

Development of a Circular Economy Action Plan Handbook as an Accelerate for Local Community Income Sources

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Abstract. This research aims to develop a guidebook focused on the circular economy action plan as an accelerator strategy for income generation for local communities. The circular economy action plan emphasizes sustainable economic concepts, focusing on reuse, recycling, and waste reduction. The development of a practical guidebook aims to assist in the implementation, raise public awareness, and analyze the social and economic impacts of the plan's application. Its objective is to provide comprehensive and sustainable guidelines for business actors, local governments, and local communities to adopt circular economy principles as a means to enhance local welfare and income. The results of this research are expected to offer practical and strategic guidance that can serve as an acceleration tool for active involvement from various parties, creating broad support and ensuring the successful implementation of the circular economy action plan at the local level, synergizing with the community towards sustainable income and improved local economic welfare.

Keywords: circular economy, community income, local economy.

1 Introduction

The circular economy, in the context of environmental views, focuses on sustainability issues involving resource input, waste, and emission outputs, considering issues of resource scarcity, environmental impact, and economic benefits. The perspective of resource optimization related to cleaner production, it enhances the value of the technical and biological cycles of materials through circular-based strategies. Essentially, the concept of a circular economy emphasizes the importance of reusing, repairing, remanufacturing, and recycling products, materials, and components [1]. The circular economy can be defined as an action plan or strategy emphasizing sustainable resource use, recycling, and waste reduction. The circular economy is an economic system approach designed to be restorative and regenerative, demonstrating that increasing

resource efficiency and reducing waste throughout the lifecycle of produced goods is an unexplored economic opportunity with potential for economic growth.

This action plan typically includes a series of policies, initiatives, and practical steps that can be taken by governments, companies, and communities to transform consumption and production patterns into more sustainable ones. This may involve the development of recycling infrastructure, incentives for companies to adopt recycling practices and use recycled materials, as well as public education and awareness. The circular economy can encompass aspects such as waste reduction, resource efficiency, use of recycled materials and supporting innovation focused on product life cycles. The goal is to create a more sustainable economic system, reduce environmental impact, and enhance overall resource use efficiency [2].

The concept of the circular economy is increasingly being applied and becoming a government policy project, but there remains a significant gap in understanding and implementing the concept. Many implementations of the circular economy still adopt a top-down approach, from the government to the community [3]. As a result, the circular economy is often only understood and becomes a subject of discourse among policymakers. Additionally, the understanding of the circular economy is often limited to relatively superficial issues, such as leadership, energy savings, increased awareness, and social behavior changes, rather than focusing on aspects of production processes and closed-loop commodity systems [4].

2 Methods

This study employs a qualitative research method. The qualitative research referred to is descriptive in nature, does not use numerical data, and is described in terms of speech, writing, and observations. The stages of this research are designed to facilitate the in-depth and multifaceted collection of data, starting with an extensive literature review [5]. The initial stage of the research involves a comprehensive literature review to gain a strong understanding of the theories and practices related to the concept of the circular economy, resource efficiency measurement, sustainable development, and the implementation of community economic empowerment. This review aims to identify research gaps while defining the relevant variables and constructs to be measured in the study.

3 Results and Discussions

The developed guidebook includes materials on waste management, raw material reuse, energy efficiency, and sustainable marketing strategies. Implementing circular economy principles helped them open new markets and increase average income by 15% in the first six months for the local community through production efficiency and reduced operational costs. The development of the Circular Economy Action Plan guidebook has proven effective in boosting local community income by utilizing circular economy principles, the local community can reduce waste, improve resource efficiency, and create more sustainable products [6]. Additionally, the knowledge gained through this guidebook also opens opportunities for broader market penetration.

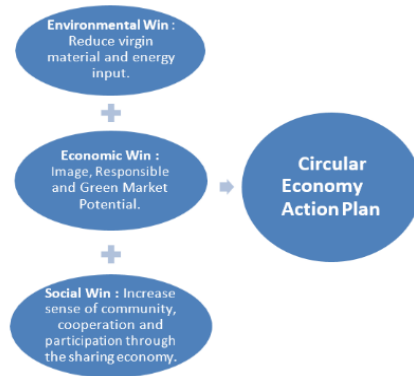


Fig. 1. Core values of circular economy action plan

The success of this research demonstrates that a participatory approach in the development of business tools is crucial to ensuring relevance and acceptance among users. This guidebook not only provides practical solutions but also educates the local community about the importance of sustainable business practices.

3.1 Effectiveness of the Handbook in Increasing Income

The research findings show that the use of the circular economy action plan guidebook has a significantly positive impact on increasing the income of the local community. Implementing this handbook successfully reduced operational costs through practices such as reusing raw materials and reducing waste. This increase in efficiency not only lowers production costs but also boosts profit margins [7].

3.2 Changes in Mindset and Business Practices

One of the key findings of this research is the change in the local community's mindset regarding resource and waste management. Before the intervention, many locals were unaware of the importance of sustainable business practices and tended to dispose of waste without considering its potential for reuse [8]. Through this guidebook, the local community gained a deep understanding of circular economy principles, encouraging them to view waste as a valuable resource. This change is evident in the implementation of strategies such as upcycling, where waste products are transformed into high-value items that can be resold [9]. For example, some local community members began making crafts from used or leftover materials, successfully attracting new market interest and increasing their income sources. Although the guidebook is effective, the research also identifies several challenges faced by the local community in applying circular economy principles. These challenges include:

- a) **Lack of Infrastructure and Facilities:** Some locals complain about the lack of facilities for recycling waste or reprocessing raw materials.

- b) Limited Capital: Implementing circular economy practices often requires initial investments, such as purchasing equipment for recycling or improving energy efficiency.
- c) Market Access: Locals producing products from recycled materials sometimes face difficulties in marketing them due to a lack of consumer awareness about the value and benefits of these products.

To overcome these challenges, the research recommends further support from the government and related institutions, in the form of supportive policies as well as financial and technical assistance.

3.3 Social and Environmental Impact

Besides economic impacts, the implementation of the circular economy action plan guidebook also provides significant social and environmental benefits. Reducing waste and reusing raw materials contribute to lowering the environmental impact of local community activities [10]. Moreover, sustainable business practices create environmental awareness among locals and the community, potentially inspiring similar actions among the broader population. On the social aspect, increasing the income of the local community through circular economy practices contributes to improving their welfare and that of their families. With higher income, locals can enhance their quality of life, including access to education, healthcare, and other basic needs [11].

The homogeneity test results show a Levene's Test significance value of 0.442, which is greater than 0.05. This indicates that the variance of data between the pretest and posttest groups is homogeneous. This meets the assumption of homogeneity for further analysis.

Table 1. Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Circular economy	Based on Mean	,608	1	28	,442
	Based on Median	,558	1	28	,461
	Based on Median and with adjusted df	,558	1	27,579	,461
	Based on trimmed mean	,645	1	28	,429

	Class	N	Mean	Std. Deviation	Std. Error Mean
Circular economy	pretest	15	43,40	3,562	,920
	posttest	15	36,40	2,874	,742

Table 2. Normality test

Pretest score		
N		30
Normal Parameters ^{a,b}	Mean	33,63
	Std. Deviation	3,577

Most Extreme Differences	Absolute	,236
	Positive	,236
	Negative	-,156
Test Statistic		,236
Asymp. Sig. (2-tailed)		,000 ^c

- a. Test distribution is normal.
- b. Calculated from data.
- c. Lilliefors significance correction.

Posttest score		
N		30
Normal Parameters ^{a,b}	Mean	43,87
	Std. Deviation	2,738
Most Extreme Differences	Absolute	,139
	Positive	,139
	Negative	-,109
Test Statistic		,139
Asymp. Sig. (2-tailed)		,141 ^c

- a. Test distribution is normal.
- b. Calculated from data.
- c. Lilliefors significance correction.

There is a significant difference between the circular economy scores in the pretest and posttest measurements. The circular economy score in the posttest is significantly lower compared to the pretest, with an average difference of 7 points. The intervention through the guidebook provides a substantial positive impact, with a decrease in the average score of 7 points, indicating an increase in participants' knowledge and awareness. The intervention or treatment given (training or education) successfully increased the circular economy score significantly from pretest to posttest.

Table 3. Independent T test

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Circular economy	Equal variances assumed	,608	,442	5,924	28	,000	7,000	1,182	4,580	9,420
	Equal variances not assumed			5,924	26,802	,000	7,000	1,182	4,575	9,425

The circular economy action plan has proven to be an effective tool in improving the income of the local community by promoting sustainable business practices. Implementing circular economy principles such as waste management, raw material reuse, and energy efficiency, the community reduced operational costs, enhanced production efficiency, and achieved a 15% increase in income within six months. This shift in mindset towards resource efficiency has led to the creation of sustainable products and new market opportunities. However, challenges such as limited infrastructure, capital, and market access persist, underscoring the need for government support. In addition to economic benefits, the guidebook also positively impacts the environment by reducing waste and fostering environmental awareness within the community, contributing to social and environmental improvements as well.

4 Conclusion

The circular economy action plan serves as a practical tool that not only drives economic growth but also fosters environmental consciousness and improves social welfare. Its success highlights the importance of participatory approaches in developing tools that are both effective and widely accepted by the community. For continued progress, addressing the existing challenges and providing further support will be key to ensuring that these gains are sustainable and can be replicated in other communities. By educating the local community about sustainable methods, it helps to instill a long-term mindset of environmental stewardship. This change is seen in the local community's newfound focus on upcycling, where previously discarded materials are now used to create valuable products. As a result, locals have tapped into new market segments, demonstrating that circular economy principles can lead to innovation and diversification in business practices.

The study identifies key challenges in scaling these efforts. Limited infrastructure for recycling, the need for capital investment in more efficient technologies, and consumer awareness about the value of recycled goods remain obstacles. Addressing these issues will require continued collaboration between the community, local authorities, and support organizations. Financial and technical assistance can help bridge the gap and ensure that circular economy practices become more widespread and ingrained in the community's economic model.

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of this research can promote sustainable and community-oriented local economic development.

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