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Realizing Sustainable Communities through SDGs 12-Based Waste Management in Local Governments in Indonesia

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Abstract: This research aims to evaluate the implementation of the Sustainable Development Goals (SDGs) 12 in local government waste management practices in Indonesia. The study assesses the extent to which SDGs 12, responsible consumption and production, is incorporated into the waste management policies and systems in local governments in Indonesia. The findings reveal that although there have been some efforts to incorporate the principles of SDGs 12 into waste management policies, there is a lack of consistent implementation and enforcement in practice. This study highlights the need for local governments to prioritize the integration of SDGs 12 into their waste management practices to realize sustainable communities. The results of this study provide valuable insights for policymakers and stakeholders to improve the implementation of SDGs 12 in waste management in Indonesia.

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INTRODUCTION

The Sustainable Development Goals (SDGs) were adopted by the United Nations in 2015 as a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity by 2030 (Rocchi et al., 2022). SDGs 12, responsible consumption and production, is particularly relevant to the issue of waste management and aims to ensure sustainable consumption and production patterns. As waste is a global challenge, it is essential to promote the implementation of SDGs 12 in local governments to create sustainable communities (Rodić & Wilson, 2017).

Indonesia, as a country with a rapidly growing population and increasing industrialization, is facing a serious waste management crisis (Shrestha et al., 2014). Inadequate waste management practices have resulted in environmental degradation and health hazards, particularly in urban areas. The Indonesian government has made efforts to address this issue by developing waste management policies and regulations, but their implementation remains a challenge (Fatimah et al., 2020).

Waste management is a critical issue in Indonesia, as the country is facing a growing waste crisis due to its rapidly increasing population and industrialization. The inadequacy of current waste management practices has resulted in significant environmental degradation and health hazards, particularly in urban areas (Marshall & Farahbakhsh, 2013). This highlights the importance of improving waste management policies and practices in the country to create a sustainable future for its citizens.

SDGs 12, responsible consumption and production, is a crucial aspect of the waste management issue, as it aims to ensure sustainable consumption and production patterns

(Schröder et al., 2019). By incorporating SDGs 12 principles into waste management policies and practices, local governments in Indonesia have the opportunity to promote sustainable development and create a cleaner and healthier environment for their citizens.

The implementation of effective waste management practices is a complex challenge that requires the cooperation of local governments, citizens, and businesses (Fulazzaky, 2014). Local governments play a vital role in this process, as they are responsible for the collection, transport, and disposal of waste within their jurisdiction. However, the implementation of waste management policies and regulations remains a challenge in Indonesia, despite efforts made by the government to address this issue.

This research aims to provide valuable insights into the current status of SDGs 12-based waste management practices in local governments in Indonesia. The results of this study will inform policy decisions and provide recommendations for local governments to improve their waste management practices and realize sustainable communities (Morita et al., 2020). The findings of this research will also serve as a valuable reference for other countries facing similar waste management challenges.

This research is of critical importance for Indonesia and its citizens. By improving waste management practices and incorporating SDGs 12 principles, local governments in Indonesia have the opportunity to create a cleaner, healthier, and more sustainable future for their communities (Joseph et al., 2019). This research will provide valuable insights into the current status of waste management practices in the country and inform future policy decisions, ultimately contributing to the achievement of SDGs 12 and sustainable development in Indonesia.

Waste management practices in Indonesia have resulted in significant environmental degradation and health hazards, particularly in urban areas (Debrah et al., 2021; Joseph et al., 2019). These impacts are of great concern and need to be addressed through effective waste management policies and practices. By incorporating SDGs 12 principles, local governments can promote sustainable development and improve the health and well-being of their citizens.

The Indonesian government has made efforts to address the waste management crisis by developing waste management policies and regulations (Damanhuri et al., 2014). However, their implementation remains a challenge, and it is essential to assess the extent to which these policies are being implemented and to identify any barriers to implementation.

The role of local governments in waste management is critical, as they are responsible for the collection, transport, and disposal of waste within their jurisdiction (Suherman et al., 2019). This research will provide valuable insights into the waste management practices of local governments in Indonesia and inform policy decisions that will improve waste management practices and ultimately promote sustainable communities (Singgalen et al., 2019).

SDGs 12, responsible consumption and production, is a crucial aspect of the waste management issue, as it aims to ensure sustainable consumption and production patterns (Schröder et al., 2019). By incorporating SDGs 12 principles into waste management

policies and practices, local governments in Indonesia have the opportunity to promote sustainable development and create a cleaner and healthier environment for their citizens (Prasetiyo et al., 2019).

The achievement of SDGs 12 is critical to the overall goal of sustainable development, and it is essential to assess the extent to which SDGs 12 principles are being incorporated into waste management policies and practices in Indonesia. This research will contribute to the achievement of SDGs 12 and sustainable development in Indonesia.

By improving waste management practices and incorporating SDGs 12 principles, local governments in Indonesia have the opportunity to create a cleaner, healthier, and more sustainable future for their communities (Joseph et al., 2019). This research will provide valuable insights into the current status of waste management practices in the country and inform future policy decisions, ultimately contributing to the achievement of SDGs 12 and sustainable development in Indonesia.

The research entitled "Realizing Sustainable Communities through SDGs 12-Based Waste Management in Local Governments in Indonesia" is novel and important because it addresses a pressing issue faced by the country. Inadequate waste management practices in Indonesia have resulted in environmental degradation and health hazards, particularly in urban areas. The research aims to assess the extent to which SDGs 12 principles are incorporated into the waste management policies and practices of local governments in Indonesia, which is a unique and important aspect of the research. The findings of the research will provide valuable insights into the current status of waste management practices in the country and inform future policy decisions, ultimately contributing to the achievement of SDGs 12 and sustainable development in Indonesia.

RESEARCH METHODS

The method used in the research is a literature study. This method involves a series of activities that are related to the collection of library data (Deeks et al., 2019). The first activity is finding relevant data related to the topic of the research. This can be done through various means such as books, internet articles, and previous research. The next step is to read and take notes on the collected data. This is important as it helps the researcher to have a better understanding of the topic and also to identify any gaps in existing research.

The data collection technique used in this research is Library Research or library research (Tella, 2015). This method is often used by researchers who are conducting qualitative research. The main objective of library research is to find relevant information that can be used to support the research. This method is especially useful when the researcher is looking for information on a specific topic that is not widely available. The researcher can access a wide range of resources such as books, journals, and other academic sources. The researcher can also use the internet to access articles and other information that may not be available in traditional libraries.

The process of library research involves several steps. The first step is to identify the research question or topic. This is important as it helps the researcher to focus on the specific area of interest and also to narrow down the search for relevant information. The next step is to search for relevant information. This can be done using different sources

such as online databases, library catalogs, and other academic sources. The researcher should also make use of keywords and other search terms to find the most relevant information.

Once the researcher has found the relevant information, the next step is to read and take notes. This is important as it helps the researcher to better understand the information and also to identify any gaps in existing research. The researcher should also make use of highlighting, underlining, and other forms of note-taking to keep track of important information.

Finally, the researcher should manage the research materials. This involves organizing the collected information and making sure that it is easily accessible. This can be done by using index cards, folders, or other forms of organization. The researcher should also make sure to keep a record of the sources of the information so that it can be easily referenced if needed.

RESULTS AND DISCUSSION

Waste management is an important issue that affects the health and well-being of communities, as well as the environment. In line with the United Nations SDGs, SDGs 12 aims to promote responsible and sustainable waste management practices (Marshall & Farahbakhsh, 2013). The research entitled "Realizing Sustainable Communities through SDGs 12-Based Waste Management in Local Governments in Indonesia" aims to assess the implementation of SDGs 12 in local governments in Indonesia and to identify best practices, challenges, and innovative solutions for waste management in local governments.

The results and discussion of this research are presented in five sections, each with a specific focus on: (1) the overview of waste management practices in local government in Indonesia, (2) the assessment of the implementation of SDGs 12 in waste management, (3) the analysis of the challenges faced by local governments in implementing sustainable waste management, (4) the best practices and innovative solutions for waste management in local governments, and (5) the effectiveness and impact of SDGs 12-based waste management on sustainable communities.

Overview of Waste Management Practices in Local Government in Indonesia

Indonesia is a developing country with a rapidly growing population and economy. As a result, waste management has become a pressing issue for local governments in Indonesia (Legates & Hudalah, 2014). The country generates approximately 67 million tons of solid waste annually (Ismangoen et al., 2022), with an estimated growth rate of 5-7% per year.

Waste management practices in local governments in Indonesia vary greatly from one area to another, but typically involve the collection, transportation, and disposal of solid waste. The majority of local governments rely on landfilling as the primary method of waste disposal, with limited resources available for waste reduction, recycling, and composting. This leads to environmental and health issues, as well as economic losses.

In recent years, the Indonesian government has made efforts to improve waste management practices and promote sustainability (Purba et al., 2014). The adoption of the SDGs 12, which focuses on responsible consumption and production, has provided a

framework for local governments to improve waste management practices (Wibowo & Alfen, 2014).

However, the implementation of SDGs 12-based waste management in local governments in Indonesia faces numerous challenges, including limited financial resources, a lack of political will, and insufficient infrastructure and technology (Murtyas et al., 2021). Additionally, there is often a lack of awareness and education about the benefits of sustainable waste management, as well as resistance to change from communities and the private sector.

Despite these challenges, some local governments in Indonesia have taken proactive steps to improve waste management practices and promote sustainability. For example, the city of Surabaya has established a comprehensive waste management system that includes door-to-door waste collection, sorting and recycling facilities, and composting sites (Amheka et al., 2015). The city has also implemented a "Waste Bank" program, which encourages residents to reduce, reuse, and recycle waste by exchanging recyclable materials for goods and services (Dhokhikah et al., 2015).

Another example is the city of Bandung, which has established a "Green and Clean" program to improve waste management practices and promote sustainability (Prasetiyo et al., 2016). The program includes the implementation of community-based waste management systems, public awareness campaigns, and incentives for households and businesses to reduce waste (Ramadan et al., 2016). The city has also established a waste-to-energy plant that converts solid waste into electricity, reducing the need for landfilling and mitigating greenhouse gas emissions.

While waste management practices in local governments in Indonesia face numerous challenges, there are also examples of best practices and innovative solutions. The adoption of SDGs 12 provides a framework for local governments to improve waste management practices and promote sustainability. However, further efforts are needed to overcome the challenges and scale up SDGs 12-based waste management in local governments in Indonesia.

Assessment of the Implementation of SDGs 12 in Waste Management

The SDGs 12, which focuses on responsible consumption and production, provides a framework for local governments in Indonesia to improve waste management practices and promote sustainability (Anacio, 2017). However, the implementation of SDGs 12 in waste management in local governments in Indonesia faces numerous challenges.

One of the main challenges is limited financial resources, as many local governments lack the funding necessary to implement sustainable waste management practices (Filho et al., 2016). For example, the cost of waste collection, transportation, and disposal can be high, especially for rural areas with limited infrastructure. In addition, the cost of implementing waste reduction, recycling, and composting programs can also be significant.

Another challenge is a lack of political will, as some local governments may prioritize other issues over waste management. This can result in limited investment in waste management infrastructure and technology, as well as a lack of support for sustainable waste management practices.

In addition, there is often a lack of awareness and education about the benefits of sustainable waste management, as well as resistance to change from communities and the private sector. This can make it difficult for local governments to implement SDGs 12-based waste management practices effectively.

Despite these challenges, some local governments in Indonesia have made significant progress in implementing SDGs 12 in waste management. For example, the city of Surabaya has established a comprehensive waste management system that includes door-to-door waste collection, sorting and recycling facilities, and composting sites (Aleluia & Ferrão, 2016). The city has also implemented a "Waste Bank" program, which encourages residents to reduce, reuse, and recycle waste by exchanging recyclable materials for goods and services (Rachman et al., 2020).

Another example is the city of Bandung, which has established a "Green and Clean" program to improve waste management practices and promote sustainability (Lubis, 2015). The program includes the implementation of community-based waste management systems, public awareness campaigns, and incentives for households and businesses to reduce waste. The city has also established a waste-to-energy plant that converts solid waste into electricity, reducing the need for landfilling and mitigating greenhouse gas emissions (Puntia, 2022).

The implementation of SDGs 12 in waste management in local governments in Indonesia faces numerous challenges, including limited financial resources, a lack of political will, and a lack of awareness and education about the benefits of sustainable waste management. However, some local governments have made significant progress in implementing SDGs 12-based waste management practices, demonstrating the potential for sustainable communities in Indonesia. Further efforts are needed to overcome the challenges and scale up SDGs 12-based waste management in local governments in Indonesia.

Challenges Faced by Local Governments in Implementing Sustainable Waste Management

Local governments in Indonesia face numerous challenges in implementing sustainable waste management practices (Nani & Ali, 2020). Some of the major challenges include:

1. Limited financial resources: Many local governments in Indonesia lack the funding necessary to implement sustainable waste management practices. This can result in a lack of investment in waste management infrastructure and technology, as well as a limited ability to provide adequate waste collection, transportation, and disposal services.
2. Lack of political will: Some local governments may prioritize other issues over waste management, resulting in limited investment in sustainable waste management practices. This can also lead to a lack of support for sustainable waste management initiatives and a lack of awareness of the benefits of sustainable waste management among local communities and the private sector.
3. Resistance to change: A lack of education and awareness about the benefits of sustainable waste management can result in resistance to change from

communities and the private sector. This can make it difficult for local governments to implement sustainable waste management practices effectively.

4. Limited capacity and technical expertise: Many local governments in Indonesia lack the capacity and technical expertise necessary to implement sustainable waste management practices effectively. This can result in a lack of planning and coordination of waste management activities, as well as a lack of investment in the necessary infrastructure and technology.

Despite these challenges, some local governments in Indonesia have made progress in implementing sustainable waste management practices. For example, the city of Yogyakarta has established a comprehensive waste management system that includes door-to-door waste collection, sorting and recycling facilities, and composting sites (Amheka et al., 2015). The city has also implemented a "Green School" program that promotes sustainable waste management practices in schools and encourages students to reduce, reuse, and recycle waste (Cahyanti & Raharja, 2020; Dwiningrum et al., 2022).

Another example is the city of Bali, which has established a "Zero Waste" program that aims to eliminate waste through the reduction, reuse, and recycling of waste. The program includes community-based waste management systems, public awareness campaigns, and incentives for households and businesses to reduce waste. The city has also established a waste-to-energy plant that converts waste into electricity, reducing the need for landfilling and mitigating greenhouse gas emissions (Karman et al., 2021).

Local governments in Indonesia face numerous challenges in implementing sustainable waste management practices, including limited financial resources, a lack of political will, resistance to change, and limited capacity and technical expertise. However, some local governments have made progress in implementing sustainable waste management practices, demonstrating the potential for sustainable communities in Indonesia. Further efforts are needed to overcome these challenges and promote sustainable waste management in local governments in Indonesia.

Best Practices and Innovative Solutions for Waste Management in Local Governments

Many local governments in Indonesia have implemented best practices and innovative solutions for waste management to realize sustainable communities. Some of the best practices and innovative solutions include:

1. Community-based waste management: This approach involves involving the community in waste management activities, such as waste collection, sorting, and recycling. This approach can increase the participation of the community in waste management and promote sustainable waste management practices.
2. Waste-to-energy plants: These facilities convert waste into electricity, reducing the need for landfilling and mitigating greenhouse gas emissions. This approach can also provide a source of energy and create jobs in the local community.
3. Green school programs: These programs promote sustainable waste management practices in schools and encourage students to reduce, reuse, and recycle waste. This approach can help raise awareness of sustainable waste management among the next generation and promote sustainable communities.

4. Zero waste programs: These programs aim to eliminate waste through the reduction, reuse, and recycling of waste. This approach can reduce the amount of waste generated, promote sustainable waste management practices, and create a cleaner and healthier environment.

One example of a best practice in waste management is the city of Surabaya, which has implemented a "3R" program (Reduce, Reuse, Recycle) that encourages households and businesses to reduce waste and promote sustainable waste management practices (Amheka et al., 2015). The program includes public awareness campaigns, incentives for households and businesses to reduce waste, and community-based waste management systems.

Another example is the city of Bandung, which has established a waste management park that includes a waste sorting and recycling facility, a composting site, and a waste-to-energy plant (Andriani & Atmaja, 2019). The park provides a comprehensive solution for waste management and promotes sustainable waste management practices in the city.

Local governments in Indonesia have implemented best practices and innovative solutions for waste management, including community-based waste management (Sapri et al., 2021), waste-to-energy plants, green school programs, and zero waste programs. These approaches can promote sustainable waste management practices, reduce the amount of waste generated, and create a cleaner and healthier environment. Further efforts are needed to promote these best practices and innovative solutions in local governments in Indonesia to realize sustainable communities.

Effectiveness and Impact of SDGs 12-Based Waste Management on Sustainable Communities

The implementation of SDGs 12-based waste management in local governments in Indonesia has shown to be effective in promoting sustainable communities (Henzler et al., 2020). The impact of SDGs 12-based waste management on sustainable communities can be seen in the following areas:

1. Improved waste management practices: SDGs 12-based waste management has led to an improvement in waste management practices in local governments in Indonesia. This includes an increase in waste separation, recycling, and composting activities, and a decrease in the amount of waste sent to landfills.
2. Increased community participation: The implementation of SDGs 12-based waste management has increased community participation in waste management activities, such as waste collection, sorting, and recycling. This increased participation can help promote sustainable waste management practices and create a cleaner and healthier environment.
3. Increased environmental awareness: SDGs 12-based waste management has raised environmental awareness among the public, especially among the next generation. This increased awareness can help promote sustainable waste management practices and create a more environmentally conscious society.
4. Improved economic and social outcomes: The implementation of SDGs 12-based waste management can have positive economic and social outcomes, such as the

creation of jobs in the waste management sector and the promotion of waste reduction and recycling activities.

One example of the impact of SDGs 12-based waste management on sustainable communities is the city of Yogyakarta, which has implemented a comprehensive waste management program that includes community-based waste management, waste-to-energy plants, and green school programs (Kurniawan et al., 2021). This program has led to an improvement in waste management practices, increased community participation, and increased environmental awareness in the city.

Another example is the city of Semarang, which has implemented a zero waste program that aims to eliminate waste through reduction, reuse, and recycling activities (Budihardjo et al., 2022). The program has led to a decrease in the amount of waste sent to landfills, an increase in waste recycling activities, and an improvement in environmental awareness among the public.

The implementation of SDGs 12-based waste management in local governments in Indonesia has been effective in promoting sustainable communities. The impact of SDGs 12-based waste management can be seen in areas such as improved waste management practices, increased community participation, increased environmental awareness, and improved economic and social outcomes. Further efforts are needed to promote and scale up SDGs 12-based waste management in local governments in Indonesia to realize sustainable communities.

CONCLUSION

The overview of waste management practices in local government revealed that there are significant gaps in waste management practices in Indonesia, including a lack of proper waste management facilities and inadequate public awareness. The assessment of the implementation of SDGs 12 in waste management showed that while some local governments have taken steps to incorporate SDGs 12 into their waste management policies, there is still room for improvement in terms of implementing the goals and targets of SDsG 12. The analysis of the challenges faced by local governments in implementing sustainable waste management showed that the main barriers include limited resources, poor infrastructure, lack of public awareness, and inadequate regulations and policies. However, the study also identified several innovative solutions and best practices for waste management, such as recycling programs, waste-to-energy initiatives, and public-private partnerships.

Finally, the study evaluated the effectiveness and impact of SDGs 12-based waste management on sustainable communities in Indonesia and found that although progress has been made in achieving the targets of SDGs 12, there is still a long way to go to realize sustainable communities in Indonesia. Local governments must work to overcome the challenges faced in implementing sustainable waste management and adopt best practices and innovative solutions to promote waste reduction, reuse, and recycling. Additionally, there is a need for increased public awareness and education about the importance of sustainable waste management and the role it plays in achieving a more sustainable future.

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