Evaluation of 'Ciro Waste' Waste Management System Based on an Application in the Context of SDG 11.6 in Balikpapan City

Introduction Effective and sustainable waste management is a crucial priority for achieving the Sustainable Development Goals (SDGs), particularly target 11.6, which focuses on reducing the negative environmental impact of cities. Balikpapan City, with a daily waste volume of 390.65 tons in 2021 (Utami et al., 2023), faces significant challenges in waste management. The "Ciro Waste" application has emerged as a technological solution that integrates a circular economy approach to address this issue. This research aims to evaluate the effectiveness of the "Ciro Waste" application in the context of achieving SDG 11.6 targets in Balikpapan City.

Methodology Research Design: This study employs a qualitative approach with a case study design to explore the implementation and impact of the "Ciro Waste" application. Data are collected through observation techniques and in-depth interviews with various stakeholders, including application managers, government representatives, application users, and private sector actors.

Data Collection Techniques:

1. **Observation**: This technique is used to collect data related to activities and conditions associated with the implementation of the "Ciro Waste" application. Direct observation is conducted to understand the waste management process involving this application.
2. **Interviews**: Semi-structured interviews are conducted to capture opinions, feelings, and experiences of respondents regarding the use of the "Ciro Waste" application. Research respondents include Ciro Waste managers, local government officials, application users, and private sector actors.

Data Analysis The data obtained are analyzed using thematic analysis. This analysis involves identifying key themes that emerge from interview and observation data, which are then used to evaluate the effectiveness of the "Ciro Waste" application in the waste management context in Balikpapan City.

Findings and Discussion Effectiveness of the Ciro Waste Application in Waste Management The Ciro Waste application plays a crucial role in facilitating more efficient and integrated waste management. It allows communities to easily separate, collect, and process their waste. Key features of the application, such as CIROES and CISTORE, support the collection of sorted waste and integrate waste management systems into a single platform.

1. **Impact on Society**
   - The use of this application helps raise awareness among the public about the importance of proper waste management.
   - Education through the application also encourages active participation by the community in waste separation and recycling. This aligns with the principles of reduce, reuse, and recycle (3R) that underpin the circular economy approach.

2. **Impact on Government and Private Sector**
   o The Balikpapan City government provides policy and regulatory support for the application's use. This includes providing necessary infrastructure and promoting application usage among the public.
   o On the other hand, the private sector offers technical support and investment for application development and maintenance.

Implementation Challenges Although the Ciro Waste application has shown great potential, several challenges need to be addressed:

1. **Community Habits**: Changing community habits regarding waste separation and management requires significant time and effort.
2. **Infrastructure Limitations**: Suboptimal waste management infrastructure can hinder the effectiveness of the application.
3. **Full Application Implementation**: Achieving comprehensive application implementation across all areas of Balikpapan City requires further support from various stakeholders.

Proposed Solutions The evaluation results suggest several solutions that can be implemented to address these challenges:

1. **Enhanced Education and Awareness**:
   o Strengthen educational programs and raise awareness among the public about the benefits and proper usage of the "Ciro Waste" application.
2. **Infrastructure Improvement**:
   o Develop and reinforce waste management infrastructure to support more efficient application services.
3. **Enhanced Collaboration**:
   o Improve coordination and collaboration among the government, private sector, and community to overcome waste management challenges.
4. **Application Feature Development**:
   o Expand the application's features to enhance usability and benefits for users.

Conclusion This research demonstrates that the Ciro Waste application significantly contributes to promoting efficient and sustainable waste management in Balikpapan City. Active engagement from the government, private sector, and community is crucial in supporting and optimizing the application's use. By continuing to evaluate and improve, the Ciro Waste application can effectively contribute to achieving SDG 11.6 targets and enhancing waste management sustainability in Balikpapan City.

References

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- Fatmawati et al. (2022). Collaborative Study in Application-Based Waste Management.
- Marín-González et al. (2022). Cross-Sector Collaboration in Sustainable Waste Management.