank* program. According to Moleong (2019), approach qualitative aim understand phenomenon social in a way holistic in context natural, while quantitative data used For strengthen proof empirical results observation field. The data consists of on the primary data obtained through observation, interviews, FGD, and questionnaires to community, waste bank administrators, and partners or related stakeholders such as Mitra Bentala Indonesia. On the side other, secondary data originate from document sub-districts, BPS data, and reports activities. Analysis done in a way descriptive qualitative with step reduction, presentation, and withdrawal conclusion as proposed by Miles and Huberman (1994). Quantitative data such as volume and value sell waste processed in a way tabular for strengthen interpretation qualitative.



Figure 1. Research Location

3. Results and discussion

3.1. General Overview of Implementation Activity

This program started from the initiative of Mitra Bentala Indonesia which has been This active in empowerment public coastal areas in Bandar Lampung. Socialization beginning to public general conducted on June 26, 2025 with focus introduce waste bank concept as well as urgency management sustainable waste management activities This continued on July 11, 2025 which is special involving group moms House ladder as candidate core management. Through approach participatory, socialization process the build awareness collective and foster a sense of belonging to the program. After through several meetings, on September 11, 2025 in person official formed Waste Bank Group Kota Karang Subdistrict with the name BASKORA, accompanied by determination structure organization and division task for member.

Stage furthermore in the form of training waste bank operations carried out on September 16, 2025. In this activity This, Mitra Bentala Indonesia together with academics provide knowledge transfer about management collection, sorting, and recording garbage,

and deliver equipment supporters in the form of scales, sacks, containers sorting, books savings and tools write. Training This mark transition from stage socialization to stage strengthening capacity (empowering), because public No only understand concept, but also equipped skills technical and facilities operational. After training, activities continue with routine operations of the waste bank every Sunday from September 26 to November 6, 2025. During six activities collection waste House stairs, society start show participation active and disciplined in sorting trash, weighing, and take notes results collection to in book savings member.

In a way general, results implementation show that empowerment public coast through the formation of BASKORA has enter stage beginning empowerment that includes enabling aspect (allows) public participate through socialization and training), empowering (providing with knowledge and tools), and protecting (guaranteeing sustainability through routine and structure organization). The pattern in accordance with draft empowerment public according to Ramdhani and Rahaju (2022) who emphasized that the empowerment process ideally involving three stage so that it can be achieved independence community coastal areas. These

results are also consistent with findings of Padmawati *et al.* (2022) who studied Waste Banks Surolaras in Yogyakarta, where empowerment succeed increase knowledge, participation, and ability public in manage waste at a time grow mark economy through system savings. In the context of BASKORA, the provision of book savings and implementation routine activities show similarity pattern, namely emergence system economy simple potential push sustainability activity.

Participation active society, especially group moms House stairs, become one of the achievements the importance of this program. The socialization carried out in a way tiered proven effective increase awareness environment and responsibility answer collective to waste House stairs. This result in line with study Maesarini and Zahran (2023) in Depok City which shows that the waste bank based community can grow awareness critical public to management trash and strengthen role Woman as driving force main activity environment. In the case of BASKORA, the dominance role mothers also strengthen solidarity social and become foundation for sustainability activity Because involvement Woman tend bring consistency in practice sorting waste House ladder.

In addition, the characteristics public coast make this program own mark strategic. As expressed by Ramdhani and Rahaju (2022) in study they are at the Bintang Mangrove Waste Bank in Surabaya, empowerment public coast through the waste bank No only impact on aspects environment, but also socio-economic Because public get benefit financial from results sorting. Similar things seen in BASKORA, where the presence facility weighing and recording savings open opportunity for member For get incentive from results sale waste separated. Although stage This Still beginning, pattern activity show direction going to sustainability economy at a time strengthening awareness ecological public coast.

From the perspective institutional, formation structure organization and division task in BASKORA group becomes aspect important to emphasize transition from activity project become movement community. This is in line with findings of Haryanto and Maryono (2024) in Semarang that success of the waste bank as a medium of empowerment society is very much determined by governance organization and sustainability routine activities. In six Sunday First BASKORA operations, activities collection walk regularly every week, shows existence commitment groups and potential habituation behavior new in management trash. Routine This is indication beginning

from formation culture new public more coast care to environment.

Although achievements beginning show results positive, there is a number of challenges that need to be overcome examined For ensure sustainability. Based on observation field, activities Still limited to six collections, so evaluation impact term long to change behavior, economics, and environment Not yet fully visible. Challenge kind of this was also found in study Widyasari and Tohani (2020) in Kulon Progo, which shows that obstacle main empowerment through the waste bank is low literacy environment as well as Not yet evenly distributed understanding public about benefit economy from management garbage. Therefore that, the BASKORA program is still requires further strategy like improvement literacy environment, expansion network institutional with government ward or service environment live, and strengthening aspect economy so that activities can sustainable.

In a way overall, results implementation of the program shows that collaboration between Mitra Bentala Indonesia, academics, and the community coast succeed bring up initiative real in change behavior management waste House stairs in Kota Karang Subdistrict. Empowerment public through BASKORA no only produce structure institutional new, but also growing awareness ecological, solidarity social, as well as potential economy based garbage. This result strengthen findings previous studies (Padmawati *et al.*, 2022; Ramdhani & Rahaju, 2022; Maesarini & Zahran, 2023) which concluded that the waste bank based community is instrument effective For push participation community and independence environment. With Thus, BASKORA can become an early model empowerment public sustainability - oriented coastline environment and economy local, at the same time strengthen role Woman as agent changes at the level community.

3.2. Operating Frequency and Waste Volume

Operational data show that waste bank activities ongoing regularly during seven Sunday with trend improvement participation sufficient society sharp. Amount customers active increase from 11 people in a week First to 40 people in a week seventh, with total waste collected as much as 500.2 kg. The dominant type of waste is plastic and paper, which illustrates that public Already capable sorting waste based on category worth economical. Increase amount participants and waste volume show success stage beginning empowerment in build awareness and habits new to management waste House stairs. Findings This consistent with results study Maesarini and Zahran

(2023) stated that that improvement frequency participation is indicator important from success empowerment based on waste banks at the level community.

In addition, BASKORA 's success also shows role central Woman in guard sustainability of environmental programs. Dominance participation moms House ladder as core management and customers main strengthen findings of Padmawati *et al.* (2022) that role Woman influential big in consistency waste bank activities and in implant values sustainability in the family. Through training and mentoring provided by Mitra Bentala Indonesia, a group This has own skills technical and facilities supporting (scales, books) savings, container sorting) which allows they operate activity in a way independent. In the context of public coast, results This strengthen research by Ramdhani and Rahaju (2022) which shows that empowerment coast through the waste bank model effective in strengthen capacity socio-economic at a time grow awareness ecological.

Articles presented in a way systematic so that obtained description about base manufacturing paper this and the expected results. Writing quote refers to the Harvard system. Primack (1983) is example quote at the beginning sentence. Writing quote from references at the end sentence differentiated on writer *corporate author* (BPS, 2023), writer single (Segal, 1959), two authors (Berbner and Loffler, 1994), more than two authors (Binod et al., 2012), and citations from a number of source references (Berbner and Loffler, 1994; Riley, 1987; Skelland, 1974).

Results and discussion chapter must explain in detail and clearly results research and discussion. Include reference supporters who can strengthen argument about findings obtained. Discussion to describe results analysis qualitative and/ or quantitative with emphasis on answers on problems. The discussion is also developed with results study Already There is following supporting references. Supported content with referenced figures and tables in script.

Table 1. Waste bank operational data.

Sunday (Date Operation)	Amount Customer Active	Total Waste (kg)	Dominant Types of Waste
1 (September 26, 2025)	11	91.36	Cardboard / Paper
2 (October 2, 2025)	22	66.1	Other Books / Papers
3 (October 9, 2025)	23	53.1	Bottles / Glass Bottles
4 (October 16, 2025)	29	144.1	Bottles / Plastic Cups
5 (October 23, 2025)	30	88.9	Bottles / Cardboard
6 (October 30, 2025)	35	12.7	Atom / AT
7 (November 6, 2025)	40	41.9	Hard Plastic / KRS

Activity BASKORA's operations also prove that empowerment model based collaboration between organization public civilians, academics, and citizens local can create system management participatory and sustainable waste management. Improvement amount customers and the volume of waste sorted become indicator concrete success approach participatory in environmental programs. In line with research by Haryanto and Maryono (2024), the success of waste banks No only determined by aspects technical, but also by strengthening structure organization and routine activities that create a sense of responsibility answer collectively. With Thus, BASKORA succeeded grow structure social new support management environment based communities in coastal areas.

Although results beginning show achievements positive, still there is challenges that need to be overcome noticed For ensure sustainability. Frequency of new activities ongoing during seven Sunday Not yet Enough For evaluate change behavior term length and impact better economy wide. Findings This in line with

results study Widyasari and Tohani (2020) who identified that stage beginning empowerment through the waste bank often face constraint literacy environment and lack of network institutional. Therefore that, strengthening literacy ecology, development mechanism incentive economy, as well as partnership with government ward or service environment life become step strategic For strengthen phase *protecting* in empowerment.

In a way overall, can concluded that formation and operationalization *BASKORA Waste Bank* is proof real the success of the empowerment model public integrated coastline aspect social, economic, and environmental. Through stages socialization, training, and routine practice, community Kota Karang Subdistrict shows improvement participation, knowledge, and independence in manage waste House stairs. This program No only give benefit ecological, but also open opportunity economy micro based waste separated. With refers to various study previous studies (Padmawati *et al.*, 2022; Ramdhani & Rahaju, 2022;

Maesarini & Zahran, 2023; Haryanto & Maryono, 2024), BASKORA activities can recommended as a replication model for coastal areas others who face problem similar, with notes the need mentoring sustainable so that empowerment is achieved can develop going to independence community.

3.3. Waste Volume

Based on the data collected from Waste Bank customers in Kota Karang Subdistrict during seven Sunday last seen pattern participation sufficient society consistent in deposit garbage. In general, every

individual deposit various type trash, with dominance of plastic hard, cardboard / paper, plastic bags or plastic soft, metal (aluminum / cans and iron / zinc), as well as atoms or waste worth other economic factors. For example, customers such as M**a P****a S*** and H****a Y**** a regularly deposit plastic hard and cardboard, while AT (Atom) and other mixtures are also deposited in significant numbers in recent weeks certain. This is show that public No only deposit the easiest trash they collect, but also the type that has mark economical high, which is in line with findings of Sasana *et al.* (2024) that mark economy be one of factor main motivation public in the waste bank program.

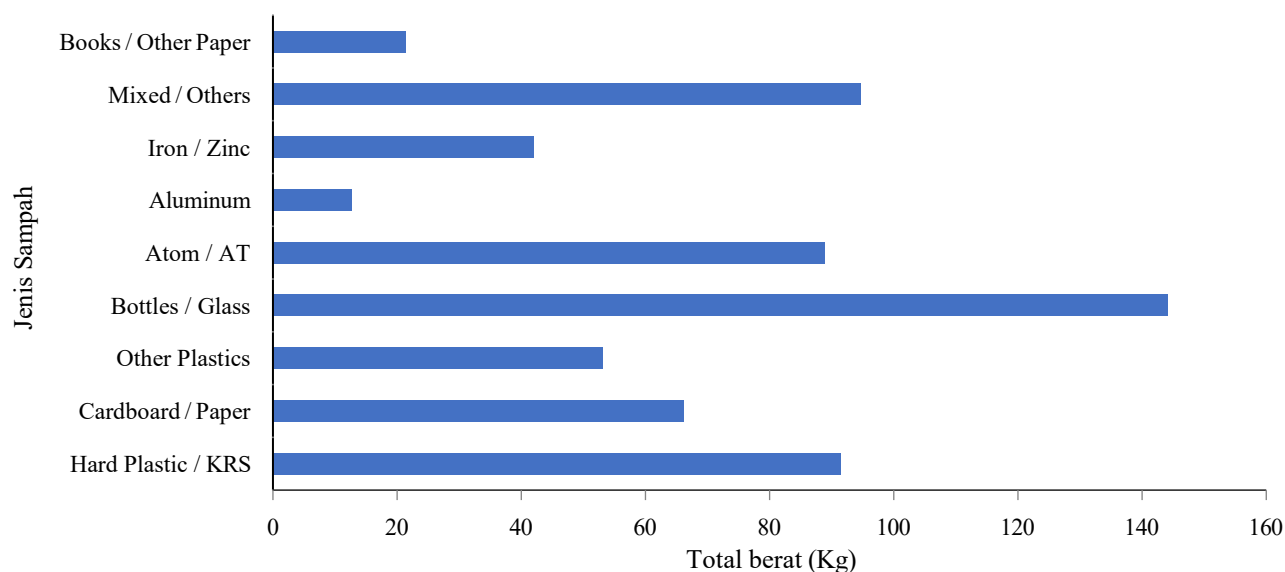


Figure 2. Waste volume for 7 weeks

Domination type waste certain, especially plastic hard and cardboard, can explained Because waste This own mark sell stable, relative volume big, and easy processed back. Research by Amir *et al.* (2025) shows that public tend prioritize deposit type trash that can direct cashed, compared waste organic or non-economic. In addition, the frequency deposit high weekly show existence awareness public to importance management waste in a way sustainable, in line with study Hasibuan *et al.* (2024) which confirms that education environment and socialization of waste banks increase participation public in a way significant.

Social and structural factors also play a role important. Easy access to point collection, support neighbor or community, as well as existence notes clear recording, making public more motivated For regularly deposit waste (Pandyaswargo, 2025). Data shows that deposit No always homogeneous, but rather varies

between individual based on capacity House stairs and types available waste. For example, customers with member family more Lots or who has business small tend deposit more Lots waste bottles and cardboard, while individual with House ladder more small tend deposit more amount A little but still consistent.

In a way Overall, this data show the effectiveness of the waste bank program in Kota Karang Subdistrict, especially in interesting participation public routinely and emphasize the type waste worth economic. Findings this is also consistent with literature previously emphasized that success of the waste bank program depends on the combination incentive economy, education, and convenience access (Susilo, 2025). Dominance waste plastic hard, cardboard, and metal confirm that public realize mark economy from type waste said, so that more tend deposited compared to type other less waste worth.

Table 2. Cumulative data per type frequency every week waste that is deposited.

Types of Waste	Week 1 (26 Sep)	Week 2 (Oct 2)	Week 3 (Oct 9)	Week 4 (16 Oct)	Week 5 (23 Oct)	Week 6 (30 Oct)	Week 7 (6 Nov)	SUM (Kg)
Hard Plastic / KRS	14.7	7.6	6.26	11.7	0	16.6	34.5	91.36
Cardboard / Paper	4.2	27.5	0	11.8	0	15.8	7.8	66.1
Other Plastics	2.4	10.6	4	6.4	12.8	15.9	1	53.1
Plastic bottles /cups	11.8	15	17.2	7.5	23.3	51.3	18	144.1
Atom / AT	10	35	5.7	17.7	2	12.2	6.3	88.9
Aluminum / Cans	1.2	2.5	0	3.3	0.7	4.9	0.1	12.7
Iron / Zinc	0	9	0	7	0	22.9	3	41.9
Mixed / Others	7.6	0.4	0.3	10.9	40.2	35.2	0	94.6
Other Books / Papers	0	0	5	6.8	0	9.5	0	21.3
TOTAL	51.7	108.6	38.46	83.9	78	184.3	70.7	624.1

Based on the data collected from Waste Bank customers in Kota Karang Subdistrict during seven week, looks existence pattern deposit enough trash consistent and structured. Every individual regularly deposit various type trash, with dominance of plastic hard, cardboard / paper, and plastic bags or plastic soft. Customer such as Mega Permata Sari and Hasna Yunita stand out Because consistency deposits, especially for this type garbage that has mark sell economical, such as plastic hard and cardboard. This is show that public No only play a role as collector garbage, but also as part from ecosystem economy circular initiated by the Waste Bank group Coast (Baskora).

Domination type waste certain can explained from a number of factors. First, plastic hard and cardboard own mark sell stable and easy collected, so that become choice main society. Second, the type waste This relatively easy identified, processed, and stored, so that lower obstacle participation community. Findings This in line with research by Sasana *et al.* (2024), which states that public more motivated For deposit garbage that has mark economical and easy traded. In addition, the frequency deposit high weekly signify existence awareness strong environment in society, in line with findings Hasibuan *et al.* (2024), who emphasize importance education and socialization in increase participation public on the waste bank program.

Social and structural factors also influence quantity and type waste that is deposited. Easy access to point collection, support community, as well as clear record keeping push participation more high. Individual with House ladder more big or who has business small tend deposit amount waste more many, especially valuable type economical like cardboard and bottles plastic. This is consistent with theory participation public in the management program trash, where is the motivation economy and convenience access is factor determinant main (Pandyaswargo, 2025).

Participation active public in deposit garbage, especially type worth economical, showing that co-

creation between waste bank managers and residents create benefit together, good from side environment and economy. Dominance type waste certain, as well as consistency deposit, showing effectiveness this co-creation mechanism in push sustainable pro-environmental behavior. In general overall, research This confirm that success Baskora No only depends on education and incentives economy, but also on structured cooperation between managers and the community, which allows collection waste done routinely and types certain can optimized For mark economy and environment.

3.4. Analysis Correlation and Collaboration of BASKORA Waste Bank Operational Data

Based on operational data seven Sunday (26 September – 6 November 2025), type collected waste show dynamics fluctuating with total accumulation amounting to 624.1 kg. Three categories the most dominant waste is bottle / glass plastic (144.1 kg), mixed /other (94.6 kg), and plastic hard /KRS (91.36 kg). Meanwhile type waste with the lowest volume is aluminum / cans (12.7 kg). Tendency This show that public coast The most populated sub-district in Kota Karang produce and collect waste made from plastic, followed by type paper and mixtures, as appropriate with pattern consumption House ladder urban.

Temporally, there are correlation positive between improvement amount customers active with the total volume of waste collected. In the week First, there are 11 customers with a total of 51.7 kg of waste, while on Sunday sixth, the number customers increase to 35 people with a volume reaching 184.3 kg. This show that participation public compared straight with results collection, in line with findings Maesarini and Zahran (2023) that improvement awareness and participation inhabitant is indicator main success empowerment through the waste bank based community. Phenomenon this also shows effectiveness collective action mechanisms in manage waste domestic, where every addition member give contribution direct to increased volume and diversification type waste.

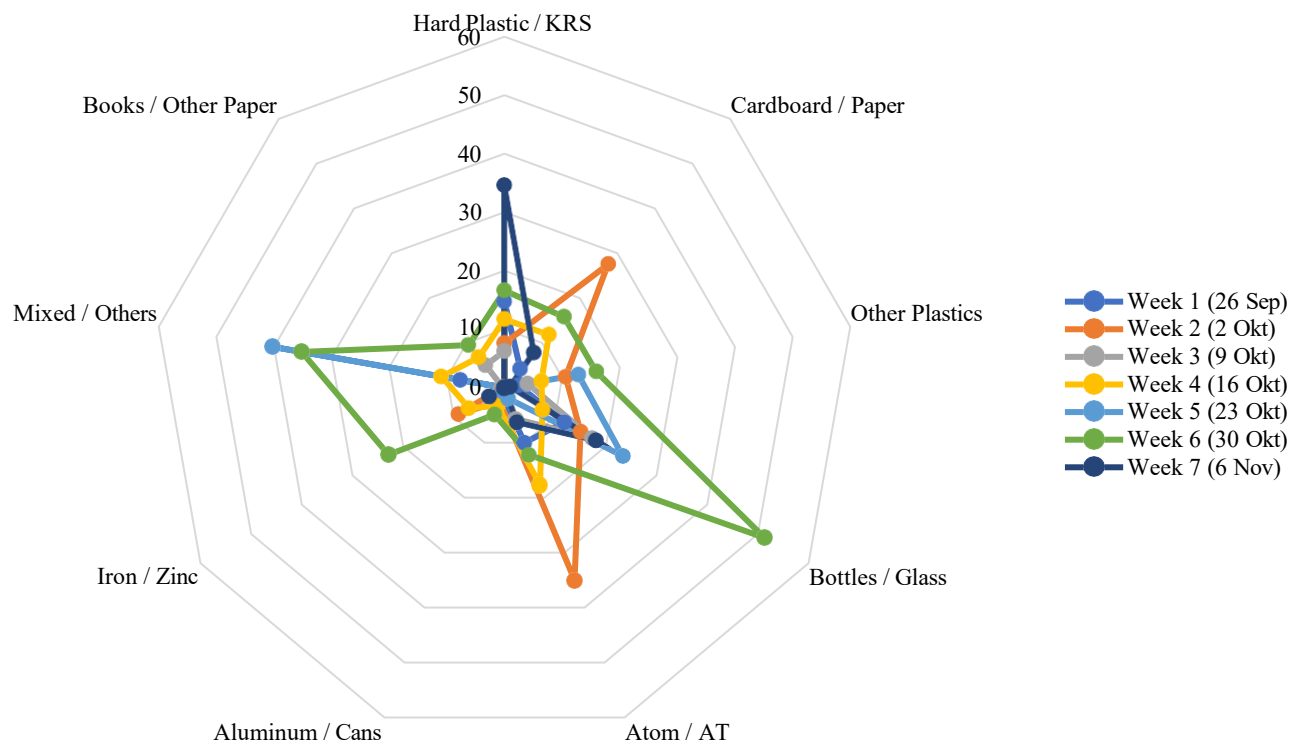


Figure 3. Correlation between waste types and weekly waste deposit frequency

Correlation between period show that bottle / glass plastic and plastic hard (KRS) has trend improvement significant at 4 to 6 weeks. Improvement This indicates that public start understand mark economy waste plastic and start sort it out in a way consistent. According to Padmawati *et al.* (2022), the increase consistency type waste worth sell high (such as plastic and cardboard) are proof success empowering stage in empowerment, namely when public No only aware will importance management trash, but also capable change it become source economy House stairs. Similar things seen in the BASKORA program, where plastic become focus main Because easy collected, weighed, and sold return.

Apart from plastic, there are collaboration functional between category “mixed /other” and “bottle / glass” waste plastic " in" trend operational weekly. Second type This often increase in a way simultaneously, for example in the 5th and 6th weeks, with a total volume of 40.2 kg and 35.2 kg respectively for category mixed, as well as 23.3 kg and 51.3 kg for category bottle / glass. Correlation This show that the collection process done in a way simultaneous intersex — signifies existence coordination at the level House stairs and groups waste bank administrators. Ramdhani and Rahaju (2022) also noted pattern similar to the Bintang Mangrove Waste Bank in Surabaya, where the success operational determined by collaboration intergroup public in sorting and collecting waste heterogeneous in coastal areas.

The picture makes it clearer collaboration intersex waste with show pattern mutual distribution complement. For example, in week 6, high volume in the category bottle plastic and plastic hard offset by a decrease category paper and mixed, shows occurrence redistribution attention public to type waste worth high. This pattern confirm that public has start do prioritization type waste show something form adaptation ecological and economic which become characteristics typical mature waste bank community (Haryanto & Maryono, 2024). This means that BASKORA activities do not Again just gather trash, but already leading to management source Power based mark economy.

From the perspective empowerment, dynamics type Trash also depicts the learning process social collective. Initially, the dominance waste paper on week second show that public just at the stage beginning understanding sorting. However along increasing frequency activities and assistance of Mitra Bentala Indonesia, types plastic and bottles become dominant. Transformation This in harmony with theory change behavior ecological (Padmawati *et al.*, 2022) that habituation through routine and reinforcement capacity technical is key formation behavior friendly environment. With Thus, the data shows the existence of a growing community learning curve along time.

Correlation between participation and volume of waste also show form collaboration strong social. Number increasing customers until Sunday seventh (40 people) proved that waste bank activities succeed create network social new at the level community. Collaboration between academics, Mitra Bentala Indonesia, and residents local become factor amplifier success this. The results support view Widyasari and Tohani (2020) that involvement multi -stakeholder collaboration is key for success and sustainability of empowerment programs based environment. In the context of BASKORA, collaboration This No only impact on increasing the volume of waste managed, but also in the formation of mechanism solid and oriented organization sustainability.

In a way Overall, operational data and radar visualizations show that BASKORA Waste Bank activities have succeed build system correlative between participation, type waste, and collection volume. Increasing trend plastic and bottles signify transformation behavior ecological society, while involvement collective between parties show synergy social in management environment. These results in line with various study previous studies (Padmawati *et al.*, 2022; Ramdhani & Rahaju, 2022; Maesarini & Zahran, 2023; Haryanto & Maryono, 2024) which emphasized that success of the waste bank as means empowerment public lies in the integration between knowledge, participation, and collaboration social. With Thus, BASKORA can it is said has reach stage empowerment productive participatory as well as become a potential model For replication in the community coast other.

3.5. Analysis Community Participation

Participation rate public show trend increases every Sunday, okay from amount customers and awareness in sorting waste. Participation level the community in Kota Karang Subdistrict, Bandar Lampung, in Waste Bank activities Baskora show significant variation between customers. Based on data from seven Sunday activities, around 37.5% of customers classified as very active (saving ≥ 5 times), 27.5% active / sufficient active (3–4 times), and the remaining 35% are passive or not enough active (1–2 times). Phenomenon This show that although awareness environment public coast Already start grow, commitment term length and continuity participation Still become challenge main in management waste sustainable.

3.5.1. Social and Economic Factors

Participation high in some customers such as Sulastris, H. Dinare, and Mega Permata Sari show that they has understand mark economy from management waste. A study by Handayani & Rachmawati (2022) confirmed that incentive economy directly (such as results sale trash) becomes the main motivator public class medium lower For involved in waste bank activities. This it can be seen in the data that customers with intensity tall tend get mark significant economic impact, for example Sulastris (Rp. 314,600) and H. Dinare (Rp. 120,190). This in harmony with Putri *et al.*'s (2021) research which explains that the more large monetary reward received citizens, increasingly strong participation they in collection and sorting waste House stairs.“ Motivation economy become door enter for awareness ecological ; from habit sell waste born not quite enough answer environment.” Putri *et al.* (2021)

3.5.2. Education and Awareness Factors Environment

Apart from the factors economic aspects education and socialization also influence variation level participation. In coastal areas like Coral City, no all House ladder get equal access to information about management waste. According to Sari & Lestari (2020), the success of the waste bank program is greatly influenced by the intensity of education and mentoring society, especially in stage start of the program. Baskora Data show that customers who participate regularly usually is core members or driving force local people who are also involved in activity social or local RT community. This is support social capital theory by Coleman (1988) which states that network social and sense of togetherness can strengthen participation collective in action public. In other words, the co-creation implemented by the Waste Bank Baskora, where the people No only become recipient benefits, but also partners active in design and implementation activities, have increase sense of ownership and responsibility answer environment inhabitant.

3.5.3. Gender Factors and Domestic Roles

Most of the customers active in Baskora is women, especially Mother House stairs. This pattern consistent with findings of Suryani & Wibowo (2021) which confirm that role Woman in management waste House ladder more dominant compared to men, because they more often interact direct with waste domestic daily. Baskora data strengthen matter this: out of 40 customers, more than of 70% is women, and some big from they including in category active and very active. Involvement Woman in co-creation initiatives such as This prove that empowerment based environment can become a social platform transformative, where traditional gender roles precisely become strength main

in build ecosystem economy circular (Suryani & Wibowo, 2021).

3.6. Relatedness with the Co-Creation model

The Co-Creation Model promoted by the Waste Bank Baskora focused on collaboration participatory between community and management, not just connection producer-consumer. According to Praharjo & Nugraha (2021), the co-creation approach can increase sustainability of the waste bank program Because encourage shared responsibility between citizens and institutions. Baskora data results show that the more tall level involvement inhabitant in planning and implementation (eg follow weighing, sorting, or educate neighbors), then the more high level participation save the trash.

With Thus, Baskora data in harmony with literature previously, confirmed that participation high society No only results from encouragement economy, but also from formation connection social, values togetherness, and a sense of belonging to environment.

In a way general, level participation public Baskora can categorized stable and adaptive with diversity motivation. Empirical data This in line with majority study previously about waste bank management in Indonesia, which places co-creation and community empowerment as the two main pillars program success (Rini *et al.*, 2023; Praharjo & Nugraha, 2021). However, there are still found segment passive society Because factor time, lack of education, or perception low to mark economy trash. With strengthen education sustainable, incentives economy, as well as community forums based environment, participation can Keep going improved in term long.

4. Evaluation and Planning Sustainability

BASKORA Waste Bank Co-Creation Program implemented in Kota Karang Subdistrict shows significant achievements in aspect empowerment social, economic House stairs, and environment coast. Empirical data during seven Sunday implementation (26 September–6 November 2025) shows improvement amount customers active from 12 people in a week First to 38 people in a week seventh, or increase amounting to 216.7%. Of the total of these, approximately 72% are women, in particular Mother House stairs, which start active in activity sorting and weighing waste every week. Findings This strengthen results study of Suryadari *et al.* (2021), which states that The success of waste banks in coastal areas is largely determined by the involvement of Woman in activity economy environment Because role domestic those who are close with source embossed waste House ladder.

From the side economy, participation inhabitant produce addition measurable income. Average value savings customers increase from around Rp. 8,500 per week at the start of the program to Rp. 32,400 per week in the week seventh. Accumulation mark economy results savings reached Rp. 1,874,000 during seven Sunday activities. Increased pattern This show that public start see waste as source economy alternative (waste to wealth). Phenomenon This in line with findings Rahardyan & Setyaningrum (2020), who emphasized that system incentive economy waste bank based push sustainability behavior management waste public earning low in coastal urban areas.

From the aspect environment, the total volume of waste that is successfully collected during period observation reached 580.9 kg, with composition dominant bottles and glasses plastic (128.5 kg) and plastic hard (99.7 kg). This type dominate Because is type waste consumption House the most frequent stairs used, such as mineral water bottles, containers detergent and glass plastic drink fast serving. Condition the reflect pattern consumption public coast that is still tall to product packaging very use. However, through BASKORA activities, waste the succeed diverted from track disposal direct to sea or TPA becomes source income. Decrease embossed Unmanaged waste in the RT environment was recorded reach around 35%, which shows change behavior ecological citizens. This is in line with results Hermawan *et al.*'s (2022) study, that waste banks can reduce burden waste House ladder up to 30–40% if executed with system weighing and reporting consistent weekly.

In addition, from side capacity institutionally, BASKORA Waste Bank is developing become independent group with system clear organization structure management formed, activities operational done routinely every week, and recording transaction done digitally through system recap spreadsheet-based. Success institutional This show that co-creation initiative between community, RT administrators, and institutions partners environment has create innovation participatory social model. This model represent collaboration cross- actor alignment with co-production approach in governance environment (Voorberg *et al.*, 2015), where the community No only become program objects, but also subjects who play a role active in creation solution together.

Finally, from perspective awareness ecological, results internal surveys show that 83% of respondents confess more understand method sorting, saving, and assessing mark economy from waste House ladder after involved during more from One month in this program.

This proves that co-creation is not only create mark economy new, but also form transformation behavior social going to practice sustainability environment. With Thus, BASKORA Waste Bank can categorized as innovation successful social blend aspect education, economics circular, and participation public in One ecosystem sustainable local.

5. Conclusion

1. The BASKORA Waste Bank Program was successful increase participation and awareness ecological public coast through education, routine practice, and domination role Woman as agent change environment.
2. Implementation effective co-creation concept strengthen capacity social and institutional community coast through collaboration active between Mitra Bentala Indonesia, academics, government, and citizens local.
3. BASKORA activities produce impact real social, economic and environmental, characterized by with improvement income, decline embossed garbage, and formation system management independent and sustainable environment.

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Bibliography

- Amir, F., Miru, A. S., & Sabara, E. (2025). *Urban household behavior in Indonesia: Drivers of zero waste participation*. *arXiv preprint*. <https://arxiv.org>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Sage Publications.
- Handayani, T., & Rachmawati, I. (2022). Economic motivation and participation in waste bank program: Case study in coastal settlements. *Journal of Sustainable Development*, 14(2), 95–108.
- Haryanto, A., & Maryono, M. (2024). Pemberdayaan masyarakat melalui pengelolaan bank sampah di Kelurahan Tugurejo, Kecamatan Tugu, Kota Semarang. *Jurnal Scientica*, 10(2), 145–156.
- <https://jurnal.kolibi.org/index.php/scientica/article/view/3798>
- Hasibuan, N., Sulaiman, A. R., Usman, A., Ritonga, T., Rahman, T. R., & Ibrahim, A. (2024). Public education through communication campaigns in increasing recycling participation. *Jurnal Pemberdayaan: Publikasi Hasil Pengabdian Kepada Masyarakat*.
- Hermawan, B., Lestari, D., & Rahayu, N. (2022). Community-based waste management and its impact on household waste reduction: Evidence from coastal urban areas in Indonesia. *Journal of Environmental Science and Sustainability*, 14(2), 145–159.
- International Aluminium Institute. (2022). *Aluminium beverage can study*. International Aluminium Institute.
- Kementerian Lingkungan Hidup dan Kehutanan. (2023). *Sistem Informasi Pengelolaan Sampah Nasional (SIPSN)*. KLHK.
- Maesarini, I. W., & Zahran, W. S. (2023). Pemberdayaan masyarakat melalui pengelolaan bank sampah di RW 007 Kelurahan Kalibaru, Kecamatan Cilodong, Kota Depok. *Jurnal Transparansi: Jurnal Ilmiah Ilmu Administrasi*, 5(1), 37–48. <https://ojs.stiami.ac.id/index.php/transparansi/article/view/3206>
- Marsh, S. (2024). *Characterising plastics waste*. IOM3. <https://iom3.org>
- Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook* (2nd ed.). Sage Publications.
- Moleong, L. J. (2019). *Metodologi penelitian kualitatif*. PT Remaja Rosdakarya.
- Padmawati, F., Yulianto, E., & Nuraini, D. (2022). Pemberdayaan masyarakat melalui bank sampah berbasis komunitas (Studi kasus Bank Sampah Surolaras, Yogyakarta). *Jurnal Civic Education: Media Kajian Pancasila dan Kewarganegaraan*, 6(1), 21–32. <https://jurnal.unimed.ac.id/2012/index.php/jce/article/view/65573>
- Pandyaswargo, A. H. (2025). Between awareness and action: Understanding public participation in waste sorting and waste bank programs. *Indonesian Journal of Urban and Environmental Technology*.
- Pariatamby, A., & Tanaka, M. (2014). *Municipal solid waste management in Asia and the Pacific Islands: Challenges and strategic solutions*. Springer.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). Sage Publications.
- Prahalad, C. K., & Ramaswamy, V. (2004). *The future of competition: Co-creating unique value with customers*. Harvard Business Press.

- Praharjo, A., & Nugraha, P. (2021). Community-based co-creation model in waste bank management: Strengthening circular economy in coastal areas. *Journal of Environmental Planning*, 12(4), 255–269.
- Putri, A., Nugroho, D., & Santoso, B. (2021). The influence of economic incentives on waste sorting behavior in Indonesian communities. *Environmental Behavior Studies*, 9(3), 214–228.
- Rahardyan, B., & Setyaningrum, A. (2020). Incentive-based waste bank system for low-income communities in urban coastal areas. *Waste Management & Research*, 38(7), 789–798.
- Ramdhani, D. S., & Rahaju, T. (2022). Pemberdayaan masyarakat pesisir melalui pengelolaan bank sampah Bintang Mangrove Kelurahan Gunung Anyar Tambak, Surabaya. *Publika*, 10(3), 112–123. <https://ejournal.unesa.ac.id/index.php/publika/article/download/47445/39696>
- Rini, S., Handayani, T., & Kusuma, A. (2023). Socioeconomic factors influencing household waste sorting behavior in Indonesia. *Sustainability Journal*, 15(8), 6541–6555.
- Sari, N., & Lestari, D. (2020). Edukasi dan partisipasi masyarakat dalam pengelolaan sampah di daerah pesisir. *Jurnal Pengabdian Masyarakat Maritim*, 5(2), 45–53.
- Sasana, H., Wijayanti, D. L., Nurcahyanto, H., & Novitaningtyas, I. (2024). Analysis of village community recycle participation behavior to maintain environmental quality: Empirical evidence in waste banks in Indonesia. *Journal of Environmental Management and Technology (JEMT)*.
- Setiadi, D., Fadhillah, R., & Wulandari, P. (2022). Plastic waste management and recycling motivation in coastal communities. *Marine Environment Studies*, 11(3), 203–214.
- Sugiyono. (2017). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.
- Susilo, J. (2025). Effect of environmental education on public recycling behavior in Indonesia. *Journal of Environment*.
- Suryandari, I., Putri, D., & Yuliana, T. (2021). Peran perempuan dalam pengelolaan sampah berbasis bank sampah di kawasan pesisir. *Jurnal Ekologi Sosial*, 9(3), 201–212.
- Suryani, R., & Wibowo, H. (2021). Peran perempuan dalam program bank sampah: Perspektif gender dan lingkungan. *Jurnal Sosial Ekologi*, 7(4), 301–312.
- Tsuchimoto, I., & Kajikawa, Y. (2022). Recycling of plastic waste: A systematic review using bibliometric analysis. *Sustainability*, 14(24), 16340. <https://doi.org/10.3390/su142416340>
- Voorberg, W. H., Bekkers, V. J., & Tummers, L. G. (2015). A systematic review of co-creation and co-production: Embarking on the social innovation journey. *Public Management Review*, 17(9), 1333–1357.
- Widyasari, S., & Tohani, E. (2020). Kendala dan strategi pemberdayaan masyarakat melalui bank sampah di Dusun Kroco, Kulon Progo. *Jurnal Pendidikan Luar Sekolah*, 9(2), 89–100. <https://journal.student.uny.ac.id/index.php/pls/article/view/19058>
- Yuliastuti, N., & Fitriyah, F. (2020). Pemberdayaan perempuan melalui bank sampah dalam mewujudkan ekonomi sirkular. *Jurnal Pengabdian Kepada Masyarakat*, 6(2), 112–121.