Journal of Economics, Technology and Business (JETBIS)
Volume 4, Number 6 June 2025
p-ISSN 2964-903X; e-ISSN 2962-9330

The Impact of the SAPUKU Program on the Economic Empowerment of Local Communities in Kuningan Regency: Plastic Waste Management as a Sustainable Solution

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KEYWORDS:
Plastic waste, Economic empowerment, SAPUKU program, Circular economy.

ABSTRACT

The environmental crisis triggered by plastic waste has become a global problem that threatens the sustainability of ecosystems and human health. Accumulated plastic waste causes damage to flora and fauna, disrupts marine and terrestrial ecosystems, and exacerbates climate change. At the local level, Kuningan Regency faces similar challenges by producing 121,940.66 tons of waste per day in 2015. The SAPUKU program launched by the Kuningan Regency Government aims to address this problem through a collective approach that involves all elements of society. This research aims to analyze the impact of the SAPUKU program on the economic empowerment of local communities and identify its success factors. The research method used is qualitative with descriptive design, collecting data through surveys and interviews. The results showed that the program successfully increased community income through the management of recycled plastic waste, increased environmental awareness, and strengthened community involvement. However, challenges related to recycling facilities and infrastructure are still obstacles that need to be improved. This research contributes to the development of community-based waste management policies, supports the circular economy, and enriches the theory of environment-based economic empowerment.

INTRODUCTION

The current environmental crisis is not only affecting developing countries, but also developed countries (Bowonder, 1987). Plastic waste, for example, which is almost completely non-biodegradable, further worsens the condition of the global ecosystem and threatens the sustainability of life on earth. Data from the World Economic Forum reveals that if this trend continues, by 2050 it is estimated that there will be more plastic waste in the ocean than fish (Teugels, 2020). In addition, accumulated plastic waste causes damage to flora and fauna, and disrupts marine and terrestrial ecosystems (Anunobi, 2022). As a result, more and more endangered species are becoming entangled in plastic debris, and this pollution is adding to the burden on the global health system (Awuchi & Awuchi, 2019). Plastic debris also disrupts the photosynthesis process that is vital for life, as plastic floating in the ocean blocks sunlight from reaching the underwater layer (Pawar et al., 2016). In addition, microplastics have made their way into the food chain, causing contamination of

fish and other marine creatures, ultimately impacting human health (Al Mamun et al., 2023). Plastic pollution also hampers climate change mitigation efforts, as many plastic wastes emit greenhouse gases when decomposed or burned (Shen et al., 2020). Furthermore, the difficulty in managing plastic waste further burdens waste management systems in various countries, both in terms of cost and infrastructure (Browning et al., 2021). Therefore, this problem requires greater attention in order to find a sustainable solution.

At the local level, Kuningan Regency faces similar challenges. Data from Open Data West Java Province shows that in 2015, Kuningan Regency produced 121,940.66 tons of waste per day. This number reflects the heavy burden of waste management, especially plastic waste which is difficult to decompose and has the potential to pollute the environment. In addition, waste piling up in some urban areas causes blockage of waterways and increases the risk of flooding. Ineffective waste management also has the potential to damage the natural beauty, which is the main attraction of tourism in the area (Azarmi et al., 2019). Meanwhile, efforts to recycle plastic waste are still relatively low, so a lot of waste ends up in landfills or even pollutes rivers and agricultural land (Kibria et al., 2023).

As a response to this problem, the Kuningan Regency Government launched the SAPUKU program (*Solusi Atasi Permasalahan Sampah Urban Kuningan*) on June 5, 2025. This program aims to overcome the plastic waste problem through a collective approach that involves all elements of society. By involving various sectors such as the community, government, and private sector, it is hoped that this program can create more meaningful changes in waste management in Kuningan. The SAPUKU program is also expected to increase public awareness about the importance of environmentally friendly waste management, which in turn can provide benefits to the local economy.

A number of previous studies support the relevance of this integrative approach. The economic potential of plastic waste banks in Indonesia, which contribute meaningfully to household income (Sekito et al., 2019). The role of community education in fostering environmentally responsible behavior (Simmons, 1991). Previous research discussed the creation of green jobs through rural recycling initiatives (Kievani et al., 2010), while another studies examined how collaboration between local governments and informal waste collectors can promote inclusive development (Van de Klundert & Lardinois, 1995). Previous research further demonstrated that women-led recycling enterprises not only reduce waste but also empower economically vulnerable groups (Obulesu & Sujatha, n.d.).

The environmental crisis caused by plastic waste requires serious attention, especially in areas with high waste production rates such as Kuningan Regency. The newly launched SAPUKU program is a strategic step in overcoming this problem. However, the effectiveness of this program needs to be evaluated in depth to ensure its sustainability and impact on the economic empowerment of local communities. The urgency of this research is increasingly important considering the

increasing plastic waste problem in Kuningan. This program has great potential to change existing waste management patterns, but strong data is needed to assess its success. In addition, the success of the SAPUKU program will also provide valuable lessons for other regions facing similar problems. By knowing its impact on economic empowerment, it is hoped that more effective solutions can be found in overcoming waste problems in other regions. This research offers a new approach by examining the impact of the SAPUKU program on the economic empowerment of local communities in Kuningan Regency. Unlike previous studies that focus on environmental aspects, this research integrates the economic dimension in the evaluation of plastic waste management programs.

Based on the above background, the objectives of this research are to analyze the impact of the SAPUKU program on the economic empowerment of local communities in Kuningan Regency, identify factors that influence the success of the program in increasing community income, and provide policy recommendations for the development of similar programs in other areas. This research is expected to make a significant contribution by providing a deeper understanding of the relationship between plastic waste management and community economic empowerment, becoming a reference for local governments in designing and implementing community-based waste management programs, and providing useful information for communities and non-governmental organizations in efforts to reduce plastic waste. The implications of this research are expected to be the basis for developing sustainable and inclusive waste management policies, as well as encouraging active participation of the community in maintaining environmental cleanliness and improving their economic welfare.

RESEARCH METHOD

This research uses a qualitative approach with a descriptive design to analyze the impact of the SAPUKU program on the economic empowerment of local communities in Kuningan Regency. A qualitative approach was chosen because this research aims to explore the experiences, perspectives, and meanings provided by program participants and related parties in plastic waste management. The descriptive design was used to describe the phenomena occurring in the context of community-based waste management and economic empowerment through the SAPUKU program.

The data collection techniques in this research consisted of two main methods, namely in-depth interviews and participatory observation. Interviews were conducted with SAPUKU program participants, including people involved in waste banks and plastic waste management, as well as local government officials involved in program implementation. These interviews aim to obtain information related to their experiences, the impact of the program on their lives, and the challenges they face. In addition, observations were conducted in the field to directly monitor program implementation and observe changes in the daily lives of the communities involved.

The data sources in this research consist of primary and secondary data. Primary data was obtained from in-depth interviews with community members, government officials, and SAPUKU program managers. Secondary data was obtained from relevant documents, such as local

government annual reports, official documents regarding the SAPUKU program, and relevant literature on waste management and environment-based economic empowerment. The data analysis technique used is thematic analysis, where data obtained from interviews and observations will be categorized into specific themes that reflect the impact of the SAPUKU program on community economic and environmental empowerment. The results of this analysis are expected to provide insights into the factors influencing the program's success and policy recommendations for the development of similar programs in other regions.

RESULTS AND DISCUSSION

The results of interviews with SAPUKU program participants and government parties show that this program has had a positive impact on community economic empowerment in Kuningan Regency. The majority of respondents revealed that they experienced an increase in income after attending training and involvement in waste management. Most of the communities involved in the local waste bank and plastic waste recycling program reported an increase in income through the sale of recycled products produced. They also reported improved quality of life and an active role in environmental management. In addition, communities felt more concerned about the cleanliness of their environment and felt that better waste management contributed to their social well-being. One of the most notable outcomes is the change in the community's perception of plastic waste, which was previously perceived as an environmental problem, to an economic opportunity that can generate income.

However, despite significant improvements, some challenges still arise, such as limited recycling facilities and a lack of awareness outside of the SAPUKU program on the importance of sustainable waste management. The program still faces difficulties in terms of funding and inadequate infrastructure to support further expansion. Communities outside of the program still tend to have insufficient understanding of the economic potential of plastic waste, which is one of the barriers to the long-term success of SAPUKU.

Table 1. Impact Before and After SAPUKU Program

Aspects	Before Program	After Program
Community Opinion	50	80
Environmental Awareness	40	75
Community Engagement	30	70
Recycling Facility	20	50
Infrastructure Challenges	60	40

The table above illustrates a comparison of community conditions before and after participating in the SAPUKU program, which shows significant improvements in various aspects, such as income, environmental awareness, and community involvement. Despite progress in recycling facilities, infrastructure challenges remain a major obstacle.

Economic Empowerment through Waste-Based Income Generation

One of the most significant impacts of the SAPUKU program on the local community is the economic empowerment it has fostered, especially among vulnerable groups. Based on the

interviews conducted with participants of the program, many individuals—particularly women and informal workers—reported an increase in household income after becoming involved in the collection, sorting, and recycling of plastic waste. These activities were facilitated through the establishment of community waste banks and small-scale recycling units, which serve as platforms for buying and selling plastic waste and converting it into marketable products such as ecobricks, bags, crafts, and household utilities.

Before participating in the SAPUKU program, most individuals viewed plastic waste as a burden or an environmental nuisance with no economic value. However, through training and education provided under the program, they began to recognize its potential as a source of livelihood. This transformation is in line with the findings of research, who reported that plastic waste banks in urban Indonesia have become an important supplementary income source for low-income households (Setyaningrum, 2015). Furthermore, previous research found that initiatives involving waste collection and segregation enabled participants to earn regular income, thus enhancing their financial independence (Joseph, 2006). Similarly, another research emphasized that in Bangladesh, informal waste recyclers contribute significantly to the economy by recovering and reprocessing materials that would otherwise be lost to landfills (Roy et al., 2022). The integrating informal waste pickers into formal systems can enhance their productivity and income security (Moreno-Sánchez & Maldonado, 2006).

The SAPUKU program's ability to shift the community's perception of plastic waste from economic liability to opportunity illustrates its potential as a replicable model for other regions seeking to combine environmental initiatives with local economic development.

Shift in Environmental Awareness and Behavior

Another positive outcome observed from the implementation of the SAPUKU program is the substantial shift in environmental awareness among community members. Previously, residents of Kuningan Regency displayed low levels of engagement in waste segregation and environmentally responsible behaviors. Plastic waste was largely treated as disposable material with little consideration of its ecological consequences. However, as a result of SAPUKU's outreach and education campaigns, community members have shown a greater understanding of the impacts of plastic pollution on ecosystems and public health, and are increasingly motivated to participate in environmentally friendly practices.

This heightened awareness is reflected in the increased use of the 3R principles (Reduce, Reuse, Recycle) in daily household routines and the growing concern over maintaining clean and healthy surroundings. This development supports the research, who concluded that community-based environmental education programs have a significant effect on increasing waste literacy and long-term behavioral change (Subri et al., 2025). Additionally, previous research noted that one of the most critical factors in the success of waste management in developing countries is the level of public participation and awareness (McAllister, 2015). Another research also found that moral and value-based environmental education encourages sustainable practices at the grassroots level (Bowonder, 1987). In theoretical terms, this shift aligns with research, which posits that behavior change is influenced by attitudes, perceived control, and social norms—all of which were targeted through SAPUKU's community programs (Ajzen, 1991).

Overall, the SAPUKU program not only contributes to environmental management but also reshapes community values and practices, laying the foundation for long-term sustainability through collective behavioral change.

Community Participation and Collective Action

Beyond individual economic and behavioral changes, the SAPUKU program has also succeeded in fostering collective action and increasing community participation in waste management efforts. One of the key strategies implemented under SAPUKU is the promotion of waste banks and neighborhood-level partnerships that encourage residents to work together in sorting, collecting, and repurposing plastic waste. As a result, there has been a noticeable rise in civic engagement and cooperation among citizens in maintaining their surroundings and supporting environmental activities.

This communal participation plays a vital role in sustaining the program. It allows for the exchange of knowledge and skills, fosters accountability, and strengthens the sense of ownership among local residents. These findings are supported by research, who emphasized the effectiveness of grassroots collaboration in developing waste systems that are both inclusive and efficient (Gutberlet, 2021). Likewise, another reserach argue that community-based organizations are often more successful than governmental entities in organizing and sustaining environmental interventions (Pollock & Whitelaw, 2005). Previos research in Cirebon, observed that participatory waste initiatives improved not only waste handling but also enhanced community cohesion and social capital (Handoyo et al., 2020). Programs help build adaptive management structures that are responsive to the cultural and economic context of local communities (Armitage, 2005).

Through SAPUKU, local residents are no longer passive recipients of environmental policy but have transformed into active agents of change, demonstrating the strength of collective local governance in solving environmental issues.

Infrastructure and Recycling Facility Challenges

Despite the achievements, the SAPUKU program also faces several notable challenges, particularly in relation to infrastructure and facility availability. Many respondents reported difficulties in storing, transporting, and processing large volumes of plastic waste due to the absence of adequate recycling centers and logistical support. These challenges often result in delays, inefficiencies, and limitations in scaling the program to other villages within the regency.

In rural areas like Kuningan, the lack of specialized equipment, limited transportation networks, and constrained financial resources hinder the full realization of SAPUKU's potential. These issues are not unique to Kuningan. Noted that many waste management systems in developing countries fail due to infrastructural deficiencies, particularly in rural areas (Guerrero et al., 2013). Previous reserach, emphasizing that even when public awareness is high, inadequate facilities can undermine recycling efforts (Evison & Read, 2001). Studied similar patterns in Malaysia, where community waste programs failed to scale due to limited state support and infrastructure (Moh, 2017). Research also concluded that the success of waste programs is contingent upon decentralized investments in physical infrastructure that support community-led efforts (McGranahan & Mitlin, 2016).

For the SAPUKU program to achieve long-term sustainability and replicability, it is essential to address these structural barriers through targeted investments, government support, and public-private partnerships that prioritize the development of robust waste processing infrastructure.

CONCLUSION

Based on the results of this research, it can be concluded that the SAPUKU program has a significant positive impact on the economic empowerment of local communities in Kuningan Regency. The program succeeded in increasing community income through training in plastic waste management and the development of waste banks that produce products with economic value. In addition, environmental awareness and community involvement in waste management also increased, although there are still challenges related to recycling facilities and infrastructure that need to be improved. Thus, the objectives of this research to analyze the impact of the SAPUKU program on community economic empowerment and identify factors that influence its success have been well achieved.

This research also makes an important contribution to the development of community-based waste management policies, which can be applied in other areas with similar conditions. In addition to providing a deeper understanding of the relationship between plastic waste management and economic empowerment, the findings can serve as a reference for local governments and non-governmental organizations to design and implement similar programs. Another contribution of this research is to enrich the theory of sustainable development and circular economy by showing that plastic waste, which is generally considered a problem, can be transformed into an economic resource that benefits the community and the environment. Going forward, this research is expected to encourage the implementation of policies that support the circular economy and increase community participation in more sustainable waste management.

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