Community Empowerment in Waste Management: A Meta Synthesis

Andika Pratama*, Nike Kamarubiani, Yanti Shantini, Nunu Heryanto
Department of Community Education
Universitas Pendidikan Indonesia
Bandung, Indonesia
*andikapratama@upi.edu, nike.kamarubiani@upi.edu, yanti.shantini@upi.edu, nunuheryanto59@gmail.com

Abstract—Waste is a problem that has been quite difficult to solve until now. This article aims to discuss community empowerment in waste management. This research method used meta synthesis which is included in the meta aggregation category. From 41 journals, 4 journals were selected that discuss community empowerment in waste management and will be compared from the perspective of empowerment approaches, waste management, and impact. The findings show that the empowerment approach will work effectively if there is collaboration with community organizations, community leaders and local government agencies and involve the entire community in its implementation. In addition, waste management in United Kingdom is carried out in an integrated manner and is assisted by official organizations initiated by the government which involve the community, while most waste management programs in Indonesia are created from community initiatives and environmental organizations. The implication of this finding is that program implementation can create community creativity in managing waste and change people's behavior in disposing of waste.

Keywords—community empowerment, waste problem, empowerment approach

I. INTRODUCTION

Waste is a problem that until now the Indonesian government is a difficulty to solve it [1]. The increase in population which is equipped with urbanization as the impact of modernization causes an increase in the volume of waste that must be managed [2]. The waste problem will not be solved if it only relies on the government without community interaction in waste management itself [3]. Waste in Indonesia is a serious problem and also a social, economic and cultural problem. Every year, it is certain that the volume of waste will always be in line with the increasing pattern of consumerism in society [2,4]. This problem is also caused by the increase in people's purchasing power for various types of staple goods and technology products as well as the increase in efforts to support economic growth so that they contribute greatly to improving the quality or quantity of waste produced [5].

According to the World Health Organization (WHO), waste is something that is not used, not used, disliked or something that is thrown away from human activities and does not happen by itself. The Indonesian Law on Waste Management Number 18 of 2008 states that waste is the remains of daily human activities and / or from natural processes in the form of solids. Garbage is something that is still quite difficult for the Indonesian state to handle. Over the years, the Indonesian government has had difficulty addressing this waste problem. Disposal of rubbish, as seen every day waste in the form of plastic packaging, cans, paper scattered or piled on the streets, alleys and drainage channels is a challenge that is quite difficult to overcome [6,7]. Waste is a very serious problem in both developed and developing countries and is closely related to significant environmental, social and economic impacts, especially in poor settlements. The problem of waste must be considered holistically from the community, government, and other stakeholders in order to maintain cleanliness and avoid the Indonesian state from the dangers of waste [8-10]. However, one way of managing waste that the community needs to understand is the 3R program, namely Reduce, Reuse, and Recycle. The Banten Province Environment Agency explains the definition of 3R as follows:

- Reduce; as much as possible to minimize the goods or materials we use. The more we use materials, the more waste is generated.
- Reuse; wherever possible select reusable items. Avoid using single-use items (disposable, throw away). This can extend the usage time of the item before it becomes trash.
- Recycle; As much as possible, items that are no longer useful can be recycled. Not all goods can be recycled, but nowadays there are many informal industries and home industries that use waste to become other goods.
Figure 1 show the concept about waste management. Considering the problem aforementioned, it is time for the community to move and realize the importance of managing waste. Waste that is invaluable can become something of economic value if the community has the empowerment in managing waste. The pattern that usually collects, transports, and throws it into landfills can be changed to reduce, separate and utilize. In empowering the community to be skilled and independent in managing waste, of course, a strategy is needed to empower the community in managing waste. Widiarti [11] explained that waste management in the future needs to be more focused on changing people’s perspectives and behavior and prioritizing community involvement in its management (bottom-up) because it is evident that a top-down approach does not work effectively. The right strategy / approach will make the empowerment program implemented effectively and efficiently. Pigg [12] states that there are three dimensions of empowerment, namely empowerment through individual action, empowerment in organizations, and empowerment in social action. Empowerment can be said as something that involves the community as active producers, not consumers, not only referring to the problem of circumstances but to the process of change with certain types of results, besides overcoming social divisions and structural equality, personal empowerment is the foundation. for community empowerment so that it can be said that community empowerment is an important social capital in advancing society itself [13,14].

In general, empowerment is giving strength to others [15]. This form of empowerment can be achieved by organizing / mobilizing people to act [12]. In the context of supporting empowerment, individuals can learn from each other in an atmosphere of mutual learning, because community education must encourage community empowerment by increasing individual awareness, identifying and solving problems. If the community is empowered, the community itself will build a waste management program that is good and of economic value so that it will not only impact the community itself but also impact the environment and help government programs in reducing waste both organic and inorganic waste. Some of the same research on waste includes research community-based and bottom-up waste management is more effective in creating a clean and waste-free environment than a top-down program. In these various articles, he explains about community-based waste programs and the role of waste banks in managing waste so that they can add insight and enrich knowledge related to waste management. Therefore, this article will discuss how community empowerment strategies in waste management from three perspectives, namely empowerment approaches, waste management and impacts.

II. METHODS

This study used a meta-synthesis approach and is included in the meta-aggregation category which aims to describe the results of the study by summarizing some of the relevant research results [25]. Although there are many points of view in discussing community empowerment in waste management, in this article the authors limit the category of empowerment approaches, waste management and output. From the 41 articles was obtained, 4 articles were selected that discussed community empowerment in waste management which would be compared from the perspective of the empowerment approach, waste management, and the its impact. The first manuscript is entitled Unresolved Responsibilities: Exploring Local Democratisation and Sustainable Development through a Community Based Waste Reduction Initiative, the second manuscript is entitled IbM Plastic Waste Management in the Context of Community Empowerment in Mukthiara Kidul Village Semarang, then the third manuscript is entitled community empowerment through an organic waste bank in Desa Krejengan, Probolinggo, the fourth manuscript is entitled Waste Management Strategy Development: A Case Study of Community Involvement and Consensus-Building in Hampshire. After that, the researchers extracted data to obtain important findings which would be described in the findings and discussion.

III. FINDINGS AND DISCUSSION

A. Empowerment Approach

Community empowerment is defined as a process and goal. In essence, as an empowerment process, it is a series of activities to strengthen weak groups in society, including individuals who experience poverty problems and as a goal of empowerment refers to the state to be achieved through social change, namely an empowered society, have the strength or knowledge and the ability to meet their physical, economic or social needs, such as self-confidence, conveying aspirations, earning a living, participating in social activities, and being independent in running their lives [26].

According to Hulme and Turner [27] empowerment can be carried out using 3 (three) strategies, including: First, the welfare approach, this approach leads to a human approach and not to deceive people in facing the political process and people’s poverty but instead to strengthen community empowerment which is motivated by the strength of the local potential of the community itself. Second, the development approach, this approach aims to develop development projects to increase the capacity, independence and self-sufficiency of
the community. Third, the empowerment approach, an approach that sees poverty as a result of the political process, and tries to empower or train people to overcome their powerlessness. Sumodiningrat and Adhi [28] explain that the community empowerment strategy is divided into several things, including:

- Easily accepted and empowered by the community as executor and manager (acceptable);
- Can be managed by the community in an open manner and can be held accountable (accountable);
- Provide adequate income and educate people to manage activities economically (profitable);
- The results can be maintained by the community itself so as to create an accumulation of capital in local socio-economic institutions (sustainable); and
- Fund management and conservation of results can be easily implemented and developed by the community in a wider scope (replicable).

A good empowerment strategy is also carried out by developing awareness, developing skills and capacities, and political action in an empowerment framework and by comparing ideas about what they want for the possibility of change [29]. Empowering the community also requires creativity, innovation, and utilization of intellectual capital as well as placing the empowered party in a central position, so that they can foster strength and ability to determine their own future [30]. In addition, according to Kindervatter, Suharto [26] the approaches that need to be taken in empowerment are:

- Need Oriented, which is an approach oriented to individual needs.
- Endogenous, which is an approach that is oriented to the conditions and reality that takes place in the local community.
- Self-Reliance, which is an approach oriented to the creation of a sense of self-sufficiency, self-belief and independence.
- Ecological Sound, which is an approach that does not forget environmental aspects.

Furthermore, Jack Rothman [31] developed three models that are useful in understanding the concept of community empowerment, namely:

- Locality Development. Local community development is a process aimed at creating economic and social progress for the community through active participation and community initiatives. Community members are seen as unique and have potential, it’s just that this potential has not been fully developed.
- Social planning. Social planning is intended to determine decisions and determine actions in solving certain social problems such as poverty, unemployment, juvenile delinquency, ignorance (illiteracy), poor public health (low life expectancy, high infant mortality rates, malnutrition). In terms of waste management, of course in determining decisions and determining actions, it must be based on theoretical concepts and careful planning so that program implementation can run effectively and efficiently.
- Social action. The main goals and objectives of social action are fundamental changes in institutional and community structures through distribution of power, distribution of resources and distribution of decision making. This approach is based on the view that society is a client system that is often the victim of structural injustice. They are poor because they are impoverished, they are weak because they are weakened, and they are helpless because they are not empowered by the elite groups of society who control economic, political and social resources. Social action is oriented towards process goals and outcome goals. Society is organized through a process of awareness, empowerment and actual actions to change the power structure to better fulfill the principles of democracy, equality and justice.

The empowerment approach in waste management in Bristol and South Gloucester is carried out by discussing programs and solutions related to household waste management and community consumption patterns. The meeting is held once a month and is initiated by the community which cares about the environment and involves the community in making decisions. In addition, these environmental communities act as a communicator people's aspirations to government agencies in making policies related to waste management [32]. Then the empowerment approach carried out in the city of Semarang, Indonesia, is by working with community-based organizations and collecting waste from people who work as scavengers. This is in accordance with the empowerment strategy theory that empowerment is carried out by not forgetting the environmental aspects. This program also aims to improve people's life skills so that they can make waste have a higher selling value compared to selling it directly [33].

The empowerment approach carried out in Probolinggo, Indonesia is held in collaboration with youth organizations and local community leaders to initiate the formation of organic waste storage sites called *Bank Sampah Organik* (organic waste bank). This empowerment program is intended to provide education and increase knowledge of waste in sorting waste and making it a product, selling value such as compost or animal feed. In addition, the empowerment approach invites the community to become involved as active customers in helping to run the *Bank Sampah Organik* [34]. Then the empowerment approach carried out in Hampshire, England was initiated by local government authorities engaged in the environmental sector by involving the community in determining waste management policies. The community is also encouraged to take an active role in managing household waste and regulating consumption patterns so as not to produce large amounts of waste [35]. Based on the results of the meta-
synthesis of several articles, there are similarities in the empowerment approach to the community, namely by involving the community directly in program implementation. However, there are some differences in terms of program initiators. The empowerment approach carried out in Bristol, South Gloucetershire, and Hampshire was carried out with assistance from local government agencies while in Semarang and Probolinggo it was carried out based on the initiative of the community and empowerment agencies without government assistance.

B. Waste Management

Waste is a problem that is quite a lot experienced by a country. Waste is very many kinds and dangerous to the ecosystem. Apart from plastics, many types of waste pollute the environment, including hazardous and toxic materials such as medical waste and electronic waste that can damage ecosystems [36]. Most of the waste disposal patterns still use the collection, transport and collected in the landfills. Typical patterns of waste disposal in developing countries such as Indonesia include burning organic and plastic waste, burying waste in the ground, dumping garbage into rivers, disposing of garbage to temporary local waste depot (TPS). Selling waste to waste buyers (tukang rongsok) or paying for trucks from the public works agency to pick up trash [37]. With such a waste disposal pattern, it cannot be denied that it will have an impact on the environment. As a result of burning waste, the air will be polluted. In addition, plastic waste that fills the river will damage the river's ecosystem, silting the river so that if the volume of water rises it can cause flooding. One of the waste management solutions is the 3R concept (Reduce, Reuse, and Recycle). According to the Law of the Republic of Indonesia no.18 of 2008 about waste management, the concept of 3R consists of: Reuse: namely the direct reuse of waste, both for the same function and for other functions. 2. Reduce: reduce everything that causes waste. Recycle: namely reusing waste after the management process is carried out.

Bristol and South Gloucetershire waste management is carried out by sorting organic and inorganic waste after the waste is sorted, recycling for inorganic waste and composting for organic waste. In terms of waste management, it is carried out by the community itself and the institutions that handle environmental problems [32]. Waste management carried out in Semarang, Indonesia is more focused on plastic (inorganic) waste. The sorted plastic waste is then managed by a plastic chopping machine so that it can be sold to factories at a higher price [33]. Waste management is carried out in Probolinggo, Indonesia by collecting dry leaves, household waste and other organic waste to be used as compost or animal feed. In this waste management is carried out by an institution called “bank sampah organic” (organic waste bank) so that people only need to provide organic waste to the institution [34]. Waste management in Hampshire, England is carried out in an integrated manner and in collaboration with the local government in the process of recycling inorganic waste and composting inorganic waste. In addition, the government provides a place for composting and recycling waste [35]. The results of meta-synthesis (Table 1) indicate that waste management carried out in Bristol, South Gloucetershire and Hampshire is carried out by separating organic and inorganic waste then recycling and composting. In addition, waste management in the area has been provided by the government, which is different from that in Semarang and Probolinggo. Waste management is carried out by processing organic and inorganic waste in their premises or an institution that they create themselves, which is called “Bank Sampah”.

**TABLE I. THE RESULTS OF THE META-SYNTHESIS.**

<table>
<thead>
<tr>
<th>Country</th>
<th>Empowerment Approaches</th>
<th>Waste Management</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bristol and South Gloucetershire, United Kingdom.</td>
<td>The program was initiated by communities that care about the environment created by the government and aims to involve the community in increasing awareness in waste management</td>
<td>Waste is managed by sorting organic and inorganic waste, after which composting and recycling of inorganic waste are carried out. In addition, the government has provided a waste management facility.</td>
<td>The program had an impact on changing people's behavior. Discussions are often held about reusing plastic waste that can be used, waste is reduced, and public awareness in managing waste is getting higher.</td>
</tr>
<tr>
<td>Semarang, Indonesia</td>
<td>The empowerment program is carried out by collaborating with the kelompok swadaya masyarakat (Non-Governmental Organization) group and utilizing the potential of the area where people work as scavengers to collect waste by holding training in using plastic waste chopping machines so that their selling value increases.</td>
<td>The waste that is managed is inorganic waste which is sorted, collected, then put in a plastic chopping machine so that it becomes small pieces.</td>
<td>It can increase the income of pemulung (scavengers) because it sells plastic products that have been processed by chopping machines and can increase the activity of bank sampah (waste bank) in the area through plastic chopping machines that have been donated by empowering agents.</td>
</tr>
<tr>
<td>Probolinggo, Indonesia</td>
<td>Collaborating with karang taruna (youth organizations) and community leaders to create an organic waste bank, which then conducts outreach to the community with the aim of involving the community in these activities and increasing public awareness of waste, especially organic waste.</td>
<td>Waste management is carried out by collecting organic waste such as livestock manure and household waste, to be collected into a bank sampah (waste bank). Then the waste will be processed by the waste bank into fertilizer and animal feed.</td>
<td>people's behavior in disposing of waste has changed.40% of the organic waste production will be distributed to waste depositors and 60% of it will be sold as income from the bank sampah (waste bank) itself. In addition, the waste savings can also be used as income for customers because it can be taken in the form of money.</td>
</tr>
</tbody>
</table>
C. Impact

Community participation in waste management programs is essentially very helpful in reducing environmental pollution as a result of the dangers of waste, besides that the community can also get economic value benefits from participating in a waste management program where people can process the waste into useful items such as making souvenirs and other fixtures from trash. In addition, the community can also make organic fertilizers from these wastes. Community participation is involvement of the community in carrying out various activities and programs that have been set by the government to empower and develop the community so that people want to take an active role in the planning, implementation and maintenance process [38]. Waste will not be something that is harmful if it is used and managed properly, the results of waste management are very diverse, even the results of processing inorganic waste can become materials with high selling value. In addition, the results of waste management not only have an impact on hard skills in managing waste but also foster an attitude that cares about the environment and changes in behavior in disposing of waste.

The results of the empowerment program in waste management carried out in Bristol and South Gloucetershire, England had a profound impact on shaping people's habits in managing waste. In addition, the community's thinking is very open and cooperates with the local government to tackle waste. In addition, the people of this area have high awareness and initiative in managing household waste [32]. The results of waste management in Semarang, Indonesia, make the income of the people, especially those who work as pemulung (scavengers), higher. The plastic chopping machine really helps the community in managing inorganic waste so that it has a higher selling value. The community also has skills in operating the plastic chopper machine [33]. Then the results of the waste management program carried out in Probolinggo are organic waste that has been managed to become compost and animal feed which is divided by 40% for waste depositors and 60% for waste banks. In addition, it is not only in the form of compost and animal feed, the results of organic waste management can be taken in the form of money so as to increase income for waste depositors [34]. The results of community empowerment in waste management in Hampshire, England greatly assist the government in managing waste. Communities who are involved in program implementation and decision making have had very positive results in reducing household waste. In addition, work organizations engaged in waste management greatly assist the government in the process of sustainable waste management that involves community participation [35].

IV. CONCLUSION

Waste is a problem that is a challenge for almost every country, so a solution is needed to overcome it. The waste problem if it only relies on the government without involving the community will not run effectively. One way to deal with problems effectively is to empower the community to manage waste. Based on the results of meta-synthesis descriptions in four journals with various activities on waste management, it can be concluded that the empowerment approach will work effectively if collaboration with community organizations, community leaders and local government agencies involves the entire community in its implementation. Empowerment programs in waste management in developed countries such as the UK are slightly different from those in Indonesia. Waste management in developed countries is carried out in an integrated manner and is assisted by official organizations initiated by the government which involve the community, while the existing waste management programs in Indonesia are mostly created from community initiatives and environmental organizations to manage waste into something that can be of sale value.

Waste will not be something that can harm society if it is managed properly. The results of meta-synthesis show that the empowerment program in waste management not only produces products from processed waste but also increases public knowledge and changes behavior in sorting waste. Waste management is also a great opportunity for the government to mobilize the community to take an active role in overcoming the waste problem. This can be used by the government to fully support movements which are created from the community with budget assistance and continue to collaborate with various institutions or community leaders in providing education and empowerment to the community regarding awareness and independence in managing waste into products with high selling value. Apart from being effective in overcoming the waste problem, it is also a very good opportunity for the government to improve the people's economy through the creative handicraft industry made from waste.

REFERENCES


