

Community Empowerment in Waste Management through Waste Bank Program in Tabanan District

by Umar Nain

Submission date: 05-Oct-2022 08:58AM (UTC+0700)

Submission ID: 1916940504

File name: 322-Article_Text-2319-2-10-20220930_2.pdf (310.13K)

Word count: 8111

Character count: 42151

**Community Empowerment in Waste Management through Waste Bank Program in
Tabanan District**I Wayan Wahyu Adiatmika¹, Umar Nain¹Email: umarnain1388@ipdn.ac.id¹Economic Development and Community Empowerment Study Program, Faculty of
Government Politics, Jatinangor Institute of Domestic Government, Indonesia

Received: August 25, 2022

Received in Revised: September 24, 2022

Accepted: September 28, 2022

Abstract

This study is intended to collect data and then analyze it to obtain results that can provide an overview of community empowerment in waste management through the waste bank program, describe what factors are inhibiting and supporting factors, as well as the efforts made in overcoming these factors. The theoretical basis used in this research is the theory of community empowerment by Mardikanto & Soebito (2018). The four aspects in this theory include human development, business development, environmental development, and institutional development. The research design used in this study is a qualitative research using descriptive methods. Data collection techniques used three ways, namely, interview, observation, and documentation. The data that has been collected is analyzed starting from data reduction, data presentation, and drawing conclusions. This research was conducted in Tabanan Regency. From the results of this study, it can be concluded that community empowerment in waste management through waste banks in Tabanan Regency has been implemented. However, there are still obstacles in implementing the program. Therefore, researchers provide suggestions to further intensify education to the community, continue to build good relations with vendors, and continue to pay attention to the condition of waste management facilities and infrastructure.

Keywords: Community Empowerment, Waste Management, Waste Bank**Introduction**

Geographically, Indonesia is located between two continents, namely the continent of Asia and the continent of Australia and between two oceans, namely the Pacific Ocean and the Indian Ocean. By law, Indonesia is referred to as an archipelagic country, where Indonesia is composed of approximately 16,771 islands (Anonyus, 2020). The population in Indonesia is very large. Based on data from the BPS 2020, the total population of Indonesia in September 2020 was 270.20 million people. The development of the population in Indonesia has led to the emergence of various kinds of problems, including poverty, unemployment, inequality, and environmental problems (Karl, 2007).

In Law Number 23 of 2014 concerning Regional Government, it is stated that the duties of regional governments are: (1) administration of government (2) implementation of development; (3) community development; and (4) community empowerment. In running the government, it is carried out by the authorized body or body that exercises governing power in providing public services to meet the demands of the governed community (Nain, 2017). Of the four tasks of the government, the need for development in this case is environmentally sound development. One of the challenges in environmentally sound development is the problem of solid waste.

Waste is a complex problem faced by Indonesia. In 2020, the total national waste production has reached 67.8 million tons. This means that there are around 185,753 tons of waste every day produced by 270.20 million Indonesians (Anonymous, 2021). The increasing population of Indonesia will increase the amount of garbage accumulation. Therefore, efforts need to be made in the target to reduce waste by reducing, reusing and recycling waste can be achieved. This government effort is contained in Presidential Regulation Number 97 of 2017 Article 5 paragraph 1 concerning the National Strategic Policy for the Management of Household Waste and Waste Similar to Household Waste which targets a reduction in household waste and similar waste to household waste at 30 percent and handled at 70 percent.

Based on Law Number 18 of 2008 concerning Waste Management, it is stated that waste is remnant of human daily activities or natural processes in solid or semi-solid form that are no longer useful and are disposed of into the environment. There are several types of waste, namely first, organic waste, which is waste that comes from the rest of living things that easily compose naturally, then secondly, inorganic waste, namely the rest of synthetic materials such as plastic, paper, metal, glass, styrofoam, and the third is hazardous and toxic waste, namely materials that have flammable, corrosive, caustic, reactive, and toxic physical properties such as batteries, motor vehicle batteries and types of disinfectants.

Waste management in the Province of Bali is regulated in the Regional Regulation of the Province of Bali Number 5 of 2011 concerning Waste Management. It is explained in articles 3 and 4 that waste management is carried out based on the principle of responsibility, the principle of sustainability, the principle of harmony and balance, the principle of benefit, the principle of justice, the principle of awareness, the principle of togetherness, the principle of safety, the principle of security, and the principle of economic value. Waste management aims to preserve the function of the environment and public health, make waste a resource, and improve the efficiency of the use of raw materials.

Waste generation in Bali reaches 2,400 tons per day, even worse, 52 percent of the total amount of waste is not managed. The composition of waste in Bali consists of 60 percent organic waste, 30 percent inorganic and 10 percent residue. Tabanan Regency as one of the regencies in Bali Province experiences waste generation. Based on SIPSN data in 2020, the amount of waste generated by Tabanan Regency per day averages 230.82 tons which causes Tabanan Regency to occupy the fifth position of waste producer in Bali Province. For more details, the daily waste generation data in Bali Province is presented in the following table.

Table 1. Number of Daily Waste Generation in Bali Province in 2020

No.	Districts/Cities	Amount/Day
1	Gianyar County	438.86 tons
2	Buleleng Regency	341.90 tons
3	Badung Regency	281.24 tons
4	Karangasem County	249.50 tons
5	Tabanan District	230.82 tons
6	Jembrana Regency	164.70 tons
7	Bangli County	108.98 tons
8	Klungkung Regency	No data yet
9	Denpasar City	No data yet

Source: National Waste Management Information System in 2020

Based on the table above, it shows that Tabanan Regency ranks fifth in the amount of daily waste generation in Bali Province. This is caused by several problems as follows: (1) the production of waste by the daily activities of the community in large quantities; (2) people are

not used to sorting their waste first, so the waste is mixed and thrown away; (3) limited land as a place to accommodate the volume of waste in the Mandung Final Disposal Site (TPA).

To overcome the problems mentioned above, the Tabanan Regency Government established a waste bank program under the auspices of the Tabanan Regency Environmental Service. This is to overcome the waste problem and encourage and strengthen each other between elements of the government and the community in working together to protect and preserve the environment, especially in waste management.

Waste management through the waste bank program is regulated in the Regulation of the Minister of Environment and Forestry of the Republic of Indonesia Number 14 of 2021 concerning Waste Management in Waste Banks, in article 1 paragraph 6 it is stated that the Waste Bank is a facility to manage waste with the 3R principle (reduce, reuse, and recycle), as a means of education, behavior change in waste management, and the implementation of a circular economy, which is formed and managed by the community, business entity, and/or local government.

Garbage Bank is basically a concept of collecting dry waste with a sorting stage which has management like conventional banking, but what is saved is waste (Astoria, 2016). The waste bank itself is a form of community-based waste management that integrates the principles of reduce, reuse, and recycle with management as close as possible to the source (Nugraha et al., 2018).

The Garbage Bank in Tabanan Regency has a role to provide education to the people of Tabanan in sorting waste from its source, so that the use of the waste can be accounted for. This means that the waste has been sorted which will then be received, weighed, recorded which will then be forwarded to the recycle unit which will then be processed, so that the waste is no longer disposed of to the TPA. In addition, the Waste Bank has services in the form of waste savings. Waste saving means that waste bank participants (customers) save their waste to a waste bank which will then be converted into money in a certain amount according to what has been determined. So that this will trigger community participation in managing their respective waste because of the profit that the community gets directly by getting the money stored in the waste bank savings they get.

The waste bank program established by the Tabanan Regency Government has the potential to reduce waste generation, especially inorganic waste. By managing inorganic waste through the waste bank program, this waste can be recycled into more useful products, so as to reduce environmental damage due to the accumulation of inorganic waste. One example of inorganic waste that causes environmental damage is plastic waste, because the nature of plastic materials is very difficult to decompose naturally.

The benefits felt for the people of Tabanan Regency, especially by people who act as waste bank customers will also get money from the results they sort and manage waste through the waste bank program, which of course can provide value or income for the people of Tabanan Regency.

Technically, the waste bank program established by the Tabanan Regency Government under the auspices of the Environmental Service has been running according to its main duties and functions, although in reality there is still a lot of waste that has not been separated and managed properly, even in many villages in Tabanan Regency, which have not been able to manage their waste independently so that there is a buildup of garbage which causes the Mandung TPA to experience overload in accommodating waste. Mandung TPA which only has an area of 1.88ha now has to accommodate 2.5ha of waste. The height of the garbage in the Mandung TPA reaches 30m from the east because the land is sloping. Meanwhile, from the west side, the

height of the waste reaches 15m because the land is flat, so it is categorized as overloaded by the Head of the UPTD for Waste and Sludge Treatment. Ideally, the height of the waste on the east side does not exceed 20m and on the west side it does not touch a height of 15m. (radarbali.jawapos.com. 03 September 2021, 09.15 WIB). The purpose of this study is to determine community empowerment in waste management through the waste bank program in Tabanan district.

Methods

Researchers used a qualitative research design. This is because the researcher wants to explain how the actual conditions that occur when the research takes place are in accordance with the notion of qualitative research. Qualitative research is carried out by collecting data and then explaining it into analysis and formulation of problems found in the field later. Observations made by researchers using descriptive methods. Informants in this study were selected based on their level of knowledge about the problems that were used as research topics.

this study, researchers determine the sample to obtain data and information by using purposive sampling technique. Purposive sampling technique according to Sugiyono (2016) is a sampling technique with certain considerations that are considered to be able to provide relevant information and know best and are involved in the focus of the research. The informants of this research which were determined by purposive sampling as the data source in this research are as follows; (1) The Head of the Environmental Agency of Tabanan Regency, was chosen because he has the main task of formulating office operational policies, controlling, fostering, regulating, coordinating and providing technical services in the environmental field in an integrated manner together with relevant agencies in accordance with policies determined by the Regent based on legislation. - applicable law; (2) The Head of Waste Management, B3 and Capacity Building for the Environmental Service of Tabanan Regency, was chosen because he has the main task of fostering waste recyclers, providing waste recycling facilities, formulating waste handling policies, formulating waste reduction policies, and determining the location of TPS, TPST, and TPA waste; (3) The Head of the Waste Management Section of Tabanan Regency, was chosen because he is the coordinator of the sorting, collection, transportation, and final processing of waste, and the function of fostering waste recycling; (4) The Head of the Main Waste Bank and Tabanan Regency Unit, was chosen because he is the person who becomes the leader of each main waste bank and unit in Tabanan Regency; (5) The Supervisor for Garbage Bank Empowerment, was chosen because it has the task of fostering village communities to be able to manage waste through the waste bank program.

The community was chosen because they are actors in waste management through the waste bank program. Researchers will go directly to the field as research instruments to determine the focus of research, select informants as data sources, collect data, assess data quality, analyze data, interpret data and conclude on the problems studied, namely related to community empowerment in waste management through bank programs. waste in Tabanan Regency. Another instrument used by researchers is an interview guide which will be a guide for researchers in data collection, that data collection can be carried out effectively. The interview guide consisted of human development, business development, environmental development, and institutional development variables.

Results and Discussion

Community Empowerment in Waste Management through the Sampa Bank Program

The province of Bali applies the concept of Tri Hita Karana as the basis for community behavior, including the relationship between humans and humans, humans and the

environment, and humans with God. Especially in the relationship between humans and the environment, cleanliness is one of the indicators or benchmarks in creating a welfare in society. A clean environment will certainly have a positive impact on the life of menyama braya or community designation for the Balinese people and maintain the health of the surrounding community.

Based on this, the Regional Government of Tabanan Regency formed a breakthrough in the form of the formation of a waste bank which is regulated Tabanan Regent Regulation Number 68 of 2017 concerning Implementing Regulations of Regional Regulation Number 6 of 2013 concerning Management of Household Waste and Similar Household Waste, where it is stated that organic waste and inorganic are sorted in each household and can be sold by forming waste bank groups. It is also stated in Article 11 that the garbage that has been collected in the community must be coordinated by the respective Village Head or Perbekel by establishing waste banks in each banjar. This program is aimed at all villages and communities in the Tabanan Regency area to assist source-based waste management which in this case comes from households, so that people can manage waste properly and correctly. With this, inorganic waste is no longer disposed of to the Mandung TPA, so as to reduce the burden of the volume of waste in the TPA. In addition, the community also gets value or income from the results of managing their waste.

Tabanan Regency Waste Bank Program Objectives

The objectives of the Tabanan Regency Waste Bank Program are as follows; (1) As an effort to reduce waste generation in Tabanan Regency; (2) Make the environment, especially in the village and banjar or hamlet areas cleaner; (3) Reducing the burden of the Mandung TPA in accommodating waste, especially waste that cannot be decomposed naturally; (4) Provide education to the public about the importance of managing waste directly from the source; (5) Providing understanding to the public about the importance of protecting the environment with the concept of Tri Hita Karana; (6) Turning waste into goods of economic value; (7) As a forum for increasing the capacity of human resources for waste bank managers.

Tabanan Regency Waste Bank Program Target

The target of the Tabanan Regency Waste Bank Program is all the people of Tabanan Regency who live in villages and banjars or hamlets. The community manages their waste directly from the source by sorting the waste, then the separated waste can be saved to a waste bank in the area where they live.

Types of Services for the Tabanan Regency Garbage Bank Program

The types of services provided by the Tabanan Regency Waste Bank are as follows; (1) Collecting or attracting waste bank customers, namely gathering people who are interested in saving their waste in the waste bank; (2) Waste saving, namely the type of service provided by the waste bank manager to waste bank customers to save their waste to the unit waste bank in the area where the customer lives; (3) Selling waste, namely the waste bank manager buys waste that has been separated from waste bank customers.

Program Implementation

The implementation of the Waste Bank Program in Tabanan Regency includes:

Collecting or Capturing Waste Bank Customers

The management of the waste bank will provide information to the public about the waste bank and will open recruitment for new customers of the waste bank. The customers of this waste bank come from people who live close to the unit's waste bank. Waste bank customers are the head of the family.

Saving Trash

This is a service provided by the unit waste bank to its customers to save their separated waste to the unit waste bank in the neighborhood where the waste bank customer lives. Waste bank customers will get a waste passbook, then the amount of waste saved will be recorded in the passbook, which can then be cashed out according to the amount of waste that has been saved by the waste bank customer. The management system is very similar to the banking system in general.

Selling Trash

The segregated waste that has been collected by waste bank customers will later be sold to the waste bank. The waste will be weighed and recorded in the waste bank customer's savings book. The waste savings can then be cashed out, so that waste bank customers will get value or money from the results of the waste savings. The waste in the unit waste bank is then sold to the main waste bank, which then sells the waste to vendors who want to buy the waste to be used as goods of economic value.

Program Financing

The financing or funding of the Tabanan Regency Waste Bank program is charged to the Tabanan Regency Regional Revenue and Expenditure Budget as well as unit waste bank financing from the respective Village Funds as well as voluntary contributions from the respective village and banjar communities.

Implementing Element

The implementing elements of the Waste Bank Program in Tabanan Regency are as follows:

Tabanan Regency Environmental Service

The role of the Tabanan Regency Environmental Service in the existence of a waste bank is as follows; (a) As an initiator in the establishment of a waste bank in the Tabanan Regency area; (b) Provide education to shopkeepers or village heads in the Tabanan Regency area about the importance of managing waste from the source through the waste bank program; (c) Provide understanding and education to the managers of waste banks in the Tabanan Regency area on how to proceed from the collection of waste from the community to the stage of selling waste to vendors; (d) Educate the people of Tabanan Regency about the importance of sorting and managing waste and the benefits of being a customer of a waste bank.

Main Waste Bank in Tabanan Regency

The role of the Main Waste Bank in Tabanan Regency is as follows: (a) The Main Waste Bank plays a role in the formation of unit waste banks in each village and banjar, of course with coordination with the Tabanan Regency Environmental Service; (b) It is the final place to accommodate the separated waste from each unit waste bank; (c) The proponents of the "let's sort the garbage" and "my garbage is my responsibility" movement; (d) Cooperating with vendors or waste collectors; (e) Selling all of the segregated waste to vendors or waste collectors which will then be reprocessed into goods of economic value; (f) As a waste manager covering the entire Tabanan Regency.

Garbage Bank Unit in Tabanan Regency

The role of the Unit Waste Bank in Tabanan Regency is as follows; (a) The Waste Bank Unit plays a role in waste management at the village and banjar or hamlet levels; (b) As a place to accommodate waste that has been separated from each household; (c) Establishing waste bank customers; (d) Provide education to the community in the village and banjar or hamlet areas about the importance of managing and sorting waste from its source; (e) Motivating the motto “my trash, my responsibility” and let's sort out the waste” in the community at the village and banjar or hamlet levels; (f) Serving waste bank customers in saving their waste and disbursing waste savings; (g) Selling the sorted waste to the main waste bank.

The implementation of the waste bank program in Tabanan Regency began in 2017 which is regulated by Tabanan Regent Regulation Number 68 of 2017 concerning Implementing Regulations of Regional Regulation Number 6 of 2013 concerning Management of Household Waste and Similar Household Waste.

The level of community participation in sorting and managing waste from its source is very good. Based on the results of an interview with the Bengkel Village Perbekel who is also one of the Garbage Bank Empowerment Supervisors, Mr. I Nyoman Wahya said that the level of community participation in Bengkel Village who joined the waste bank program was 55.4%. According to him, this figure is a big number considering that in Tabanan there are still people who are not aware of the importance of managing waste. In addition to the high level of community participation, the Tabanan Regency Environmental Service is also very aggressive in establishing a waste bank. There are 225 total waste banks in Tabanan Regency, which are described in the following table according to the number per sub-district.

Table 2. Number of Waste Banks in Tabanan Regency By Subdistrict

No.	District	Sum
1	Tabanan	16
2	Kediri	51
3	Clan	26
4	Penebel	39
5	Baturiti	10
6	Inbriety	18
7	Selemadeg	9
8	Selemadeg West	19
9	East Selemadeg	31
10	Pupuan	6
	Sum	225

Source: Processed researchers, 2022.

With increasing public awareness and government efforts in terms of waste management, it will certainly have a positive effect on waste management managed by Tabanan Regency. This is marked by a reduction in the amount of waste generated in Tabanan Regency every year. Based on data from the Environmental Service of Tabanan Regency, there has been a reduction in the amount of waste generated in Tabanan Regency.

Table 3. Recapitulation of Tabanan Regency Waste Recapitulation in 2020-2021

No.	Month	Year 2020	Year 2021
-----	-------	-----------	-----------

		Volume of Garbage (m ³)	Volume of Garbage (m ³)
1	January	9,237	9,317
2	February	8,318	7,959
3	March	8,966	8,543
4	April	8,633	8,299
5	May	8,486	8,437
6	June	8,567	7,778
7	July	8,649	8,313
8	August	8,196	6,672
9	September	7,576	7,842
10	October	8,369	7,832
11	November	8,568	8,158
12	December	8,329	9,317
TOTAL		101,896	98,467

Source: Tabanan Regency Environmental Agency, 2021

The Head of Waste Management, Hazardous and Toxic Waste and Capacity Building for Environment Agency of Tabanan Regency, Mrs. Nioman Yudiani, SH, MH said that the waste bank program in Tabanan Regency has helped reduce the amount of waste generated in Tabanan Regency. This Waste Bank has a role in waste management, so that the amount of waste generated in 2021 will decrease compared to the previous year.

In carrying out this study, researchers used four criteria for implementing community empowerment according to Mardikanto & Soebito (2018) in measuring the implementation of community empowerment activities in waste management through waste banks in Tabanan Regency. The four criteria are; (1) Human Development; (2) Business Development; (3) Community Development; (4) Institutional Development. From the four criteria above, researchers will describe the results of research from community empowerment in waste management through the waste bank program in Tabanan Regency.

Human Development

Human Development is one of the dimensions of community empowerment. Human development is the first and foremost effort that must be considered in empowering the community (Kemp, 2010). This human guidance is carried out by both the Tabanan Regency Environmental Service, and the Waste Bank in Tabanan Regency. The Tabanan Regency Environmental Service as an element of the district government is responsible for the implementation of Law Number 23 of 2014 concerning Regional Government, which explains that every local government has the right to regulate and manage its own government affairs and has the right to manage the affairs of its community. The Tabanan Regency Government provides empowerment to the community in waste management through the Waste Bank program in Tabanan Regency. As stated by Hati & Adi (2014) that community empowerment is a program as well as a process, where the community will be empowered through activities or a series of predetermined stages to achieve goals. Community empowerment is a continuous process.

The guidance carried out by the Tabanan Regency Environmental Office to the community in waste management is by providing education to the community, where the Tabanan Regency Environmental Service together with the Garbage Bank Unit located in the village or banjar scope holds a meeting with the community at the village hall or banjar. In essence, the government together with the waste bank invites the public to participate in waste management

directly from the source and care for the environment, especially on the problem of solid waste. This is relevant to the theory of human development according to Mardikanto & Soebito (2018) where the purpose of an empowerment is to improve a person's quality of life, where the community has the capacity to be able to manage their waste independently.

From an interview conducted by the researcher with the Head of the Tabanan Regency Environmental Service, Mr. I Made Subagia, S.Pi., MM located in the Tabanan Regency Head of the Environmental Service Office that:

We from the Tabanan Regency Environmental Service continue to provide education and understanding to the community so that they can maintain and preserve their environment properly in accordance with the Tri Hita Karana concept by managing their waste which can then be exchanged for the nearest waste banks at their homes.

Then the researcher also interviewed the Head of the Sekartaji Unit Garbage Bank located at the Batan Poh Banjar Hall Mr. I Gede Santika which is also the headquarters of the Sekartaji Unit Waste Bank said that:

The Sekartaji Waste Bank also plays a role in educating the public by traveling around using a Viar Motor equipped with loudspeakers. Where we provide education to people in the Banjar Batan Poh area.

In addition, the researcher also interviewed Mrs. Nengah Wati who lives in Banjar Batan Poh, Pandak Gede Village, saying that:

I have participated in several community education activities carried out by the Tabanan Regency Environmental Service which usually take place at the Village Want and also mobile education by the Sekartaji Waste Bank, so that I understand more about the importance of managing waste in the waste bank.

Community participation in implementing the waste bank program is categorized as quite high. The head of the Bengkel Village, Kediri District, Tabanan Regency, Mr. I Nyoman Wahya who is also the supervisor of the waste bank empowerment, said that:

The level of community participation in participating in the waste bank program is quite high, which is indicated by the total number of waste bank customers reaching 74% of the total household heads. We also provide rewards for the people who save the most waste in the waste bank.

The level of community participation in participating in the waste bank program is also very good. This is in line with the statement from the Head of Waste Management, Hazardous and Toxic Waste Management and Capacity Building, Mrs. Ni Nyoman Yudianti, SH, MH who said:

The level of participation of the people who become customers of the waste bank is very good, their response is very good to the existence of a waste bank in their environment. The community has also been able to understand well about waste management and sorting materials and the importance of protecting the environment.

From interviews conducted by researchers with several informants that the community development carried out by the Tabanan Regency Environmental Service and the Waste Bank in Tabanan Regency was carried out well and optimally. And the most important thing is that the community can participate in this waste bank program and have a positive impact on environmental conservation in accordance with the Tri Hita Karana concept.

The results of observations by researchers in the field showed that the community was very enthusiastic when implementing the waste bank. Researchers made observations to the

Sekartaji Unit Waste Bank on Sunday, January 9, 2022, showing that there were so many customers of the Sekartaji waste bank that they sometimes huddled together to sit on the chairs provided by the waste bank. This activity takes place from 08.00 WITA to 14.00 WITA. Even after 14.00 WITA there are still some customers waiting in line to save their trash.

The high level of community participation is due to people who already understand and have the capacity or ability to manage waste as a result of the guidance carried out by the Tabanan Regency Environmental Service. This is relevant to the theory of empowerment according to Mardikanto & Soebito (2018) that empowerment is an effort to build power itself by encouraging, motivating, and raising awareness of its potential and trying to develop it.

Business Development

Business development is an important effort in implementing an empowerment for the community, because business development provides benefits, especially in terms of getting a value (Ortiz & Huber-Heim, 2017). The dimension of business development carried out by the Tabanan Regency Environmental Service together with unit waste bank is to provide empowerment in the form of socialization, and assistance to the community in terms of waste management and waste sorting, so that the price of the waste can be more expensive if sold to the waste bank. This is relevant to the business development theory proposed by Mardikanto & Soebito (2018), where business development is one of the factors in improving community welfare, in this case it is prosperous because it gets value from the waste that is saved in the waste bank.

Based on Law No. 18 of 2008 concerning Waste Management, article 28 states that the community is the main actor in the development of waste management which of course must play an active role in the context of environmental management organized by the government. The results of this waste sorting and processing will later be managed by the waste bank management together with assistance from the government, in this case the Tabanan Regency Environmental Service, which helps market this carefully sorted inorganic waste to collectors or vendors.

Garbage Banks in Tabanan Regency get money from vendors for the sale of waste that has been separated from customers who previously collected it at the waste bank. Then the waste bank forwards the money to customers according to the amount of waste saved, so that an economic flow is formed. From the results of an interview with the Chair of the Sekartaji Unit Waste Bank, Mr. I Gede Santika said that:

The Sekartaji Waste Bank receives waste from customers, then we record this waste and we check it again so that it is in accordance with the quality and standards set by the Main Garbage Bank, then the waste that we are ready to sell to the Main Waste Bank, which then we sell the proceeds cash to customers.

The researcher also conducted an interview with the Head of the Main Garbage Bank Marga Pertiwi Lestari, Mr. I Wayan Suastika regarding the flow of waste after being collected at the Main Waste Bank and the results of recycling waste into items of economic value. He said:

We will sell the waste from the Unit Waste Bank that we have received directly to vendors such as Bali PET, PT Aqua, PT Unilever and collectors, who then process the waste into items of economic value such as recycled bottles, home appliances, stairs, and so on.

Seeing the prospect of selling recycled waste which is quite high, it requires carefulness and strategy in sorting waste, especially inorganic waste which has separate parts to increase its

selling value when it is marketed later. Kelian Banjar Batan Poh Pandak Gede Village who is also one of the managers of the Sekartaji Waste Bank, Mr. Dewa Dicky said:

To increase the results of selling waste, usually further sorting is carried out. An example is used bottles whose bodies, caps and rings can be separated and grouped individually so that the selling results of the waste are more expensive. We always provide this education to customers.

From the results of education and assistance carried out by the Tabanan Regency Environmental Service and from the Waste Bank management in Tabanan Regency, the community is able to manage and sort their waste optimally and carefully segregated, especially inorganic waste. In addition to inorganic waste, there are also some people who have started to manage organic waste into fertilizer which of course gets assistance from the Tabanan Regency Environmental Service and the manager of the unit waste bank in their environment. As said by the Bengkel Village Perbekel, Mr. I Nyoman Wahya, some of the Bengkel Village community began to make compost from organic waste which was then sold to farmers who of course received assistance from the government and the waste bank so that the results were maximized. The results of community empowerment through the business development aspect are depicted in the form of a table in the form of examples of the results of the sale of waste made by the community to the bank unit which is managed directly by the waste bank management.

Table 4. Data on the Results of Waste Sales of Waste Bank Sekartaji Banjar Batan Poh Unit of Pandak Gede Village in 2021

No.	Types of Garbage	Sum Kg/month	Price/kg	Total Price
1	Plastic Mix	101,8	IDR 1,200.00	IDR 122,160.00
2	Clean Bottle	59,6	IDR 2,800.00	IDR 166,880.00
3	Dirty Glass	22,4	IDR 1,800.00	IDR 40,320.00
4	Milk Cans	17,7	IDR 1,000.00	IDR 17,700.00
5	Mountea Glass	2,1	IDR 1,500.00	IDR 3,150.00
6	Little Cardboard	83,3	IDR 600.00	IDR 49,980.00
7	Egg Rack	-	IDR 1,800.00	-
8	White paper	7,2	IDR 2,000.00	IDR 14,400.00
9	Cover	-	IDR 2,200.00	-
10	Book	91,5	IDR 1,000.00	IDR 91,500.00
11	Box	166,7	IDR 2,700.00	IDR 450,090.00
12	Blue Bottle Cap	7,2	IDR 2,000.00	IDR 14,400.00
13	Crackle Bag	40	IDR 400.00	IDR 16,000.00
14	Composter	-	IDR 1,000.00	-
TOTAL				IDR 986,500.00

Source: Processed researchers, 2022.

Based on the table above, that unit's waste bank gives good results every week. The waste is obtained from waste bank customers who have been collected for one week which is then purchased by the unit waste bank and in the end the unit waste bank sells a collection of waste from all waste bank customers to the main waste bank, then in the end the main waste bank sells the waste. to the vendors or collectors.

Community Development

The Tabanan Regency Environmental Service through the waste bank program provides guidance to the environment. The environmental development is carried out by procuring facilities and infrastructure related to environmental sustainability, especially in the field of waste management. Tabanan Regent Regulation Number 68 of 2017 concerning Implementing Regulations of Regional Regulation Number 6 of 2013 concerning Management of Household Waste and Types of Household Waste explains that the Regional Government of Tabanan Regency is obliged to facilitate the necessary advice and infrastructure in terms of waste management and reduction.

Development of the environment is one of the important points in empowering the community (Chavis & Wandersman, 2002). Responsibility for the environment is a responsibility for the whole society. Therefore, the development of the environment is not only for social development, but also for the physical development of the environment such as maximizing and optimizing facilities and infrastructure.

The government has the task of providing and optimizing waste facilities and infrastructure in Tabanan Regency, based on the results of an interview with the Head of the Tabanan Regency Environmental Service, Mr. I Made Subagia, S.Pi., MM said that:

The facilities and infrastructure that we provide are an inventory of each village such as vehicles, facilities at the waste bank, and warehouse rehabilitation, where we periodically continue to service spare parts so that these infrastructure facilities function optimally.

This is in line with what Mr. I Gede Santika as Chair of the Sekartaji Unit Waste Bank said that:

The Tabanan Regency Environmental Service has facilitated us quite a lot for the running of this waste bank program, coincidentally also the management of this waste bank is voluntary and can be said to be still minimal in terms of independent procurement of facilities and infrastructure. Self-help from the community is also quite helpful in optimizing these facilities and infrastructure.

Facilities and infrastructure are very essential in helping the smooth implementation of environmental conservation through proper waste management. Based on the results of the interview, the Tabanan Regency Environmental Office facilitates facilities and infrastructure related to environmental conservation through waste management activities. These facilities and infrastructure are assisted directly from APBD funds and assisted by the private sector and non-governmental organizations from the community. As conveyed by Mrs. Ni Nyoman Yudiani, SH, MH as Head of Waste Management, Hazardous and Toxic Waste Management and Capacity Building for the Tabanan Regency Environmental Service said that:

The provision of facilities and infrastructure is very important in this waste management activity, where the provision of these facilities and infrastructure uses APBD funds as well as assistance from private parties such as Bali Wastu Lestari. We always try to maximize the infrastructure that is still relatively minimal.

The results of the researchers' observations show that in each village there are indeed several means of transporting waste such as garbage carts, garbage trucks, pickup cars, and viar motorbikes. Then the facilities and infrastructure that support waste management activities through the waste bank program are also available in each waste bank, so that waste bank activities run as they should. This is relevant to the theory of environmental development according to Mardikanto & Soebito (2018), where the environment is the responsibility of the entire community and the government for policies that must be implemented in order to improve the social welfare of the community. In addition, the form of welfare is that the

existence of these facilities and infrastructure can support this environmental conservation program, so that a clean environment will improve the quality of public health. Based on data from the Tabanan Regency Environmental Service regarding waste management facilities and infrastructure in Tabanan Regency, it is in the following table:

Table 5. Waste Facilities and Infrastructure

No.	Kind	Sum	Unit
1	Viar motor (three-wheeler)		
	Overall Number	5	Unit
	Numbers that work well	3	Unit
	Damaged amount	2	Unit
	Capacity	1	m ³
2	Car pick up garbage		
	Overall Number	4	Unit
	Numbers that work well	4	Unit
	Damaged amount	0	Unit
	Capacity	3	m ³
3	Garbage carts		
	Overall Number	24	Unit
	Numbers that work well	15	Unit
	Damaged amount	9	Unit
	Capacity	200	Kg
4	Amroll truck		
	Overall Number	7	Unit
	Numbers that work well	7	Unit
	Damaged amount	0	Unit
	Capacity	6	m ³
5	Dump Truck		
	Overall Number	16	Unit
	Numbers that work well	12	Unit
	Damaged amount	4 (light weight)	Unit
	Capacity	6	m ³
6	Excavators		
	Overall Number	2	Unit
	Numbers that work well	1	Unit
	Damaged amount	1	Unit
	Capacity	1	m ³
7	Louder		
	Overall Number	1	Unit
	Numbers that work well	0	Unit
	Damaged amount	1	Unit
	Capacity	1,7	m ³
8	Bulldozer		
	Overall Number	2	Unit
	Numbers that work well	1	Unit
	Damaged amount	1	Unit
	Capacity	4	m ³

Source: Processed researchers, 2022.

Institutional Development

Institutional development is the existence of elements such as organizational elements or social elements in community empowerment in managing waste through the waste bank program in Tabanan Regency, in ¹³ case carried out directly by the Tabanan Regency Environmental Service. The Tabanan Regency Government, in this case the Tabanan Regency Environmental Service, ² has made many contributions to the community, especially the waste bank managers. Where, the waste bank managers are fostered and assisted directly by the Tabanan Regency Environmental Service in terms of waste management and environmental maintenance.

The results of an interview with the Head of the Environmental Service, Mr. I Made Subagia, S.Pi., MM said:

The form of assistance from the Tabanan Regency Environmental Service is the assistance of its institutional capacity. The second is mentoring the capacity of its human resources so that it always increases, and the third is assistance to waste banks in managing their institutions.

The assistance carried out by the Tabanan Regency Environmental Service also collaborates with the Bali Wastu Lestari Foundation in order to maximize the potential in the field, for example by using the Bali Wastu Lestari application technology for waste bank customers. The results of the interview with the Bengkel Village Perbekel Mr. I Nyoman Wahya are:

The Tabanan Regency Environmental Service together with the Bali Wastu Lestari Foundation held a trial at our waste bank, namely the Bestari Workshop Waste Bank using the Bali Wastu Lestari application. Where this application makes it easier for customers to manage their waste because it is based on an online system.

The Bali Wastu Lestari application is an innovation carried out by the Tabanan Regency Environmental Service together with the Bali Wastu Lestari Foundation, where customers can check their balances in real time and record the amount of waste savings simply by using the application, thus facilitating the performance of waste bank managers and other stakeholders. customers do not have to worry about the transparency of their money in waste bank savings.

The vision of the Tabanan Regency Government regarding waste is that by 2024 there will be no more inorganic waste disposed of at the Mandung TPA and all inorganic waste management is the responsibility of each community through the waste bank. According to an interview with the Head of the Waste Management Section of the Tabanan Regency Environmental Service, Mr. Gede Wayan Oka Sadira, S.Sos said that:

The local government of Tabanan Regency has a vision that in 2024 the Mandung TPA will no longer accept inorganic waste, in the sense that it is closed in accepting inorganic waste transportation and the community is able to manage their own waste through a waste bank. Therefore, we from the Environment Agency have a mission that there must be at least 1 waste bank in every village, even better in every banjar.

⁵⁶ ¹³ sed on the results of researcher interviews with several informants above, the Tabanan Regency Government, in this case the Tabanan Regency Environmental Service, is very concerned with the existence of waste banks in Tabanan Regency by continuing to provide guidance, training, and assistance to waste banks. In addition, there is also an innovation in the form of the Bali Wastu Lestari application which makes it easier for waste management for both waste bank managers and the community. This is relevant to the theory of institutional development according to Mardikanto & Soebito (2018) where the achievement of the capacity and effectiveness of an element of the institution will support other developments that refer to community empowerment which aims to create social welfare.

Conclusion

The implementation of community empowerment in waste management through the waste bank program in Tabanan Regency has been carried out well. This is indicated by the existence of activities carried out by the Tabanan Regency Government through the Tabanan Regency Environmental Service in the form of coaching, providing education and socialization, as well as assistance to the community and to waste bank managers related to environmental conservation by managing source-based waste. Business development through the waste bank program was carried out well, which was marked by collaboration with vendors and waste management companies, so that the waste had value which could then be given to the community who had exchanged their waste at the waste bank. The Tabanan Regency Environmental Service also collaborates with Bali Wastu Lestari in innovating the creation of a digital waste bank application to make it easier for the community and the waste bank manager to manage waste through the waste bank program efficiently. This waste bank program has a good response in the community, therefore community empowerment in managing waste through the waste bank program in Tabanan Regency can be carried out properly.

References

- Asteria, D. (2016). Bank Sampah Sebagai Alternatif Strategi Pengelolaan Sampah Berbasis Masyarakat di Tasikmalaya. *Jurnal Manusia Dan Lingkungan*, 23(1): 137.
- Chavis, D. M., & Wandersman, A. (2002). Sense of community in the urban environment: A catalyst for participation and community development. In *A quarter century of community psychology* (pp. 265-292). Springer, Boston, MA.
- Hati, G., & Adi, I. R. (2014). Kajian Permasalahan Dan Potensi Perilaku Ibu Dalam Pemberian Makanan Bagi Anak Dalam Kaitannya Pada Kualitas Hidup Anak-Anak Yang Tidak Berkecukupan Gizi Di Keluarga Miskin Perkotaan. *Jurnal Ilmu Kesejahteraan Sosial*, 13(1), 56-73.
- Karl, T. L. (2007). Oil-led development: social, political, and economic consequences. *Encyclopedia of energy*, 4(8), 661-672.
- Kemp, D. (2010). Mining and community development: problems and possibilities of local-level practice. *Community Development Journal*, 45(2), 198-218.
- Mardikanto, T., & S. biato, P. (2018). *Pemberdayaan Masyarakat Dalam Perspektif Kebijakan Publik*. Bandung: Alfabeta
- Nain, U. (2017). *Relasi Pemerintah Desa Dan Supradesa Dalam Perencanaan Dan Penganggaran Desa*. Yogyakarta: Pustaka Pelajar
- Nugraha, A., Sutjahjo, S., Amin, A. (2018). Persepsi dan Partisipasi Masyarakat Terhadap Pengelolaan Sampah Rumah Tangga Melalui Bank Sampah di Jakarta Selatan", Vol. 8, No.1, April 2018: 8.
- Ortiz, D., & Huber-Heim, K. (2017). From information to empowerment: Teaching sustainable business development by enabling an experiential and participatory problem-solving process in the classroom. *The international journal of management education*, 15(2), 318-331.
- Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.

Community Empowerment in Waste Management through Waste Bank Program in Tabanan District

ORIGINALITY REPORT

18%

SIMILARITY INDEX

14%

INTERNET SOURCES

11%

PUBLICATIONS

5%

STUDENT PAPERS

PRIMARY SOURCES

1	journal.lppm-unasman.ac.id	2%
Internet Source		

2	repository.uinsu.ac.id	1%
Internet Source		

3	Denny Ardiansyah Pribadi, Eko Priyo Purnomo, Aqil Teguh Fathani, Lubna Salsabila, Novia Amirah Azmi. "How does the Government Manage Waste? Analysis of Waste Management in Bantul Regency, Indonesia", IOP Conference Series: Earth and Environmental Science, 2021	1%
Publication		

4	www.atlantispress.com	1%
Internet Source		

5	sciencescholar.us	1%
Internet Source		

6	knapublishing.com	1%
Internet Source		

repository.unsoed.ac.id

7	Internet Source	1 %
8	ajmi.stamford.edu Internet Source	1 %
9	frw.studenttheses.ub.rug.nl Internet Source	<1 %
10	jurnalkesos.ui.ac.id Internet Source	<1 %
11	Suparmini, Purnawan Junadi. "The role of waste bank partnership in efforts to decrease waste volume in urban: A case study at a waste bank in Kalibaru, Cilodong, Depok City", IOP Conference Series: Earth and Environmental Science, 2018 Publication	<1 %
12	core.ac.uk Internet Source	<1 %
13	Suwari Akhmaddhian, Ria Virigianti, Erga Yuhandra. "The Law Enforcement Factors in Waste Management to Achieve Environmental Sustainability and Community Welfare", Substantive Justice International Journal of Law, 2021 Publication	<1 %
14	journals.ums.ac.id Internet Source	<1 %

- | | | |
|----|--|------|
| 15 | Submitted to President University
Student Paper | <1 % |
| 16 | ojs.uma.ac.id
Internet Source | <1 % |
| 17 | Budi Prasetyo Samadikun, Dwi Siwi Handayani, Muhamad Permana Laksana.
"Waste Bank Revitalization in Palabuhanratu West Java", E3S Web of Conferences, 2018
Publication | <1 % |
| 18 | meditek.id
Internet Source | <1 % |
| 19 | Muhammad Amir, Rola Pola Anto. "A Study Policy Implementation of Waste Management in Konawe Regency-Indonesia", Journal of Sustainable Development, 2018
Publication | <1 % |
| 20 | ejournal.undip.ac.id
Internet Source | <1 % |
| 21 | iccd.asia
Internet Source | <1 % |
| 22 | moam.info
Internet Source | <1 % |
| 23 | garuda.kemdikbud.go.id
Internet Source | <1 % |
| 24 | scholar.ui.ac.id
Internet Source | |

<1 %

25

adri.journal.or.id

Internet Source

<1 %

26

ijsshr.in

Internet Source

<1 %

27

www.journal.staihubbulwathan.id

Internet Source

<1 %

28

Dian Fitria Tanjung, Edi Syahputra, Irvan Irvan. "Problem Based Learning, Discovery Learning, and Open Ended Models: An experiment On Mathematical Problem Solving Ability", JTAM | Jurnal Teori dan Aplikasi Matematika, 2020

Publication

<1 %

29

digitalcollections.sit.edu

Internet Source

<1 %

30

Jussac Maulana Masjhoer, Syafrudin Syafrudin, Maryono Maryono. "Rural Waste Management System in Southern Zone of Gunungkidul Regency", Environmental Research, Engineering and Management, 2022

Publication

<1 %

31

bajangjournal.com

Internet Source

<1 %

digilib.uin-suka.ac.id

32

Internet Source

<1 %

33

ijmmu.com

Internet Source

<1 %

34

Fauzan Hidayat, Dwi Nowo Martono, Udi Syahnoedi Hamzah. "Quantification and characterization of household waste in Dumai Timur District, Dumai City, Riau, Indonesia as a measure towards circular economy.", IOP Conference Series: Earth and Environmental Science, 2022

Publication

<1 %

35

Submitted to Universitas Airlangga

Student Paper

<1 %

36

Submitted to Universitas Ibn Khaldun

Student Paper

<1 %

37

eudl.eu

Internet Source

<1 %

38

Dewi Indah Pratiwi, Asramid Yasin. "Optimization of Waste Banks in Schools: Education-Based Solutions to Overcome Environmental Pollution", AL-ISHLAH: Jurnal Pendidikan, 2022

Publication

<1 %

39

techniumscience.com

Internet Source

<1 %

40	La Ode Angga, Dyah Ridhul Airin Datie, Popi Tuhulele, Sabri Fataruba, Iqbal Taufiq. "Responsibility of Manufacturers in Waste Management of Plastic Packaged Drink Products Based on Law Number 18 of 2008 Regarding Waste Management (Case Study in Ambon City, Maluku Province)", International Journal of Sustainable Development and Planning, 2021 Publication	<1 %
41	M H Ansyar. "Effectiveness of integrated waste management based on community empowerment: a case study of Mamuju city", IOP Conference Series: Earth and Environmental Science, 2020 Publication	<1 %
42	Submitted to School of Business and Management ITB Student Paper	<1 %
43	repository.ub.ac.id Internet Source	<1 %
44	repository.upi.edu Internet Source	<1 %
45	repository.wiraraja.ac.id Internet Source	<1 %
46	www.abacademies.org Internet Source	<1 %

47

ejournal.stie11april-sumedang.ac.id

Internet Source

<1 %

48

jcil.lsyndicate.com

Internet Source

<1 %

49

journal.bungabangsacirebon.ac.id

Internet Source

<1 %

50

jurnal.untag-sby.ac.id

Internet Source

<1 %

51

Emil R. Kaburuan*, Pantri Heriyati. "Mobile Apps Business Design and Development for Integrated Waste Management", International Journal of Recent Technology and Engineering (IJRTE), 2019

Publication

<1 %

52

Risma Niswaty, Hillman Wirawan, Haedar Akib, M. Said Saggaf, Dahyar Daraba. "Investigating the effect of authentic leadership and employees' psychological capital on work engagement: evidence from Indonesia", Heliyon, 2021

Publication

<1 %

53

Nirzalin, H Prama, Azhari, Fakhrurrazi, M Nazaruddin. "From drug center to soka crabs and tilapia salina center: a case study of community economic empowerment at ex-drug base of Ujoeng Pacu Village, Lhokseumawe, Aceh, Indonesia", IOP

<1 %

Conference Series: Earth and Environmental Science, 2021

Publication

54

jurnal.dharmawangsa.ac.id

Internet Source

<1 %

55

neuroquantology.com

Internet Source

<1 %

56

www.ijsrp.org

Internet Source

<1 %

57

Devita Faradina, Maryono Maryono, Budi Warsito. "The role of waste banks in reducing waste in Gunung Kidul Regency", E3S Web of Conferences, 2020

Publication

<1 %

58

Luh Gede Mita Laksmi Susanti, Ni Nyoman Juwita Arsawati. "Alternatif Strategi Pengelolaan Sampah Berbasis Pemberdayaan Masyarakat Melalui Bank Sampah Di Desa Tunjuk, Tabanan", KAIBON ABHINAYA : JURNAL PENGABDIAN MASYARAKAT, 2021

Publication

<1 %

59

S Widaningsih, A Suheri. "Design of Waste Management System Using QR Code for Effective Management in Wastebank", Journal of Physics: Conference Series, 2021

Publication

<1 %

60

Internet Source

<1 %

61

journal.iainkudus.ac.id

Internet Source

<1 %

62

jurnal.kemendagri.go.id

Internet Source

<1 %

63

tiikm.com

Internet Source

<1 %

64

Agus Brotosusilo, Ari Naldi. "Policy on optimization of household waste and hazardous waste management based on community empowerment at the local level", IOP Conference Series: Earth and Environmental Science, 2021

Publication

<1 %

65

N Parwati, R Nurdina, A T Purwandari, W N Tanjung. "Prototype Design of Plastic Waste Processing Equipment", IOP Conference Series: Materials Science and Engineering, 2020

Publication

<1 %

66

Suzi Soliati. "COMMUNITY EMPOWERMENT IN MANAGING WASTE THROUGH TAKAKURA TRAINING", Empowerment, 2019

Publication

<1 %

Exclude quotes Off

Exclude matches Off

Exclude bibliography Off