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SOCIOPRENEURSHIP BUSINESS MODEL IN WASTE MANAGEMENT BY SURAKARTA WASTE BANK: A CONTRIBUTION OF SUSTAINABILITY

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ABSTRACT

Background: Environmental problems are becoming a global concern, so appropriate solutions are needed to handle them, especially in waste management. The waste bank program can be an alternative solution for managing household waste.
Purpose: This research aims to (1) examine how waste management activities are implemented by the Surakarta Waste Bank/BSI and (2) explain whether the Surakarta Waste Bank/BSI contributes to sustainable development.
Design/methodology/approach: This study employed a qualitative method with a case study approach. Data was gathered through interviews, observations, and documentation.
Findings/Result: The research results show that (1) The Surakarta Waste Bank/BSI applies the concept of reduce, reuse, recycle (3R), which is in line with circular economy principles and has created a canvas business model that combines social and environmental missions with business principles described in the business model canvas of sociopreneurship in waste management activities. (2) The sociopreneurship carried out by the Surakarta Waste Bank/BSI has brought about social changes in terms of behavior where people have become more responsible in managing waste while at the same time contributing to sustainable development in economic, social and environmental aspects. From an economic aspect, BSI can increase the income and welfare of people involved in waste management, whether as customers, managers, or producers. Social aspect: BSI can increase public awareness and participation in responsible waste management. Environmental aspect: BSI can reduce the volume of waste disposed of in final disposal sites (TPA), reduce the negative impact of waste on the environment, and increase the positive benefits of waste as a resource that can be reused.
Conclusion: Waste management activities by BSI contribute to sustainable development across economic, social, and environmental dimensions. It is hoped that the results of this research can provide information as a basis for consideration, support, and contribution of thought to environmental activists and sociopreneurship to implement sustainable business and social missions, as well as provide recommendations for solutions to decision-makers in their efforts to execute sustainable development missions by increasing the economic independence of community and environmental improvement.
Originality/value (State of the art): This is the first study to explore the waste bank programs that promote the circular economy principle using a sociopreneurship model and its related possibilities for sustainable development efforts.

Keywords: sociopreneurship, waste bank, circular economy, sustainable development, surakarta

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INTRODUCTION

Indonesia is one of the world's largest food waste producers, accounting for up to 300 kg per person annually from 1.3 billion tons globally (Iriyadi et al. 2023). The issue of population growth and waste production leads Indonesia to environmental concerns that impact health and trigger economic crises. Managing waste and refuse presents a complex task entailing various social, administrative, and economic challenges. Tanveer et al. (2022) state that effective waste management requires technological advancements in waste management sectors, emphasizing modern practices favoring waste recycling as part of an environmentally friendly sustainable economic system. Environmental degradation issues arising from waste production and accumulation have given rise to an alternative concept known as the "circular economy." This approach aims to solve environmental problems from waste mismanagement by promoting resource circularity within production processes. Negrete-Cardoso (2022) considers the circular economy to have emerged as a response to the need to decouple environmental pressures from economic growth by consolidating systems focused on reducing, reusing, recycling, and recovering materials in production, distribution and consumption processes in changing the nature of capitalism or community interaction by changing people's choices, attitudes and motivations with the aim of improving sustainable performance.

According to the Ellen MacArthur Foundation (2015), basically, a circular economy relies on three principles, namely reduce, reuse, and recycle: (1) preserving and increasing natural capital by controlling limited stocks and balancing the flow of renewable resources in accordance with the reduce principle; (2) fostering resource effectiveness by uncovering and designing positive externalities in accordance with the principle of reuse; (3) optimize resource yield by circulating products, components and materials at the highest utility in accordance with the recycling principle. So Di et al (2023) stated that the circular economy is considered an overarching concept to reduce material input and minimize waste accumulation.

One of the goals of implementing a sustainable circular economy in Indonesia is to achieve the target of becoming a country with the fifth-largest economic growth in the world by 2045. For this reason, joint efforts are needed to develop ways to face challenges by utilizing them as opportunities for significant economic growth in order to achieve long-term prosperity while preserving the environment. This effort cannot be done if it only becomes a government regulation without the cooperation of all agents of community life as the smallest unit of the agent of change, namely the family or household environment.

The most fundamental implementation of the circular economy occurs at the household level, commonly executed through waste bank programs, where communities actively participate as producers and consumers by processing and utilizing their household waste. The waste bank program constitutes a community-driven waste management system based on recycling principles (Apriani et al. 2022). This method enhances economic value and yields positive environmental impacts by improving the economic conditions within a community, influencing the relationship between poverty alleviation, environmental preservation, and sustainable development. However, Purwanti (2021) findings in the implementation of a circular economy in the waste bank program stated that the conditions were the opposite, where socio-economic issues regarding environmental problems, namely waste, generally received less attention due to the absence of initiators in society and the value cycle was stalled. This value gap emphasizes the importance of exploring the contribution of waste banks to sustainable development in the transition from a traditional linear economic model to a circular model as a strategic alternative in this era of fluctuating globalization.

Even though the waste bank program looks simple and only targets small-scale groups in society, this activity has a big impact on the environment and a positive impact on the socio-economic life of the community. Several studies state that the waste bank program has an impact in the form of increasing people's income, improving health, and can change the social community by establishing social interaction, as seen in the high participation of housewives and the younger generation in weighing activities, as well as increasing people's knowledge and insight in managing waste(Elmi & Montessori, 2020; Ramadani et al. 2020). It indicates that the waste bank concept, which runs circular economy principles, can be a strategy for sustainable development.

Despite waste bank programs appearing simplistic and targeting only small groups within society, these activities wield significant environmental impacts and positive effects on the socio-economic lives of communities. It signifies that the waste bank concept, aligning with circular economy principles, can serve as a strategy for sustainable development. Where in this research, we will discuss the activities conducted by the Surakarta Main Waste Bank which implements circular economy principles. This waste bank was born from the initiative of Mrs. Denok Marty Astuti who saw the waste problem from upstream to downstream and had the desire to process waste into products. Household waste problems are one of the development problems faced by Surakarta City. It is because the volume of household waste always increases every day (Ibad, 2019).

In this case, the Surakarta Main Waste Bank is a program that implements sociopreneurship (social entrepreneurship) in its operations, which encourages every member to get economic opportunities either as customers, managers or producers. Sociopreneurship as one of the alternatives, aims to improve business innovatively (Dalimunthe et al. 2021). In previous research, no research has been found that explores waste bank programs that promote the circular economy principle using a sociopreneurship model and its related possibilities for sustainable development efforts. Therefore, this research attempts to fill this gap by finding out how waste management activities conducted by waste banks are an environmental improvement strategy and its possibilities in an effort to realize sustainable development.

METHODS

The location of this research is in the city of Surakarta, conducted from March to September 2023. This research employs a qualitative approach using a case study methodology rooted in specificity and exploration without drawing generalized conclusions. Data collection in qualitative research involves informants (narrators) with data primer. In this study, informant selection was carried out using Purposive Sampling, a technique based on characteristics aligning with the research objectives. Informant selection was based on the most knowledgeable individuals about the research questions, given their significant connection to the research subject.

Data collection methods encompassed in-depth interviews, observations, and documentation. To ensure data authenticity in the comprehensive depiction of the waste management activities and to answer possible contributions to sustainable development at the Surakarta Main Waste Bank (BSI), the qualitative research underwent credibility testing via source triangulation and member-checking.

The research employed Miles and Huberman's Interactive Data Analysis method. According to Miles and Huberman in Sugiyono (2016), activities in qualitative data analysis are conducted interactively and continuously until completion so that the data is saturated. Given the research's goal to intricately describe waste management activities and answer possible contributions to sustainable development at the Surakarta Main Waste Bank (BSI), the analysis proceeded through three stages: data reduction, data display, and conclusion drawing/verification.

This research focuses on the activities of the Surakarta Main Waste Bank (BSI) in managing waste, which applies the circular economy principles using a sociopreneurship model. The analysis begins by identifying BSI's performance in conducting activities so that it can develop by managing 150 Waste Bank Units (BSU). It identified that BSI combines social and environmental missions with business principles and contributes to sustainable development seen in the three pillars of economic, social and environmental. The framework of thinking can be seen in Figure 1.

RESULTS

The Surakarta Waste Bank (Bank Sampah Induk Surakarta - BSI) is one of the waste banks in Surakarta, Central Java. Functioning as a foundation, this waste bank is dedicated to waste management under the circular economy concept. Its primary objective is to address waste processing in Surakarta, raising awareness among communities about a clean, green, healthy, and orderly environment. Moreover, it transforms waste into something more valuable within society, such as crafting items and producing economically viable fertilizers. The bank operates using a sociopreneurship business model, not solely focused on economic gains but also on meeting the community's social need for cleanliness.

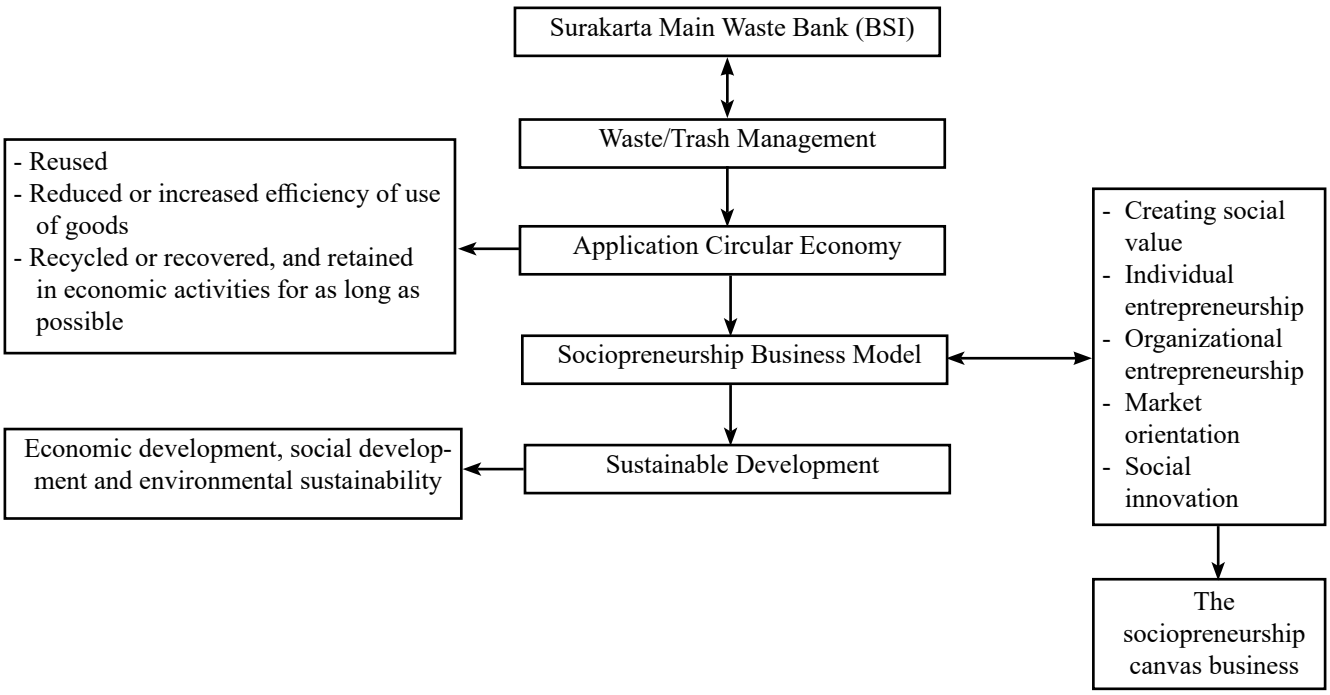

Figure 1. Research framework

The Surakarta Main Waste Bank (BSI) was initially established as a community in 2014 on the initiative of Mrs. Denok Marty Astuti, who cared about the waste problem in Surakarta. The Surakarta Waste Bank manages waste by following the principles of the circular economy: reducing, processing, and recycling waste into value-added products. It includes converting organic waste into compost, liquid fertilizer, and biogas, as well as transforming inorganic waste into handicrafts, bags, wallets, jewelry, and other marketable items. Additionally, it sells unprocessable waste to third parties. Operating through waste bank units (BSU) in each residential area (RW) in Surakarta, the BSI continuously conducts awareness campaigns and training sessions to emphasize the importance of proper waste management, leading to the proliferation of waste bank units. Currently, there are approximately 150 BSUs with a total of around 10,000 customers affiliated with the BSI.

The BSI is not merely a waste collection and processing institution; it is a community determined to alter perceptions and mindsets about waste. BSU members play a crucial role in realizing the circular economy concept and enhancing awareness regarding environmental conservation and sustainability. With innovation, collaboration, and environmental consciousness, the behavioral shift among BSU members becomes pivotal in successfully bringing about positive changes in waste management practices.

Behavior and Sociopreneurship Business Model of the Surakarta Waste Bank with the Application of the Circular Economy Concept

The behavior of Surakarta Waste Bank Unit members in managing waste can be illustrated through Ajzen's theory, the Theory of Planned Behavior (TPB). This theory explains that an individual's behavior is determined by their intention, influenced by attitude, subjective norm, and perceived behavioral control. Each of these factors affects the intent and motivation of BSU members in their activities.

Unit members who hold positive attitudes toward waste management are more inclined to sort, store, and sell waste following the procedures set by the Surakarta Waste Bank. This attitude is influenced by an individual's beliefs regarding the consequences of such behavior, such as economic, social, or environmental benefits. Social norms and group influence are external factors that can impact the behavior of Unit members in waste management, playing significant roles in raising waste awareness and fostering community participation in waste bank activities.

Establishing behavioral control for sustainable waste management is one way to enhance community intent and participation in independently and responsibly managing waste. Behavioral control refers to individuals' perception of their capability and resources

to engage in a particular behavior. The behavior of Unit members in waste management can be explained using Ajzen's theory, considering how their attitudes, subjective norms, and internal and external behavioral control shape their intent to engage in such behavior. This intent subsequently materializes into actions aligned with the goal of sustainable waste management. The behavior of Unit members in waste management linked to Ajzen's theory is as follows:

Figure 2 is a flow diagram that explains the matrix that influences the behavior of BSU members in managing waste. This flow diagram is divided into three parts: the left part explains the background to controlling intentions, then the middle part explains attitudes, social norms, and behavioral control that occur until the intention is created, and the right part explains behavior in managing waste. Internal Factors:

The background to control intentions

The background to control intentions are factors originating from within and outside of BSU members, which influence their behavior in managing waste. These factors include three parts: personal, social, and information. Personal are internal factors that come from within oneself, including skills, abilities, and will. Social are external factors originating from outside BSU members that influence their behavior in managing waste. These external factors include opportunity, income, and social benefits. Then there is information which includes knowledge factors and communities/ containers that act as facilitators and access to information for BSU members. The community in question is a social environment that provides facilities, support, motivation, or pressure for BSU members to manage waste, which, in this case, is BSI's role to accommodate and facilitate. The community/container is the most important thing as well as the novelty found in this research, where the presence of the community/ container, in this case, played by BSI, has become the main driver for creating changes in behavior towards waste by providing facilities and information to BSU members. The information provided aims to increase BSU members' understanding of proper waste management, the benefits of recycling, and the impact of waste on the environment.

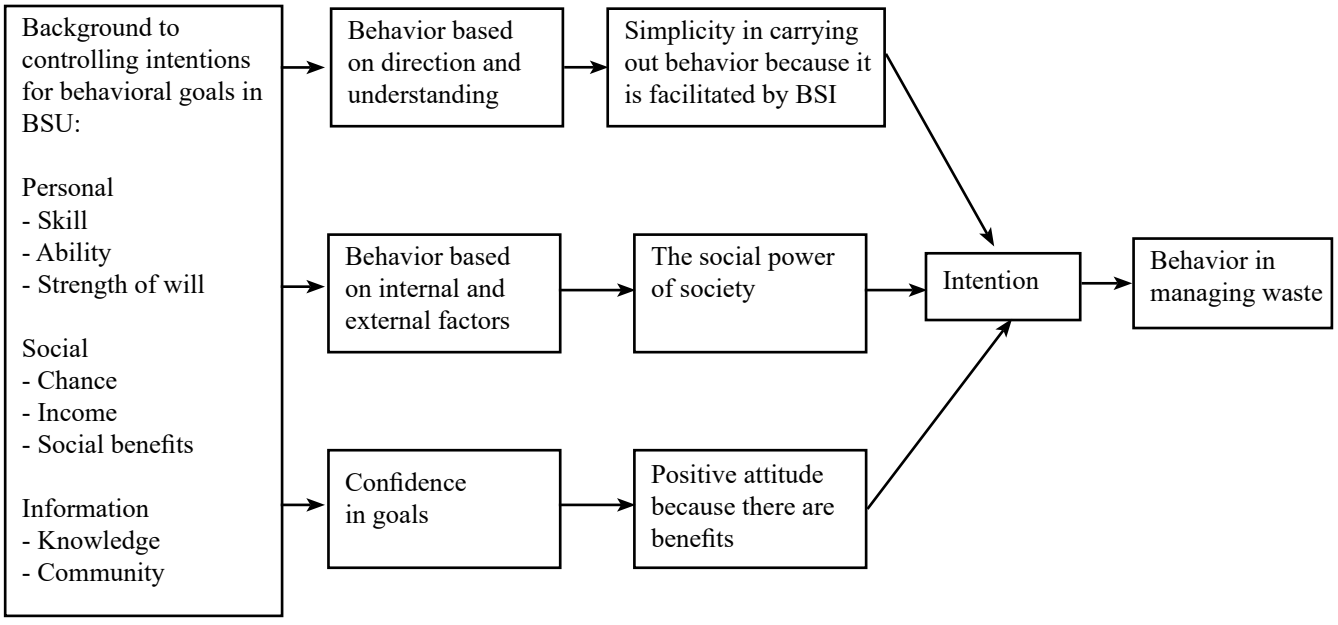

Figure 2. Behavior of Waste Bank Unit Members in Waste Management (Ajzen,1985)

Attitudes, social norms, and behavioral control

Attitudes, social norms, and behavioral control are the process of creating behavior. The direction set by BSI brings a positive attitude and understanding among BSU members regarding the importance of managing waste. Then, social norms are described as the social forces of society. Then behavioral control occurs because of the resources provided so that there is simplicity in conducting behavior because BSI facilitates it. It is what then creates the intention of BSU members to manage waste.

Behavior in managing waste

Behavior in managing waste is an action conducted by BSI members. Behavior in managing this waste includes sorting, storing, and selling waste, and processing waste into new products. Sorting is the process of separating waste according to its type. Storing is the process of placing sorted waste into different colored waste bins, namely green for organic waste, blue for inorganic waste, and red for B3 waste. Selling is the process of saving waste that has been sorted to BSU and getting a reward in the form of savings. Processing waste means recycling waste into new products with selling value, for example, waste newspapers becoming bags and wallets.

In a literature review conducted by D Sandamali Wijayarathne et al. (2023) titled "Clean energy, clean water, and quality education: Prospects of achieving Sustainable Development Goals (SDGs) in Sri Lanka," it was found that effective environmental education is a key factor in enhancing environmental awareness and eco-friendly behavior. It reflects how BSI has contributed to enhancing residents' understanding of responsible waste management through the education and training they provide to the community. Beyond increased understanding, the community has become increasingly active in creating value-added products from waste, such as eco-prints, compost, patchwork, and fabric. It mirrors a shift in paradigm from conventional thinking to creative waste management, aligning with circular economy principles that view waste as a potentially valuable resource. Research on the business potential of waste management and recycling practices, as discussed in "Waste management and green technology: Future trends in circular economy leading towards environmental sustainability" by Tanveer et al (2022), illustrates how communities can play a role in creating sustainable products from existing resources.

The behavior of BSU members in managing waste illustrates that there is economic activity involved, whether as customers or producers of recycled products. So, it can be said that BSI conducted a business model canvas in its activities. Osterwalder and Pigneur (2010) explain that a business model describes 'the rationale and infrastructure for how an organization creates, delivers and captures value'. Therefore, it is argued that business models can also be useful for framing, understanding, and communicating the features and strategies of social enterprises. So, the term business model provides a scheme for defining a private organization explicitly in its work toward one or more social welfare goals while participating in the market. Alexander Osterwalder developed the BMC (Business Model Canvas) ontology in his doctoral dissertation on business model innovation. The current version of the canvas was only published in his book entitled Business Model Generation. The business model generation is the result of Osterwalder and Pigneur's collaboration with 470 practitioners from 45 countries.

The business model implemented by BSI is a sociopreneurship business model that combines social and environmental missions with business principles. The sociopreneurship business model in BSI activities is an extraordinary innovation in waste management that combines social, environmental, and business aspects. In sociopreneurship, what needs to be underlined is that there is the creation of social value that may not be able to be achieved by ordinary business models. According to Mair (2003), sociopreneurship is a process of creating social value where resources are combined in new ways to meet social needs and stimulate social change.

Figure 3 is divided into eleven sections, each with a title and description. These sections are Key Partners, involving entities collaborating in executing the business model, such as the government, collectors, associations, or other supporters providing resources or access. Key Activity shows that BSI Surakarta mobilizes the community to collect, process, and sell household waste. The key Resource in this activity is waste. Then, the Social Value proposition includes creativity and environmental awareness. Channel relies on interpersonal relationships, meetings, and social media. In Beneficiary engagement, active participants are targeted for creating social value. In this phase, beneficiary involvement involves behavioral changes regarding waste, where the target community actively

sorts and processes waste into valuable items. Customer Segment mentioned in this model includes collectors, recycling associations, and people interested in products from waste management. Cost Structure refers to the expenses incurred to carry out key activities, comply with government regulations, and enhance service quality.

<table>
<tr>
<td rowspan="2">Key Partnership

Collectors, government, and Indonesian plastic recycling association (ADUPI)</td>
<td>Key Activities

BSU
1. Sorting waste
2. Save the waste that has been sold
3. Manage waste by making craft products from used materials

BSI
1. Form new BSUs
2. Holding community development programs such as training in managing waste into valuable products
3. Hold village community activities as a form of product marketing that is open to the public in the form of visits to BSU, which has become a tourist village</td>
<td rowspan="2">Social Value Prepotition

1. Get extra money from savings from selling trash
2. Sharpen creativity by making products from leftover or recycled materials
3. Instilling public awareness in protecting and preserving the environment</td>
<td>Channel

Interpersonal communication, meetings, social media, e-commerce, and other digital channels</td>
<td rowspan="2">Customer Segment

1. Collector
2. Recycling Association
3. The general public is interested in recycled material products</td>
</tr>
<tr>
<td>Key Resources

Waste</td>
<td>Beneficiary engagement

Social change in the form of people's behavior towards waste where people become more aware, responsible and willing to participate in sorting and managing waste into valuable products.</td>
</tr>
<tr>
<td colspan="3">Cost Structure

Administration and development programs (example: training in making crafts or products from waste/recycled materials)</td>
<td colspan="2">Revenue

1. For BSI administrators: administrators receive offers to become resource persons and mentors in various activities related to waste management
2. For BSU administrators/members: every member gets savings and the opportunity to increase their income by making MSME products from waste raw materials
3. For organizations: Company CSR funds and government fund allocation</td>
</tr>
<tr>
<td colspan="3">Social and Environment Cost

erosion of scavengers' work areas</td>
<td colspan="2">Social and Environment Benefits

1. Entrepreneurial creativity
2. Awareness of environmental sustainability
3. Environmental restoration</td>
</tr>
</table>

Figure 3. Sociopreneurship canvas business model at the Surakarta Waste Bank (Osterwalder and Pigneur, 2010)

Moreover, Revenue in BSI's activities prioritizes creating social value over direct cash profits, aligning with sociopreneurship principles. This approach creates opportunities for economic self-sufficiency for stakeholders, members, and the organization itself. Subsequently, Social and Environmental Costs reference the negative impacts on society and the environment, such as the decline in scavengers› livelihoods who typically sort household waste for sale. Conversely, the Social and Environmental Benefit highlights the positive impacts on society and the environment through the company›s business model. These benefits include increased entrepreneurial creativity, heightened environmental awareness, and active environmental restoration efforts.

The sociopreneurship canvas business model by the Surakarta Main Waste Bank (BSI) has slight differences from the canvas business model of Osterwalder and Pigneur. Where in the sociopreneurship canvas business model by BSI there is no Customer Relationship as an effort to gain customer loyalty. In accordance with the principles of sociopreneurship, where actors are beneficiaries who are empowered to obtain social benefits, customers are not the main priority in sociopreneurship goals, but actors as beneficiaries are the main orientation. So, in this canvas business model, there is a novelty in the form of Beneficiary Engagement, namely the involvement of beneficiaries to see to what extent actors as beneficiaries can create social values that will bring benefits in economic, social, and environmental aspects.

Efforts Towards Sustainable Development at the Surakarta Waste Bank

The theory of sustainable development goes through various periods, namely the embryonic period, the formation period, and the development period (Shi et al. 2019). Based on theoretical developments in the development period since 1987, it was formulated that sustainable development has three pillars, namely economic, social, and environmental, known as the Triple Bottom Line. Theoretical progress regarding sustainable development validates new science. In 1999, The National Research Council (NRC) published a report called "Our Common Journey: A Transition toward Sustainability." This report gave birth to the word "Sustainability Science" as a science that will explain the development of sustainability.

In 2000, theoretical studies on sustainability science continued to develop so that the presence of a fourth pillar to integrate the Triple Bottom Line was being debated. Several sources argue that the fourth pillar is governance or governance and peace, but some argue that the fourth pillar is human in the sense of education and culture (Mori, 2014). However, theoretically, the presence of the fourth pillar cannot be established effectively.

BSI brings benefits in economic, social, and environmental aspects, aligning with principles of sustainable development. The following table details the Surakarta Waste Bank's contributions to sustainable development. Through this table, a concrete illustration emerges of how the sociopreneurship business model previously explained contributes tangibly to broader sustainable development goals. In an era where sustainable development is becoming increasingly crucial, BSI has succeeded in creating a business model that is not only economically efficient but also contributes to sustainable development in its region.

From Table 1, it can be concluded that BSI's waste management activities with the application of circular economy principles contribute to sustainable development efforts at the Surakarta Waste Bank has brought positive impacts on economic, social, and environmental aspects. Here are some of the positive impacts observed:

1) Positive Impact on Economic Aspects:

a. Economic Value Creation: The sociopreneurship business model with the circular economy concept at the Surakarta Waste Bank can create economic value by managing waste into valuable resources. Waste that was previously considered useless can be transformed into new products.
b. Business Opportunity Creation: This model encourages local communities to engage in recycling businesses and waste management, creating new business opportunities such as the production of recycled goods and waste transportation services.
c. Resource Management Efficiency: The sociopreneurship model promotes efficiency in resource management. By reducing waste going to landfills, the Surakarta Waste Bank can reduce waste management costs and create saving opportunities. It also eases the burden on the local government's budget.

2) Positive Impact on Social Aspects:

a. Community Empowerment: the Surakarta Waste Bank can empower the local community, especially those involved in waste management. They will be engaged in decision-making processes, waste handling, and even in the production of recycled products.
b. Increased Environmental Awareness: This business model can increase environmental awareness in the community. People will better understand the importance of waste reduction and recycling and actively participate in these efforts.
c. Positive Social Change: the Surakarta Waste Bank, through the sociopreneurship model, can become an agent of positive social change in their community. They can set an example in promoting sustainable and responsible practices.

3) Positive Impact on Environmental Aspects:

a. Conservation of Natural Resources: This business model encourages the use of more efficient and sustainable resources. By recycling waste, the Surakarta Waste Bank helps protect increasingly limited natural resources.
b. Reduction in Environmental Pollution: By managing waste properly, this model can reduce environmental pollution, including air, water, and soil pollution.
c. Support for Circular Economy Principles: The sociopreneurship business model with the implementation of the circular economy concept at the Surakarta Waste Bank supports circular economy principles that prioritize reuse and recycling of materials, waste reduction, and minimizing environmental impact.

Research on sociopreneurship by Kusumasari (2015) in the article "The Business Model of Social Entrepreneurship" describes how organizations like BSI are able to create a sustainable economic impact through innovations in their business models. Apart from savings incentives, BSI also provides business opportunities to people who want to start entrepreneurship from waste. It reflects the concept of economic empowerment through waste management. Research on sustainable waste management and the business potential of waste, as discussed by Nugroho (2022) in "Waste Bank Concept: Having Savings and Income from Waste," underlines the importance of looking for business opportunities in waste management.

By combining the sociopreneurship business model with the implementation of the circular economy concept, the Surakarta Waste Bank has the potential to evolve into a sustainability hub, generating positive impacts on the economic, social, and environmental fronts. This initiative bolsters sustainable development at the local level and contributes to global endeavors to tackle environmental issues.

Table 1. The Surakarta Waste Bank contributions to sustainable development

Economic Aspects	Social Aspects	Environmental Aspects
• People have savings that can be used to meet their needs • Providing entrepreneurial opportunities by making products from used goods • Open opportunities to become a tourist village that is beneficial for the economic growth of the local community	• Facilitate the community to participate in environmental sustainability • Building public awareness in protecting the environment by sorting and managing waste • Stimulate community creativity in processing waste into valuable products • Creating closer family values and mutual cooperation between residents	• Reduce waste accumulation by 15% per year at the Bukit Cempoh landfill • Saves limited natural resources due to recycling activities • Restore the environment by processing waste into materials that can improve soil fertility and structure, such as compost or biogas

Managerial Implications

Currently, the world is concentrating on dealing with environmental problems, one of which is caused by waste, so the United Nations has formulated sustainable development goals. The circular economy is considered an alternative solution to environmental problems by encouraging the principles of reducing, reusing, and recycling. However, the challenge is to encourage people to implement it because improving the environment is a collaboration between the whole community by encouraging awareness and changes in behavior in managing waste. Therefore, the sociopreneurship model is considered to be a mode of transportation in achieving social change by seeking community empowerment and business principles. Based on the results of this research, environmental problems can be resolved through community empowerment by providing them with the opportunity to obtain economic benefits from waste management, where this activity can be held in the waste bank program. In the end, the waste bank program succeeded in changing people's behavior toward waste because the benefits can be felt economically, socially, and environmentally so that balance is achieved in the three pillars of sustainable development, namely economic, social, and environmental.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The Surakarta Waste Bank (BSI) has established a sociopreneurship canvas business model, known as sociopreneurship, in waste management activities, applying the circular economy concept of reducing, reusing, and recycling. This sociopreneurship model in waste management intertwines social and environmental missions with business principles, engaging the community in creating economic value by transforming waste into valuable resources. Previously deemed worthless, waste is now repurposed into new products. As a sociopreneurship endeavor, the BSI has instigated social changes, notably in behavioral aspects, fostering a heightened societal responsibility in waste management. Furthermore, the enthusiasm for crafting products from waste exemplifies a tangible shift in community behavior toward environmental consciousness, wherein people are increasingly mindful of the importance of recycling, waste reduction, and harnessing their creativity to generate value-added products from waste materials.

Waste management activities by BSI contribute to sustainable development across economic, social, and environmental dimensions. Economically, this business model can augment the income and welfare of individuals engaged in waste management, whether as customers, managers, or producers. It also has the potential to economize on government expenses for waste transportation and processing while creating new business opportunities and employment in the waste management sector. Socially, this model enhances awareness and community involvement in responsible and eco-friendly waste management practices, fostering increased community participation in environmental programs. Environmentally, the model reduces the volume of waste sent to landfills, mitigating the adverse environmental impacts of waste, such as soil, water, and air pollution and greenhouse gas emissions, while maximizing the beneficial reuse of waste as a resource. Moreover, the activity aligns with the circular economy principles, optimizing resource usage and waste reduction by elongating the lifecycle of products through design, production, consumption, and recycling phases.

Recommendations

Suggestions for further research include developing and testing sociopreneurship canvas business models in waste management activities in other institutions that are different from the Surakarta Main Waste Bank (BSI), both in terms of location, scale, type of waste, products, and partners. Further research can also examine the factors that influence the success and sustainability of the business model, as well as measure the impacts produced by the business model quantitatively and qualitatively.

Suggestions for related parties, such as the government, private sector, and society, can provide support and facilitation to BSI and other institutions that apply the sociopreneurship canvas business model to waste management activities. This support and facilities can take the form of financial assistance, equipment, technology, human resources, regulations, promotions, education, or other forms that suit the needs and conditions of each institution. Relevant parties can

also improve coordination, communication, and collaboration between these institutions, as well as create networks and platforms that can facilitate the exchange of information, experience, and innovation between these institutions.

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