Application of Reverse Logistics Management in Utilizing and Creating Use Value from Plastic Waste

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Abstract. Production activities can be interpreted as yielding for the use of goods and services in carrying out certain production, which if it cannot be recycled can lead to accumulation of garbage around the society, skin diseases / disrupt human health, and air pollution. Reverse logistics is an efficient planning that relates to raw materials and reuses the use value that is still in an item or the process of disposal of an item properly. It can be said that Reverse logistics is the return of goods from consumers to distributors to reuse a utility goods or also can be because the item is damaged / not on demand or also because of the disposal process of the item. This research is to find out, how the application of reverse logistics management in utilizing and creating use value from plastic waste. Data collection in this study uses the qualitative method and uses interview, questionnaire, book, observation, media and journal. Based on the analysis carried out, the researcher can conclude that, production activities or recycling processes in creative industries in NGOs to increase use value that is beneficial to the society, if the waste is not recycled, it cannot add value to waste plastic circulating in the society.

1. Introduction
The increase in the amount of plastic waste that occurs from 2017 to 2018, plastic waste production is expected to experience an increase of around 96019.2 tons per year in DKI Jakarta. However, only a small portion of this plastic waste is recycled. If we can recycling this waste can reduce plastic waste, will avoid serious threats from the presence of plastic waste for human health such as respiratory problems, air pollution and damage to the beauty of the earth, the research was carried out with two objectives, such as:
1. Understanding The Application of Reverse Logistics Management.
2. Understand The Application of Reverse Logistics Management in Utilizing and Creating Use Value from Plastic Waste.

It is hoped that reverse logistics of properly managed plastic waste recycling will benefit the company and society as follows: maintain the existence and sustainability of the company's business in the future, reflecting corporate social responsibility (CSR) that can lead to increased competitiveness and good image of the company in the eyes of domestic and foreign consumers; improve the quality of life of the society regarding the company's contribution in reducing environmental pollution; and improve, energy and natural resources related to the reuse of material contained in Plastic Waste.

Utilization is a derivative of the word 'Benefit', which is an interception that merely shows the activity of receiving. Utilization is results of work in utilizing something useful (Badudu in the
Indonesian General Dictionary). Value is the satisfaction or pleasure someone gets from consuming an item. If satisfaction is higher, the higher the value of use (Adam Smith).

Waste bank, which is a work unit that carries out waste management where its activities include, sorting waste from its source which is then collected in a place and then sold to third parties or craft makers from plastic waste. Reverse logistics is one of the most overlooked elements in a complete operating cycle [1]. But in reality, Reverse Logistics became a hot topic lately. The rise of current environmental issues has caused many governments in the world to require companies to deal with their own waste problems.

According to the law of the Republic of Indonesia No. 18 of 2008 article 22 concerning Waste Management, covers activities: 1) sorting; 2) collection; 3) transportation; 4) processing; and 5) final processing of waste. Waste management in general, before recycling waste, needs to be sorted from various types. Waste bank, which is a work unit that conducts waste management where its activities include, sorting waste from its source which is then collected in a place and then sold to third parties. (Astuti, N.A. 2013).

Reverse logistics is one of the most overlooked elements in a complete operating cycle [1]. But in reality, Reverse Logistics became a hot topic lately. The rise of current environmental issues has caused many governments in the world to require companies to deal with their own waste problems. Reverse logistics is currently one of the best alternatives that can be considered to reduce the transparency of raw material resources. In addition, reverse logistics are proven to provide economic value to the perpetrators.

The purpose of Reverse Logistics is to capture or re-create the value or value for the disposal of goods that flow back to be able to reprocess Rogers and Tibben / Lembke, in Sutapa [2]. It can be concluded that, the purpose of reverse logistics is to minimize waste. Reverse Logistic as an activity to plan, apply, and be achieved efficiently with material flows until finished products can be useful for the surrounding society.

The positive impact on the environment is the avoidance of the disposal of dangerous parts or all used products, without adequate processing, and can reduce waste in the society area. It can be said, that RL is the process of moving goods from the end user to return to the origin to save the value of goods that is. When a product has lost its value, RL activities can recover the product to become a new product again by recycling some parts or components of the product.

2. Research Method
Research on the use of qualitative methods to describe reverse logistics is to use information for data or tools to analyze information about things found. Kasiram in his book entitled (Qualitative and Quantitative Research Methodology) Data collection was carried out by interviews, questionnaires, books, observations, media and journals [3].

3. Result and Discussion
Utilization is a derivative of the word 'Benefit', which is an interception which merely shows the activity of accepting Utilization is a matter, method, result of work in utilizing something useful (Badudu in the General Dictionary of Indonesian Language). use value is the satisfaction or pleasure a person gets from consuming an item. If the satisfaction is higher, then the higher the use value (Adam Smith), with the results of a survey through literature and interviews with NGOs and the Chair of the recycling society, it provides the basis for developing a Reverse logistics channel framework that is used for recycling. This research mainly focuses on problems that affect plastic recycling. Based on the research carried out, this table is data to see the population of the amount of waste in the society.
The largest number of waste contributors in Indonesia is there in the home by 48%, there is a traditional market by 24%, commercial area/Industry by 9%, school by 4%, office by 6%, in the street 8% and other by 1%.

### Figure 1. Source Of National Waste

![National Waste in Indonesia](chart)

(Source: Media Indonesia, 2019)

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### Figure 2. SOURCE OF NATIONAL WASTE Bank

| Information of Waste Bank |
|---------------------------|
| **AMOUNT IN WASTE BANK**  | 3,900 | UNITS |
| **MANAGED WASTE**         | 5,550,333 | KG/MONTH |
| **ECONOMIC VALUE OF WASTE BANKS** | 3,400,000,000 | IDR /MONTH |
| **TOTAL CUSTOMERS**       | 174,413 | PEOPLES |

(Source: Media Indonesia, 2019)

The plastic waste in this landfill source comes directly from the society. If the local society accommodates plastic waste in this landfill, then they will be paid by TPA officers through the Savings Book System prepared by TPA officers, of course plastic waste in the Indonesian landfill has an economic value of IDR 34 billions/month with total depositors of 174,413/tons. It is made of garbage, the largest number of depositors from the society is around 264,368/tons from plastic, followed by paper as much as 165,147/tons, aluminum as much as 144,86/tons and bottles as much as 114,314/tons. After going through TPA, the plastic waste can be sold back to craftsmen to be made back into handicrafts such as bags, pencils cases.
1. Depositary / society: Society / depositor who is a source of waste that will be managed by a waste bank.

2. Waste Bank: The group whose task is to receive and then process waste from the depositor and sell it to parties who can use waste.

Example Calculating of Revenue of Waste Bank.

| Wages for the society | Revenue of waste bank | Income for members of the Waste Bank |
|-----------------------|-----------------------|-------------------------------------|
| IDR. 3,000 x 2000 kg = IDR. 6,000,000 per month for each customer. | IDR. 6,000 x 2000 kg = IDR. 12,000,000 pe month. | IDR 12,000,000: 6 Management = IDR 2000,000 per month. |

3. Buyers: Those who buy waste managed by a waste bank. It can be individuals and can also be a company. The waste recycling business has been going on for a long time and is a big business that is run systematically.

Table 1. Simple Matrix in the plastic waste business.

| Material for making finished products | Ready to sell | Work Shop | Training | Seminar |
|---------------------------------------|--------------|-----------|----------|---------|
| Raw material for making Bags, Wallets, Pencil Cases, etc. | Making Bags, Wallets, etc. | how to make a business plan of plastic waste. | - Product marketing and innovation -The role of the government |

In the context of the business of plastic waste creation, both types of businesses can be done.

1. In terms of products, this business produces products that are financially promising.
2. In terms of services, business ideas and products produced can be packaged become a profitable workshop / training / seminar service.

To see the use value, the researcher can see that the potential of plastic waste in the society if managed properly, will increase the economic value of the people who want to recycle plastic waste, including:

1. Collect garbage to the TPA (Final Disposal Site).
   - Everyone who holds plastic waste into a waste bank will receive around IDR.. 3000 / kg with the savings system method.
2. Recycle plastic waste by producing it into a unique craft.
   -Everyone who manages waste properly can produce a unique product at a price of
IDR. 6,000 - IDR. 300,000.

Table 2. (Calculating the Benefits of making a pencil case from plastic waste.)

| Category                        | Price  |
|---------------------------------|--------|
| Plastic Waste                   | IDR. 1000 |
| Material (scissors,Yarn,Fabric) | IDR. 4,000 |
| Production Cost                 | IDR. 10,000 |
| Sell Price                      | IDR. 25,000 |
| Gross Profit                    | IDR. 10,000 |

| Use Value                        | Result in percent | Profit of category fees |
|----------------------------------|-------------------|-------------------------|
| IDR.6,00/ IDR. 15,000 = 4 %      | 4%                | 4% x IDR. 10,000 = IDR. 400 |
| IDR. 4,000/ IDR. 15,000 = 26 %   | 26%               | 26% x IDR. 10,000 = IDR. 2,600 |
| IDR. 10,000/ IDR. 15,000 = 66%   | 66%               | 66% x IDR. 10,000 = IDR. 6,600 |

Value Added: IDR. 9,600.

-LSM can sell its products per day about 37 / pcs of pencils cases per day with Gross Profit of IDR. 10,000, so in each day the NGO can get a net profit of IDR. 370,000 per day, and in each activity carried out in producing one product there are cost profit per category IDR. 9,600. The above activity is one example of a recycle process that aims to change the use of plastic goods to remain useful, for example by making useful bags or products that are worth selling.

4. Conclusion
After conducting research, the researcher can conclude that, the economic potential of plastic waste that does not have use value turns out to be a product that can create added value and can be used for the society. If the society itself can manage plastic waste properly and properly, plastic waste not really useful it will be beneficial for the people who can manage its so it needs a good society effort in conveying information to make people understand by managing waste to increase use value in the society.

Therefore plastic waste has promising economic potential to be developed as a creative product, can benefit and create use value from plastic waste for the society. This plastic waste creation activity can also be one of the society empowerment movements and expanding employment opportunities and can reduce the volume of waste who are around the society.

Suggestion
Based on the results of the discussion, the researcher advised the society to:
1. The need for strategic steps from all parties and programs that support the management of plastic waste to create value for the society itself.
2. Improve the policy on waste management or final disposal sites (TPA) which will provide legal guarantees / certifications / regulations that protect the waste problem, so that violators who dispose of plastic waste can be given strict sanctions.
3. Increasing socialization to the society in a persuasive manner, as well as conducting training / training for the society regarding plastic waste management.
To prevent adverse effects on the environment, it is best to manage plastic waste properly. In this case there needs to be a role for all parties to create a clean environment aesthetic conditions and prevent various diseases that can be caused by plastic waste.

5. References
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