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Sustaining creative kampong through circular economy: a study on Binong Jati's knitting industry

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Abstract: Waste management is a considerable urban challenge which remains difficult to resolve. To address inadequate waste management, the widespread introduction of circular economy principles can function as a viable solution, particularly in developing countries with potential for economic growth through creative villages (Creative Kampong). This study aims to support the sustainability of the knitting industry centre in Binong Jati by minimising waste problems through the implementation of circular economy principles. Issues such as waste accumulation in Greater Bandung Urban areas negatively impact the environment and community well-being in Bandung, affecting Creative Kampong Binong Jati. This research studies the implementation of the circular economy to enhance the sustainability of Creative Kampong Binong Jati. Utilising a qualitative method and the 9R strategy to measure the level of circular economy implementation, alongside environmental indicators to assess sustainability. The study concludes that the adoption of a circular economy solution has reached the highest level of the 9R strategy, although further improvements in implementation and community knowledge are needed. The data collection method includes a literature review of similar case studies, interviews with creative industry stakeholders, and direct observation. Most environmental indicators have been met, indicating the village's overall environmental sustainability. Recommendations include increasing the frequency of urban waste collection, raising community awareness about waste management, more routine socialisation of the Kang Pisman (Reduce, Separate, Utilise) programme, and promoting supply chains that support sustainability from local governments. Implementing these recommendations is expected to support the sustainability of Creative Kampong Binong Jati comprehensively.

***Key Words**: Circular Economy, 9R Strategy, Sustainability of Creative Kampong, Creative Villages*

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Introduction

Waste management poses a complex challenge in metropolitan environments due to the diverse range of human activities. Waste management is linked to all the Sustainable Development Goals (SDGs) and is specifically mentioned in SDG 12, responsible production and consumption. In Indonesia, based on the Law of the Republic of Indonesia No. 18 of 2008 regarding Rubbish Management, waste management in Indonesia has not been in accordance with environmentally sound waste management methods and techniques (Undang-Undang Republik Indonesia Nomor 18 Tahun 2008 Tentang Pengelolaan Sampah, 2018). One waste problem in Indonesia that needs to be addressed is the excessive load in landfills. Based on a report by the Sarimukti Landfill Management Coordinator, Zidni Ilman, the average amount of waste disposed of at the Sarimukti landfill remained at 1,750 tons per day until October 2024. This amount exceeds the 1,000-ton-per-day limit. ("TPA Sarimukti Overload", "Pengolahan Sampah Bandung Raya Belum Optimal," 2024). The type of textile waste in Bandung City is one of the five largest contributors to waste, reaching a percentage of 4.75% with a total waste production of 82.46 $M3$/day (Badan Pusat Statistik Kota Bandung, 2021)

The circular economy is one of the solutions offered to address waste management in urban areas. The circular economy is an economic system designed to be restorative and regenerative, aiming to keep products, components, and materials at their highest usefulness and value by distinguishing between technical and biological cycles (Ellen MacArthur Foundation, 2015). In measuring the level of circular economy implemented in an area, the 9R strategies of the circular economy framework (Refuse, Rethink, Reduce, Reuse, Repair, Refurbish, Remanufacture, Repurpose, Recycle, and Recover) are used to assess the level of circularity. Sustainability transitions often involve different public service organisations, such as energy supply, transportation, and food production and distribution. A common element in sustainability transitions is socio-institutional change, that is, changes in regulations, customs, standards, manufacturing practices, and consumer behaviour. Radical technological innovations often drive sustainability transitions and are therefore often referred to as technological transitions (Geels, 2002). However, socio-institutional change usually makes sustainability transitions more complex. After all, radically different public service organisations rapidly require changes in laws and policies, in the cognitive structures that underlie society's perception of the world and understanding of what is normal, and in the normative frameworks that determine what society considers legitimate (Fuenfschilling & Truffer, 2013). The Circular Economy Transition differs from most other sustainability transitions in that it focuses on a shift from linear to circular use of natural resources and materials.

In the research on the 9R strategy, the role of innovation, especially in circular-economy technological innovation, is conceptualised by evaluating its importance and measuring circularity on a scale from R0 (refuse) to R9 (recover). It is estimated that radical technological innovation plays a role in low-circularity strategies (close to R9: recover), so it is less relevant in higher-circularity strategies (close to R0: refuse). For the last sector, it has been estimated which important functions will be implemented throughout the product chain through socio-institutional changes and innovations in supporting technologies, revenue models, and product design. Then, for the evaluation process, it is carried out by linking its transition objectives by looking at the dominant, clear, but not too important, and almost irrelevant features (Potting et al., 2017).

In general, this 9R strategy is used to measure factors that drive the economy, such as large-scale industries, and can also be used to measure small-scale industries, such as

industrial districts (Ganzevles et al., 2017). With the structural adjustment and globalisation experienced by the economy and industrial society for years, adjustment affects the distribution of locations in the development process. This is a factor that influences the concentration of special industries in certain areas. One type of industrial concentration is the Industrial Village (Kampong) or Industrial District. Becattini defines an Industrial Area as a socio-territorial entity that has the characteristics of the interactive presence of a community between individuals and a population of companies in a historically and naturally limited area, where each of the many small and medium-sized companies that form this population is specialised in only one phase or several phases and functions of a particular industry, or its subsidiaries. Thus, they carry out activities related to the production of goods and services that meet the specific needs of the main industry in the area. Industrial Areas have characteristics as areas where there is coexistence between single competition and solidarity between companies in the area/district, this reduces local market transaction costs, and makes job mobility easier both horizontally and vertically as there is competition communicated by district members with each other, both to achieve economic goals and, to improve and perfect the geographical and social environment of the district itself (Becattini, 1990).

One example of an industrial kampong is a creative kampong. Creative kampongs are emerging as economic drivers in Indonesia, bolstered by government initiatives to enhance and develop these communities. In Bandung City, several creative villages have been approved by the Mayor, including Creative Kampong Binong Jati (CKBJ) in Binong Urban Village, Batununggal Subdistrict. CKBJ was recognised as the hub of the knitted goods sector from 1965 and has persisted to the present day. This study aimed to evaluate the implementation of a circular economy to enhance the sustainability of CKBJ. In practical terms, this study is expected to reduce waste management problems in urban areas and increase the economic added value generated from creative villages and urban industrial centres. In addition, this study is expected to provide an understanding of the sustainability of the knitting industry centre and creative kampong, specifically in CKBJ.

Methodology

The methodology used in this research is a qualitative approach, aimed at collecting and analysing non-numerical descriptive data (Creswell, 2013). This study utilises case studies and naturalistic observations for in-depth investigation of the group and organisational innovations of the CKBJ based on four dimensions of innovation: (1) knowledge, (2) activities, (3) achievements, and (4) influence (Potting et al., 2017). Each aspect has its own criteria that must be met and used to address data needs. The knowledge aspect comprises two criteria: mobilisation of facilities and knowledge development. The activity aspect consists of knowledge exchange, entrepreneurs' experiments, directions, efforts to open markets, and efforts to overcome resistance. The achievement aspect consists of design, production, consumption, and waste. Finally, the influence aspect comprises circularity, environment, and economy. The study approach is deductive, focusing on the application of the 9R strategies level of the circular economy framework to assess the level of circularity in CKBJ's innovations.

Additionally, five supporting factors of industrial sustainability are used to evaluate the sustainability level of these innovations: socio-institutional change (SI), the role of innovations in core technology (CT), enabling technology (ET), product design (PD), and revenue model (RM). The analysis aims to determine whether these innovations play a dominant role as radical innovations (D - Dominant), have a clear presence without

dominating the process (P - Passive), or hold a subordinate and irrelevant role (left blank - functioning as supplementary innovations). The research methods are categorised into data collection and data analysis techniques. (Ganzevles et al., 2017).

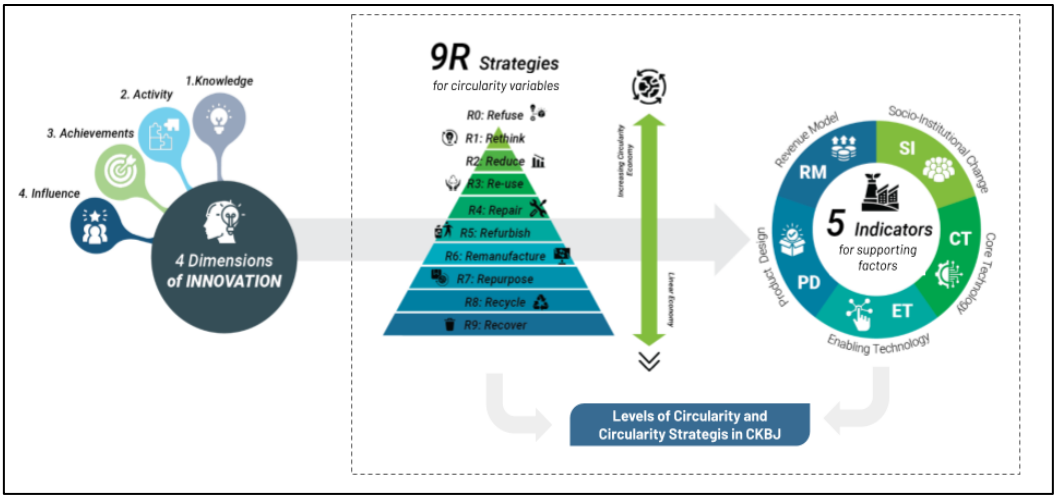

Figure 1. Synthesis stages of the 9R principles in a circular economy

Source: Prepared by the Authors

Data Collecting Method

Data collection comprises both secondary and primary data collection. Secondary data collection involved reviewing documents, literature, and legal frameworks related to circular economy principles, the 9R strategies of the circular economy framework, and the five supporting factors of industrial sustainability. Additionally, secondary data on the profile of Binong Jati Village were gathered to provide an overview of its general characteristics and context. Thus, primary data were collected through direct observation and interviews. Direct observation involved examining the knitting industry's activities in CKBJ and its waste management practices. Interviews were conducted with key informants knowledgeable about the economic activities in CKBJ, the development plans and programmes for the area, current waste management conditions, and the overall waste management framework in Bandung City.

The respondents of interviews in this study included representatives from the local tourism awareness group (POKDARWIS Kampung Kreatif Binongjati), computer-based (modernised) industry practitioners, traditional knitting industry practitioners, managers of waste banks and village waste collection points, and representatives from Bandung City's Environmental and Tourism Departments (DLHK and Disbudpar Kota Bandung). The list of interview questions was created based on four dimensions of innovation: (1) knowledge, (2) activities, (3) achievements, and (4) influence, as shown in the following table.

Table 1. Questions measuring the advancement of the procedure and the effects of the circular economy transition in CKBJ

Dimensions of Innovation	**Criteria**	**Interview Questions**
Knowledge	Mobilisation of Means	Are CKBJ's industry partners involved in realising a circular economy?
	Knowledge Development	Is the knowledge of industry partners of CKBJ sufficient to develop circular economy solutions in the product chain?
	Knowledge Exchange	Is the knowledge sharing among CKBJ industry partners regarding circular economic solutions sufficiently advanced throughout the product chain?
Activities	Experimenting by Entrepreneurs	Are CKBJ business owners currently exploring circular economy solutions and income models?
	Giving Directions to Search	Is there a clear vision and circularity strategy structure among the industry partners of CKBJ for executing the circularity strategy?
	Opening Market	Are CKBJ's business associates actively promoting consumer awareness of circular economy solutions and making adequate investments?
	Overcoming Resistance	Are enough steps being taken to overcome the opposition of CKBJ's industry partners to circular economy solutions?
Achievements	Circular Economy Design	Does the product design and its components enable sustainable, high-grade recycling without increasing environmental pressure?
	Production	Does the production generate a circular-economy revenue model focused on supplying a service rather than a product, or does it promote the reuse of products and components?
	Consumption	Compared to conventional products, is there an increase in the consumption of circular-economy products?
Effects	Waste	To what degree is recycling effective in terms of costs and the environment?
	Circularity	Are primary material and energy consumption decreasing for the whole sector?
	Environment	Are cumulative energy consumption and cumulative environmental pressure decreasing for the whole sector?
	Economy	Are goods and services becoming more valuable?

The answers from the sources to the questions above will then be compared with the levels in the circular economy, and a comparison will be made with the supporting factors that influence the activities and implementation of the circular economy in CKBJ.

Data analysis method

The data analysis methods used in this research include content and coding analysis, qualitative descriptive analysis, and gap analysis. These methods measure four dimensions of innovation in CKBJ's circular economy transition, based on the 9R strategies of the circular economy framework and five supporting factors of industrial sustainability. Content and coding analysis involves sorting sentences derived from interview responses using inductive coding, which are then synthesised into synthesised interview statements through qualitative descriptive analysis. Those synthesised interview statements represent the collective responses of all participants and provide insights into the four dimensions of innovation in the circular economy transition of Kampung Binong Jati based on the 9R strategies of the circular economy framework and five supporting factors of industrial sustainability CKBJ. A gap analysis compares the factual conditions derived from interviews and observations with the ideal conditions based on the 9R circular economy framework and five supporting factors of industrial sustainability, and then produces recommendations for future innovation development in CKBJ. The methodological flow of the analysis method in this paper is shown in the following figure.

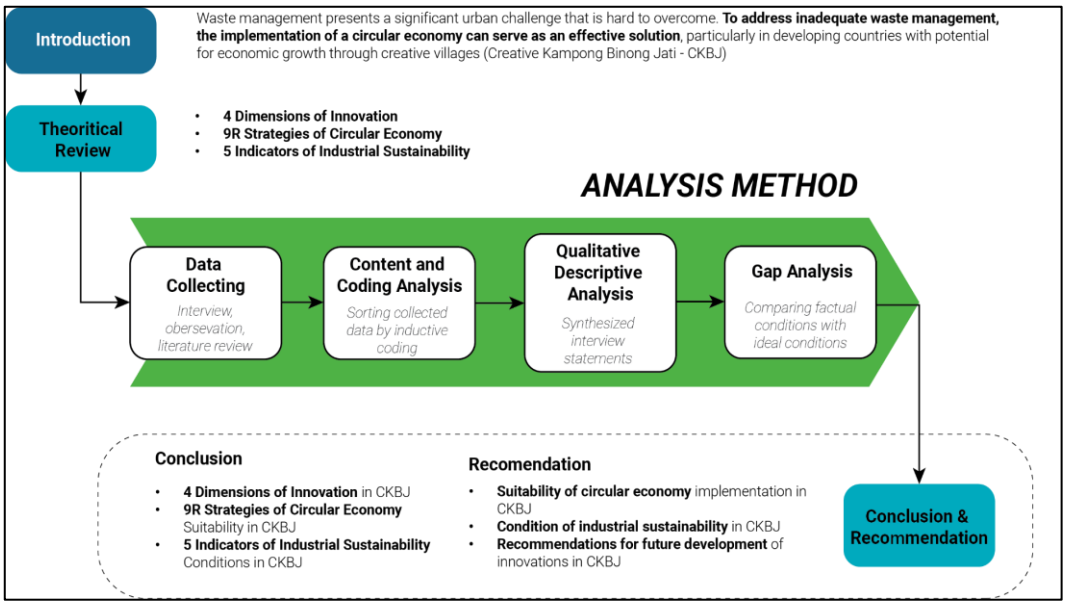

Figure 2. Analysis Method

Source: Prepared by the Authors

After data collection and analysis, a framework was created based on the findings and actual conditions at CKBJ, and its level of alignment with the 9R strategies was assessed. To determine the level of circularity, the theory used in the framework focuses on

conceptualizing the role of innovation, particularly technological innovation, in a circular economy. The evaluation was conducted using strategies ranging from high to low circularity (R0 to R8). Less efficient and resource-intensive technological innovations are categorized as low circularity strategies (approaching R8), and less relevant in higher circularity strategies (approaching R0). An example of such a framework is shown below, with a complete explanation of each 9R stage found in the results section.

Table 2. Levels of Circularity and Circularity Strategies in CKBJ

Circularity	**Strategies based on diagnostic questions**	**Supporting Factors**				
		CT	**ET**	**PD**	**RM**	**SI**
R0 (Refuse)	Industries in CKBJ no longer use hazardous substances					D
R6 (Remanufacture)	Innovations regarding circular economic solutions are diverse, such as the existence of digital machines, thread unraveling machines, and supporting technology in the form of social media as a place to disseminate information, in addition there are innovations in product design that can influence revenue models	D	D	D	D	P

Source: Prepared by the authors

Results

Based on the research conducted, CKBJ has succeeded in achieving almost all circularity levels. There are 10 levels of circularity, ranging from R9 (recovery), the lowest, to R0 (refuse), the most circular and sustainable.

R0 is a strategy in which people refuse to use products and materials that can pollute the environment. In CKBJ, companies and industries no longer use hazardous substances. The dominant supporting factor for this is socio-institutional change (SI). R1 (Rethink) is where product usage is intensified through shared use or the creation of multifunctional products. All industries, communities and stakeholders in CKBJ play an active role in actualising the circular economy. Environmental pressures such as urbanisation, pollution, and other environmental degradation cumulatively decrease because the industry no longer produces waste. In addition, the basic solution that is commonly known to the public is 3R (Reduce, Reuse, Recycle). Residual products can also be processed into usable, sellable products, thereby affecting the revenue model. This shows that the dominant supporting factors are socio-institutional change (SI) and the revenue model (RM), while enabling technology (ET) is a passive supporting factor.

R2 (Reduce) aims to reduce consumption of natural resources and generate less waste, thereby increasing a product's efficiency. The overall level of material consumption (primary and secondary) in the CKBJ industry is stable. Technology plays a role in breaking down knitting waste and reprocessing it into marketable products. In addition, the industry is moving towards lower waste production, as evidenced by the implementation of 3R in the non-knitting industry and the zero-waste principle in the knitting industry. The dominant supporting factors in this case are Product Design (PD) and (SI), while core technology (CT) is a passive factor because there are few decomposing tools. R3 (Reuse) is the act of reusing a product that is still in usable condition, and used according to its

original purpose. CKBJ's community awareness of R3 is already high enough that there is no distinction between circular-economy products and conventional ones. Many companies and industries have adopted the circular economy income model. In industrial products, there is no difference in durability or quality between recycled products and conventional products. The dominant supporting factors in this case are (SI), (RM) and (PD). R4 (repair) is an activity that restores damaged products so they can function again. In this case, a product is considered a good produced by the knitting industry. Because the output is fabric, there is no repair activity, but it is categorised as reuse, refurbish and/or remanufacture activities.

R5 (Refurbish) is the process of restoring old products, so they regain their selling value. Many companies and industries in CKBJ have implemented product and component reuse (RM), and RM is the dominant supporting factor for this activity. R6 (Remanufacture) is the use of discarded product parts to make new products with the same function. Knitted components and products are remanufactured by breaking down yarn and reusing failed products to produce smaller components. A failed product is one that does not meet sales standards, typically with design flaws, substandard thread, or sloppy stitching. There is no difference between recycled and conventional products, and both products are easy to disassemble. There are various innovations in circular economy solutions, supported by core technologies such as digital machines and yarn unravelling machines. At the same time, product design can affect the revenue model, boosted by the spread of information about circular economy solutions via social media. The dominant supporting factors are (PD), (RM), (ET), and (CT).

R7 (Repurpose) is the reuse of discarded products into new products with different functions. The implementation of the repurpose strategy at CKBJ involves increasing circular economic solutions by educating fellow craftsmen and the community in waste and garbage management, increasing the efficiency of maggot cultivation to decompose organic waste, strengthening branding and capacity, and mentoring and training in environmentally friendly tourism. In addition, failed products are recycled into new products with a market value. The dominant supporting factors in this case are (RM), (SI) and (ET). R8 (Recycle) is the processing of waste into new products or materials that can be used as materials to make new products.

In this case, the product design of CKBJ accounts for recycled materials; the components used are designed for high-quality recycling without increasing environmental pressure. The level of recycling in the knitting industry is also quite high and effective, as many people sell their household waste. There are three dominant supporting factors in this case: (SI), (PD), and (CT). R9 (recover) is the process of converting waste into resources, such as electricity, heat, compost, and fuel, through biological and thermal means. This process is one of the waste management resorts used before the landfill process. Currently, there is no incineration equipment at any landfills, temporary disposal sites, or Branch Waste Bank (Bank Sampah). Land limitations are also a problem in environmental management, because most of the industries in CKBJ are home industries, in addition, CKBJ also has a fairly high density so that the land that can be used as a temporary disposal site (TPS) and storage for waste management equipment is limited.

Discussion

Higher levels of circularity in materials in the production chain mean that, in principle, fewer natural resources are needed to produce new materials. In this case, CKBJ has succeeded in producing zero knitting waste and no longer uses hazardous substances. In

achieving the existing level of circularity, the dominant factor contributing to achieving the circular economy goal in CKBJ stems from the socio-institutional (SI) role, where all involved parties actively participate in achieving and improving circular economy solutions in CKBJ. The role of supporting technology (ET), such as social media, plays a dominant role in disseminating knowledge through circular economy solutions. This supports the design of environmentally friendly and environmentally friendly products (PD). The table shows that businesses in CKBJ no longer use hazardous substances in their product manufacturing and have achieved the highest level of circularity, R0 (Refuse). Regardless of the level of hierarchy, the most optimal circularity strategy is always specific to the conditions, and must be based on a broad approach that uses several strategies at once. In the case of CKBJ, almost all levels of circularity have been achieved, except R4 and R9.

Based on the research results, it was found that the most influential supporting factor in the implementation of a circular economy in CKBJ came from socio-institutional movements (SI), with a dominant role of 18 and 1 passive role. This means that all parties involved, including the community, business actors, and related agencies, play an active role in implementing circular economy solutions. Meanwhile, the most widely implemented circular economy activity in CKBJ is R1 (Rethink), where all industrial partners, including some of the community, have collectively implemented a circular economy through the use of multifunctional recycled products, the implementation of circularity strategies promoted by the government, and a fairly high exchange of knowledge about the circular economy. Then followed by R2 (Reduce), R3 (Reuse), and R8 (Recycle) or commonly known as the 3R strategy (Reduce-Reuse-Recycle), which means that the knowledge and implementation of circular economy solutions carried out by the community and business actors in CKBJ at a basic level have been implemented, but still need to be improved. One way to improve this is through the dominant use of other supporting factors, such as the addition of core technology (CT) such as computerized knitting machines and yarn unraveling machines for industry players, and the use of renewable energy for the community.

Furthermore, improving supporting technology (ET) through brand awareness regarding environmentally friendly industries also influences increasing the value of the circular economy. The use of other supporting factors such as product design (PD) and revenue models (RM) can be improved by adopting revenue models and other environmentally friendly product designs that are appropriate to the activities and conditions of the industry in CKBJ. There are also obstacles to the implementation of the circular economy in CKBJ, namely in terms of budget in the realization of circular economy solutions, which still needs to be improved, especially for waste management and transportation equipment, and human resources for waste collectors. This has resulted in the suboptimal role of waste managers. Furthermore, public awareness and collaboration between all parties regarding waste issues still need to be improved. The problem of minimal budget also affects the level of public knowledge and awareness. With socialization and government programs that can increase public awareness, adequate budget and human resources are needed for this. Furthermore, as a Creative Village, the challenge faced by CKBJ is the lack of investors offering full support. Investment provided by government agencies and state-owned enterprises (SOEs) takes the form of coaching, sponsorship, and strategic planning programs. These investors then play a role in developing CKBJ into a more advanced Creative Village in all aspects.

Building upon the initial shifts driven by refusal, rethinking, and socio-institutional change, CKBJ's circular economy efforts progress into more advanced stages that focus on deeper resource efficiency and value recovery. With hazardous substances eliminated, waste minimised, and community participation well established, the region is positioned

to implement higher levels of circularity across its production chain. These subsequent strategies, ranging from reducing material consumption to repurposing and recycling discarded products, reflect a more sophisticated integration of technology, product design, and innovative revenue models. In addition, there is also support from the Bandung City government in the form of programs to reduce waste, some of which are the Kang Pisman program and the waste decomposition program using maggots. Kang Pisman is a program launched by the Bandung City Government in 2018, it is short for Kurangi, Pisahkan, dan Manfaatkan (Reduce, Separate and Utilize). This program has been implemented at various waste disposal sites (TPS) and Environmental Services offices throughout Bandung City. The weaknesses of this study are limitations during the research: data that is not identified and analysed because it is tentative, so more respondents are needed, and the time span used must be specific so that the analysis can be carried out.

Conclusion

The circular economy affects the sustainability of Creative Kampong, as evidenced by the overlap between circular economy solutions and industrial sustainability research. The implementation of circular economy solutions in CKBJ has reached the highest level (R0 = Refuse), and the activities have fulfilled all levels except R4 (Repair) and R9 (Recover). The inability to meet requirements R4 and R9 is attributed to the nature of the industry, which is a knitting sector that generates no waste. The significant role of SI, along with other supporting factors such as ET, PD, and RM, enables Binong Jati to develop without harming the environment. The circular economy strategy that appears most in the conceptual framework and is often used is R1 (Rethink). **Overall, c**ircular economy solutions in **CKBJ** have been implemented by all parties involved, although the implementation of the strategy still needs improvement.

Furthermore, the circular economy has also impacted the sustainability of the Creative Village, as evidenced by the research component that overlaps circular economy solutions and industrial sustainability. Furthermore, the industry in CKBJ has also processed all its knitting waste into products with market value, so no waste is produced. Although the community has good knowledge of the circular economy, its awareness needs improvement. The study recommends using the incineration method at the Sarimukti Landfill and promoting the Kang Pisman programme (Reduce, Reuse, Recycle) to reduce waste accumulation in CKBJ and the burden on the landfill, or it can be reduced by making **eco bricks** for a more environmentally friendly way of processing waste.

Maggot cultivation programmes also need to be disseminated so that communities can process their own organic waste into maggot feed. In addition, from a technical perspective, it is necessary to add a schedule for urban waste collection and add a fleet of garbage trucks to reduce the volume of garbage that accumulates both in CKBJ and in Bandung City in general. It is hoped that these recommendations can be implemented in programs that will be prepared by planners and policy makers, and can also be carried out by the general public.

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References

Azapagic, A., & Perdan, S. (2000). Indicators of sustainable development for industry: A general framework. *Transactions of the Institution of Chemical Engineers*, Part B, *78*(3), 243–261.

Badan Pusat Statistik. (2023). *Kecamatan Batununggal Dalam Angka*.

Badan Pusat Statistik Kota Bandung. (2021, March 23). Produksi sampah menurut jenisnya di Kota Bandung, 2020. *Badan Pusat Statistik Kota Bandung*.

Becattini, G. (1990). From Marshall's to the Italian "industrial districts": A brief critical reconstruction. *European Planning Studies*, *15*(3), 329–338.

Bocken, N., & Short, S. (2016). Towards a sufficiency-driven business model: Experiences and opportunities. *Environmental Innovation and Societal Transitions*, *18*, 288–301.

Creswell, J. W. (2013). *Qualitative inquiry and research design: Choosing among five approaches*. Sage Publications.

Ellen Macarthur Foundation. (2015). *The circular economy | Definition & model explained*. Ellen MacArthur Foundation. Retrieved February 20, 2024, from https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview.

Frosch, R., & Gallopoulos, N. (1989). Sustainable Industry Community. *Scientific American*, *261*, 144–152. https://doi.org/10.1038/scientificamerican0989-144.

Fuenfschilling, L., & Truffer, B. (2013). The structuration of socio-technical regimes: Conceptual foundations from institutional theory. *Research Policy*, *42*(4), 856–870.

Ganzevles, J., Potting, J., & Hanemaaijer, A. (2017). *Evaluation of green deals for a circular economy*. PBL Publishers.

Geels, F. W. (2002). Technological transitions as evolutionary reconfiguration processes: A multi-level perspective and a case study. *Research Policy*, *31*(8-9), 1257–1274.

Linder, M., & Williander, M. (2015). Circular business model innovation: Inherent uncertainties. *Journal of Cleaner Production*, *102*, 1–7.

Pavel, S. (2018). Circular economy: The beauty of circularity in value chain. *Journal of Economics and Business*, *1*(4), 584–598. https://doi.org/10.31014/aior.1992.01.04.52.

Pemerintah Kota Bandung. (2022, September 21). *Lampiran Peraturan Daerah (Perda) Kota Bandung Nomor 5 Tahun 2022 tentang Rencana Tata Ruang Wilayah Kota Bandung*.

Potting, J., Hekkert, M., Worrell, E., & Hanemaaijer, A. (2017). *Circular economy: Measuring innovation in the product chain*. PBL Publishers.

Scerri, A., James, P., & Magee, L. (2015). Urban sustainability in theory and practice: Circles of sustainability. *Sustainability: Science, Practice and Policy*, *11*(1), 101–114.

Schoeder, P., Anggraeni, K., & Weber, U. (2018). The Relevance of Circular Economy Practices to the Sustainable Development Goals. *Journal of Industrial Ecology*, *23*(1), 77-95.

Sekretariat Pembangunan Rendah Karbon Indonesia. (2020). *7 Proyek Implementasi Pembangunan Rendah Karbon Indonesia*.

TPA Sarimukti “Overload”, pengolahan sampah Bandung Raya belum optimal. (2024, October 21). *Kompas.id*. https://www.kompas.id/baca/nusantara/2024/10/21/tpa-sarimukti-overload-pengolahan-sampah-bandung-raya-belum-optimal.

Undang-Undang Republik Indonesia Nomor 18 Tahun 2008 Tentang Pengelolaan Sampah. (2018).

Wysokinska, Z. (2016). The "New" Environmental Policy of The European Union: A Path to Development of a Circular Economy and Mitigation of The Negative Effects of Climate Change. *Comparative Economic Research*. *19*(3), 5-22.