



Analysis of the use of Recycle to Increase the Productivity of Msmes Ecofriendly Board Waste Bank in Medan Village, Belawan I

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ABSTRACT

Waste is still a common problem in society. Management of inorganic waste in the form of plastic waste and banners is more difficult to decompose so it remains as waste for a long time and causes environmental pollution. There are various ways to overcome this problem, namely 3R (Reduce, Reuse, Recycle). Medan Belawan I Subdistrict is one of the areas in Medan City that has coordinated the commercial use of inorganic waste. One of the perpetrators of waste utilization in this area is the Ecofriendly Board Waste Bank. This research aims to analyze waste banks to increase the productivity of MSMEs by the Ecofriendly Board in Medan Belawan I Subdistrict. The management of plastic waste and banners gets high added value because it is processed into material for making furniture as one of the initial goals of increasing the productivity of the community and MSMEs. The research method uses a qualitative approach with descriptive research methods. The results of this research, with a recycling system that is carried out continuously on a mass scale, can minimize waste and increase the productivity of MSMEs. It was concluded that the existence of recycling activities made it possible to slightly reduce the huge amount of waste. It is recommended that more waste banks or similar institutions be established in various regions to support MSMEs in utilizing recycled materials for their production.

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INTRODUCTION

According to statistical data from the National Waste Management Information System (SIPSN), plastic waste ranks 2nd largest after culinary organic waste. Plastic is one of the most commonly used materials in daily life. In 2021, Indonesia produced 25.95 million tons of plastic waste, or 15.96% of the total waste produced (SIPSN, 2021). This is a problem as well as a challenge that must be seriously handled by the government through effective regulations to manage this plastic waste properly, so as to minimize the impact of environmental pollution both soil, water, and air.

A Waste Bank is a place used to collect waste that has been sorted. The results of the collection of waste that has been sorted will be deposited to the place where the waste crafts are made or to the garbage collector. Waste banks are managed using a system such as banking, where depositors are residents who live around the location of the waste bank and they get a savings book such as saving at a bank (Lidmiah et al., 2018).

In Medan Belawan I District, Medan Belawan District has ineffective waste management. The problem of waste that is not managed properly can threaten the cleanliness and sustainability of the environment as well as public health. To overcome this problem, the Ecofriendly Waste Bank collaborated with Medan Belawan I District as an effort to reduce plastic waste and create new goods that have a selling price. (Medan City Government, 2023).

Inorganic waste that has been collected from various sources such as from household waste and from industries around Belawan I will then be grouped in the form of types of waste in the form of plastic waste banners, plastic beverage bottles and plastic from sim card results. After the collection process, there is a cleaning process which will then be dried and entered into the melting process. After entering the smelting

process, it will go to the printing process stage which will be printed in the form of long beams and wide beams in the form of boards before finally being used as various furniture.

The purpose of this study is to analyze the waste bank to increase the productivity of MSMEs by the Ecofriendly Board in Medan Belawan I Village and to find out how to sort waste, the recycling process in the waste bank to furniture produced by the Ecofriendly Board in Medan Village, Belawan I.

METHODOLOGY

This type of research uses a qualitative descriptive method, data is obtained from field observations, interviews and documentation with the owner of the Ecofriendly Board Waste Bank, employees and the community involved. Field observations are carried out to understand each stage of the recycling process. Structured interviews are prepared in advance by the researcher in the form of questions and answers, which will be a guideline in subsequent interviews.

RESULTS AND DISCUSSION

The waste bank teaches the community to sort waste and foster public awareness to process waste wisely, so that it can reduce the waste transported to the landfill. In addition, residents who submit waste to the waste bank will receive additional income (wages). The establishment of a waste bank integrated with education about the 3R principle is the basic knowledge for residents to manage waste from the source, namely household waste. Citizen empowerment aims to shape the knowledge and skills of residents so that they are able to sort organic and non-organic waste. The benefits of the ability of residents to manage waste by applying the 3R principle and saving to the waste bank have provided direct benefits, not only economically, but also the realization of environmental health, with clean, green, comfortable, and healthy community conditions (Astheria et al., 2019).

One of the waste banks in the Belawan I area, namely the Eco friendly Board, by managing waste recycling using a recycle system where plastic waste will be used as a material for making furniture as one of the initial goals of increasing the productivity of the community and MSME actors. The Eco Friendly Board was created by Mr. Tomy as the Founder of the Waste Bank and was inaugurated in 2023 in March.

Based on the results of an interview with the founder of the Waste Bank, namely with Mr. Tomy, "My initial goal in building this Eco Friendly waste bank was because I saw the environment around Belawan I, I saw piles of garbage located in every corner so that Mr. Tomy's brilliant idea to process this waste into something more valuable and valuable, namely to become furniture such as tables, benches, lampposts and many other items" (Tomy et al., 2024)

Garbage Collection

Based on the results of interviews with Eco Friendly Waste Bank workers at the collection stage, "Waste is obtained from various sources ranging from the surrounding community who collect inorganic household waste and then delivered to the Eco friendly waste bank, there is also cooperation with the city planning office to get waste in the form of banners or banners, collaborating with SOEs, precisely with Telkomsel to get SIM card waste, and the Eco Friendly Waste Bank also accepts agencies that want to collaborate by distributing their waste to Eco Friendly".

The stages of the plastic waste recycling process are Waste sorting

In accordance with the plastic recycling procedure, the first step taken is the separation of plastic waste. The sorting of this type of plastic is based on its characteristics that are easy to process, easy to shape, and strong, so that it can be used as a safe basic material for furniture (Berliana et al., 2023)

Based on the results of interviews with Eco friendly Waste Bank employees "At the sorting stage, waste is divided or grouped based on the type of plastic waste, namely in the form of banner/banner waste, plastic bottles and up to the remaining form of prepaid SIM cards. Because this stage is very necessary to get quality results from plastic waste materials".

Enumeration

The plastic that has been sorted then goes through the process of chopping into small parts. This process helps in faster melting of plastics. Plastic shredding is carried out using a shredding machine until it is in the form of small pieces (Berliana et al., 2023).

Based on the results of interviews with employees of the Eco friendly Waste Bank, "At this shredding stage, the goal is to reduce the smallest waste so that it is easy to put into the melting machine. If the waste is too large, it will not fit into the melting machine, so the waste that will be melted will not become solid when melted".

Smelting

Smelting / Hot Press: Plastic shredding that has been ready to be placed on the print plane is then heated using a hot press machine until it follows the shape of the mold. The shape of the mold made is rectangular or block (Berliana et al., 2023).

Based on the results of interviews with employees of the Eco friendly Waste Bank "At the melting stage, the waste that has gone through the sorting and shredding process will then be melted at a temperature of 200°C and molded in the form of long blocks, 16KG of inorganic waste is needed To produce 1 long block after the waste is melted and then soaked in a pond filled with water so that the waste mixture can quickly solidify and can be removed from the long block mold".

Cooling/Cold Press

Pressed plastic needs to undergo a cooling process to ensure that the mold is solid and successful and that there are no hollow parts. The goal is to maximize the characteristics of plastics that can be flexibly molded while still having optimal strength (Berliana et al., 2023).

Based on the results of interviews with employees of the Eco-friendly Waste Bank, "At the cooling stage, it takes approximately three hours. With the process of soaking in a square pond containing water, it will produce a solid and good quality beam formation."

Formation

Plastic that has been pressed and cooled will be in the form of a board or board that is ready to be formed. This material can be used as a substitute for general materials, and the size and shape can be adjusted. For example, one of the furniture produced is a chair that is made using only recycled plastic without being mixed with other materials. Recycled plastic in the form of boards or boards is then used as a basic material in furniture design (Berliana et al., 2023).

Based on the results of interviews with employees of the Eco friendly Waste Bank "At the formation stage, now at this stage the blocks that have gone through the cooling process will be shaped according to the desired creativity for example in the form of street incandescent lamps that will be restored as best as possible or as similar as possible in shape such as incandescent lamps made of iron.

Productivity outcomes

After going through various stages until finally the waste will be in the form of long blocks and ready to be used as materials for making furniture. Mr. Tomy said that there are many furniture that can be made from this long block, one of which is a table, chair, yard lamppost, flower vase, fish pond, and many others, so the waste that we think is worthless after being processed finally has a high selling price. Because the productivity of using recycled waste materials will be very beneficial for nature preservation because it reduces the use of basic raw materials from natural resources.

Positive response from the surrounding community regarding the Ecofriendly Waste Bank

The surrounding community gave a positive response to the Ecofriendly Board Waste Bank in Medan Belawan I Village because this waste bank taught them to sort waste, foster awareness of waste management wisely, and provide additional income for residents who submit waste to the waste bank. With the existence of a waste bank that is integrated with education about the 3R principle, people can learn to manage waste from the source, namely household waste, so as to create a clean, green, comfortable, and healthy environment. In addition, the use of recycled materials, such as plastics and banners, for furniture production by the Ecofriendly Board Waste Bank also provides direct benefits, both economically and in an effort to maintain the health of the surrounding environment.

CONCLUSION

Based on the results of the discussion, it can be concluded that with recycling activities, we can slightly reduce the amount of waste that is very large. The increasing human needs require products for their survival such as food, beverages, and others, which often leave packaging that becomes waste every day.

With the standard of pure furniture materials using only recycled plastic without being mixed with other materials, such as recycled banners, various types of furniture such as chairs, tables, lampposts, and others can be produced. The strength of recycled plastics that are not mixed with other materials in this construction does not pose a safety concern because it has been tested for strength against UV rays. This allows these materials to be recycled sustainably. So, even in the worst scenario, when the furniture can no longer be used, the material can be recycled again without adding to the accumulation of plastic waste.

SUGGESTION

The importance of expanding the use of recycling in increasing the productivity of Micro, Small, and Medium Enterprises (MSMEs). The Ecofriendly Board Waste Bank in Medan Belawan I Village has proven

that a mass recycling system can help minimize waste and increase the productivity of MSMEs through the production of furniture from recycled materials. Therefore, it is recommended that more waste banks or similar institutions be established in various regions to support MSMEs in utilizing recycled materials for their production. In addition, there needs to be wider education and socialization to the community about the importance of recycling and ways to manage waste in order to increase awareness of the need for recycling practices in daily life.

In addition, another recommendation that can be taken from this journal is the importance of using recycled materials, such as plastics and banners, for the production of furniture that meets ergonomic standards. This not only helps in reducing the amount of waste generated every day, but also makes a positive contribution to the environment. It is recommended that the furniture and interior design industry use more recycled materials in their production to support efforts to reduce plastic waste. In addition, further research is needed on the impact of online food delivery on MSMEs as well as innovative solutions to address the problem of plastic waste in interior design to continue to encourage recycling and waste reduction practices.

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