Empowering Society in Waste Management System with the Reduce Reuse and Recycle Approach in Pagarawan Bangka

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Abstract. Nowadays, community needs have drastically increased. It can lead to an increase in waste. It makes things worse when waste mismanagement occurs. Reduce, reuse, and recycle can help waste management successfully. The waste management in Desa Pagarawan is being implemented. It requires evaluating the implementation. The study aims to analyze reduce, reuse, and recycle in waste management through social empowerment in Desa Pagarawan, Bangka. Descriptive qualitative was applied as the research method. Observation, focus group discussion, and in-depth interviews were applied as the data collection technique. The head of a village, village-owned enterprise, and village organization staffs were the informant of the study. It was discovered that reduce, reuse, and recycle were far from being implemented in the waste management system in Desa Pagarawan. The people remained hoarding, burning, and littering trash improperly. It suggested that the local government and society as a whole should be more participative in implementing reduce, reuse, and recycle to achieve sustainable waste management.

1. Introduction
The issue of waste has been intensively discussed in the last decade. The unmanaged waste requires serious treatment. In UU Nomor 18 Tahun 2018 about waste management, it is stated that waste has become a national issue so that comprehensive and integrative waste management from downstream to upstream should be implemented so that it can provide economic benefit, health society, and be environmentally-friendly. It is also expected behavior of the society can positively be altered. Mulasari [1] explains that the issue of waste can be broken into three stages: i) at a downstream stage, the increase of waste disposal; ii) at process stage, limited resources of both society and government, iii) at an upstream stage, the non-optimal implementation of a final process system.

The processes of waste management are collecting, transporting, exterminating, or implementing the waste management so that the high amount of waste will not produce air pollution and bad smell for the environment [2,3]. Implementing waste management requires active participation from all stakeholders both society and government.

In Pagarawan Bangka, the amount of waste has been increased gradually. It is in line with the increasing number of population in the village from the childbirth and transmigration activity. The increased number of waste disposal and limited resource of local government in accommodating and
managing the waste disposal becomes the problem that needs to be solved. The limited resource of local government in tackling the problem implies the littering behavior of the society.

The issue of waste becomes vital to solving due to both the conventional way of treatment of waste disposal and the littering behavior of the people. Sahil [4] state that the problems of waste can be caused by several factors which are the culture of society, the characteristics of waste, and facilities. Hence, it requires the active participation of society through empowerment programs in a better waste management system. Sulistyani and Wulandari [5] argue that the empowerment program in waste management is a strategic and sustainable implementation that can be a valuable solution for stakeholders.

Reduce, reuse and recycle (3R) is a principle of reducing waste. The implementation of a waste management system needs the active contribution of the society and local government to achieve a better waste management system [6,7]. The implementation of 3R in waste management offers advantages from various sectors such as public health, social-economic, and culture. It then can increase the quality of life, good behavior on waste management, and society’s satisfaction on waste management system [8,9].

2. Methods
The study focused on the community empowerment on waste management in the principles of reduce, reuse, and recycle. Descriptive qualitative was applied to analyze the data. Qualitative research was a research to understand the current phenomena of the research object such as perceptional behavior and holistic motivation by using descriptive explanation [10]. Focus Group Discussion was applied as the data collection technique. Head of village, village-owned enterprises, and community. Data reduction, data presentation, and data verification were the stages in analyzing the data.

3. Results and Discussion
The type of waste produced by people in Pagarawan was about 98% from household waste. 500 kg a day was a number of household waste production in Pagarawan. It made thing worse whereby the waste was still unmanaged properly. The waste was just picked by the cleaner and put on the final waste dumping site without being utilized for the added-value product. The unmanaged waste of the people in Pagarawan led to scattered trash almost along the main side of the road in Pagarawan. Even though the trash was collected by people in Pagarawan using mutual cooperation in almost every week. Village government had also put the signage and made village rule to not littering along the side of the road. These effort had not affected in changing the behavior of people to not littering.

The awareness of the people to have good waste management remained at low level. First, the awareness of people in reducing the waste was low. The daily behavior of people in using single-use plastic bags was considered as frequent. It was due to people were still having no knowledge of the negative impact of using plastic bags frequently. Secondly, the waste management in the household remained at low. The high production of waste was not supported with the good waste management in the household by reusing the waste. People in Pagarawan considered that the household waste was not able to be reused. They also argued that waste was not their responsible anymore when it was not in their own house. Thirdly, The littering behavior of the people was still low. The people remained littering on the side of the road. The ability of the people on recycling the waste was found as low. It was due to the waste was put on final waste dumping site and littering on the side of the road.

The endeavor on waste management by implementing three R such as minimizing the use of generated waste, separating waste based on its characteristics, and recycling the waste to be a value-added product was not being implemented in the village. The unavailable authority institution in waste management led to the low awareness of the people in implementing three R. The local-owned enterprise just picked the waste up from the house of the people and dropped into the final waste dumping site.

The implementation of three R in waste management system in Pagarawan did not run well. Thus, the empowerment program in waste management with three R principles was vital to solve the issue. Alfitri [11] argued that the empowerment is the human development paradigm whereas the focus of
development was on the society. It was mainly initiated at the grass root level. In other words, the concept of empowerment was developing the society from the society itself. It meant that the active participation of the society became the key success to empowerment program [12–14].

The waste management in the village should involve various stakeholders such as village government, business actor and the society itself. It should start from the upstream to the downstream. The good waste management system occurred when the number production of household waste could be restricted. The empowerment program on waste management with the three R principles could be started by establishing the special task force of waste management in the village to tackle the issue of waste. The special task force became the actor in supporting the active participation of the people in the village to implement three R.

4. Conclusion
The study concludes that the produced waste in the village is considered unmanaged properly. The prevention in producing the waste from the daily activity does not run appropriately. It leads to the increase produced waste. It makes things worst with unavailable activity of people in categorizing plastics based on its characteristics and in recycling the waste to be a value-added product. The household waste is only put on the final waste dumping site managed by village-owned enterprise. The unmanaged waste leads to the damage of public health sector and reduce the quality of the environment. It should be solved by implementing community program on waste management with the principles of three R: reduce, reuse, and recycle. In addition, the actors should be formed to motivate and support the program.

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