# Assessing Public Awareness of Circular Economy in Indonesia: Insights from Google Trends Data

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## *Abstract*

*This study aims to understand public interest and awareness of the circular economy in Indonesia by analyzing Google Trends search volumes for keywords over the past five years, from 2017 to 2022: "Waste Recycling," "Circular Economy," "Waste Management," and "Waste Reduction." Data analysis shows that "Waste Recycling" consistently has the highest and most stable search volume, especially in regions such as South Sulawesi, North Kalimantan, and West Sulawesi, indicating successful local campaigns. In contrast, "Circular Economy" has significantly lower search volumes, even in metropolitan areas, suggesting that this concept is relatively new. Interest in "Waste Management" varies, with higher volumes in South East Sulawesi, East Nusa Tenggara, and Central Sulawesi, highlighting the importance of waste management but also the need for better policy and infrastructure support. "Waste Reduction" has the lowest search volume, indicating the need for intensive educational efforts. Geographical analysis shows significant regional differences, with high-interest areas serving as education centers and low-interest areas needing targeted interventions. This study underscores the necessity for robust educational campaigns, supportive policies, and stakeholder collaboration to enhance the adoption of circular economy practices. These insights inform policy development and the design of effective educational campaigns for environmental sustainability in Indonesia.*

| **Keywords** | Circular Economy, Public Awareness, Waste Management, Waste Recycling. |
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## INTRODUCTION

Currently, Indonesia is facing various urgent environmental issues. One of them is the problem of waste and waste management (Cahyaningsih et al., 2022). According to the Ministry of Environment and Forestry, in 2020, Indonesia produced approximately 67.8 million tons of waste per year, with only a small portion being recycled or sustainably processed. Most of the waste ends up in poorly managed landfills, leading to soil and water pollution as well as greenhouse gas emissions (Katadata, 2021).

Additionally, deforestation and forest degradation continue to be major problems in Indonesia (Cahyaningsih et al., 2022). According to a report from Global Forest Watch, Indonesia lost about 9.75 million hectares of tree cover between 2002 and 2020. This deforestation is largely due to the expansion of palm oil plantations and illegal activities such as logging. The loss of forests not only impacts biodiversity but also contributes to carbon emissions, worsening global climate change (Global Forest Watch, 2022).

The circular economy is an approach that can offer solutions to address the various environmental issues faced by Indonesia (Fatimah, Govindan, Murningsih, & Setiawan, 2020). Unlike the traditional linear economy model of "take-make-dispose," the circular economy emphasizes waste reduction and the reuse of resources. In a circular economy, products are designed to last longer, be repairable, and recyclable at the end of their life cycle (Kirchherr, Yang, Schulze-Spüntrup, Heerink, & Hartley, 2023).

The implementation of a circular economy in Indonesia can bring various benefits, including reducing waste and pollution. By improving recycling practices and waste management, the amount of waste ending up in landfills can be significantly reduced (Kurniawan et al., 2021). According to a study, the adoption of a circular economy can reduce global carbon emissions by up to 39% (Hailemariam & Erdiaw-Kwasie, 2023). Another benefit is the conservation of natural resources. The circular economy allows for more efficient and sustainable use of resources. For example, recycling construction materials can reduce the need for new raw materials and lessen the pressure on ecosystems (Ciliberto, Szopik-Depczyńska, Tarczyńska-Łuniewska, Ruggieri, & Ioppolo, 2021).

Additional benefits include promoting innovation and job creation. The implementation of a circular economy can create new business opportunities and jobs in recycling, repair, and sustainable product design (Mohajan, 2020). According to a report from the International Labour Organization (ILO), the transition to a circular economy could create millions of new jobs globally by 2030 (International Labour Organization, 2023). Furthermore, another benefit of the circular economy is enhancing economic resilience. By reducing dependence on imported raw materials and increasing the utilization of local resources, the circular economy can strengthen economic resilience and reduce vulnerability to global price fluctuations (Lee & Cha, 2020).

Several countries have demonstrated success in implementing a circular economy. For example, the Netherlands has a national strategy for a circular economy aiming to achieve zero waste by 2050 (Mazur-Wierzbicka, 2021). Meanwhile, in Japan, the circular economy approach has been implemented through the "Mottainai" program, which promotes waste reduction and the reuse of goods (Herrador, de Jong, Nasu, & Granrath, 2023). Indonesia has also taken initial steps towards a circular economy. For instance, Jakarta has implemented a community-based waste management program aimed at increasing recycling rates in the city (Aprilia, 2021). Additionally, several private companies in Indonesia have initiated plastic bottle recycling programs involving various stakeholders

Facing complex environmental challenges, the implementation of a circular economy in Indonesia is not just an option but an urgent necessity for achieving sustainability (Fatimah et al., 2020). By leveraging this approach, Indonesia can reduce negative environmental impacts, conserve natural resources, create jobs, and enhance economic resilience. Support from the government, private sector, and society is crucial to realizing this vision and ensuring a more sustainable future for future generations.

This article aims to explain how data from Google Trends can be utilized to develop circular economy-based environmental policies in Indonesia. Google Trends offers powerful analytical tools to understand public interest and awareness regarding environmental issues and the circular economy. Through analyzing internet search trends, we can identify behavioral patterns and regions with varying levels of awareness about the circular economy concept.

The utilization of Google Trends data in policy development can be carried out in several ways. First, Google Trends allows us to see how public interest in topics related to the circular economy changes over time. By analyzing keywords such as "recycling," "waste

management," and "circular economy," we can understand when and where these topics become public concerns. This information is valuable for designing awareness campaigns about the circular economy accurately.

Next, geographical data from Google Trends can show which regions in Indonesia have high interest in the circular economy and which are less aware. For example, if the data shows that searches related to recycling are higher in major cities like Jakarta and Surabaya compared to rural areas, the government can direct education efforts and resources to regions that are still less aware.

Furthermore, by knowing specific periods when interest in the circular economy increases, the government and non-governmental organizations can design more effective education campaigns. For instance, if data shows an increase in searches related to recycling during Earth Day, awareness campaigns can be tailored to capitalize on this momentum.

Google Trends data can also be used to measure the effectiveness of policies already implemented. For example, after the launch of a new waste management policy, we can monitor whether there is an increase in searches related to the policy. This helps policymakers assess the impact of their initiatives and make necessary adjustments.

Researchers have long used Google Trends data to identify knowledge gaps and areas needing further research (Troumbis & Iosifidis, 2020). For example, if there is high interest in a particular topic but little information or policy available, this can become a focus for future research and policy development. Thus, Google Trends becomes a very useful tool in supporting data-driven policy development that is relevant to societal needs.

By utilizing Google Trends, we can gain valuable insights into how Indonesian society understands and responds to circular economy issues. This information enables the government and other stakeholders to develop more targeted, data-driven, and effective policies in promoting circular economy practices. This article will discuss the methods, findings, and specific recommendations for leveraging this data to support environmental sustainability in Indonesia.

**METHOD**

This research utilizes data from Google Trends to analyze public interest in topics related to the circular economy in Indonesia. The research methodology consists of three main stages: keyword selection, data collection, and data analysis.

**Keyword Selection**

Keyword selection is the first and crucial step in this research. The chosen keywords must be relevant to the concept of the circular economy and cover various related aspects. The keywords used in this study include:

1. Recycling (daur ulang): This keyword encompasses efforts to manage and reuse waste to reduce the amount of trash ending up in landfills.
2. Waste Management (pengelolaan limbah): This keyword includes practices and technologies used to manage waste efficiently and sustainably.

3. Circular Economy (ekonomi sirkular): This keyword covers the economic concept emphasizing waste reduction, product reuse, and recycling.
4. Waste Reduction (pengurangan limbah): This keyword includes practices that support waste reduction, including technology and policy.

## Data Collection

Data collection is conducted using Google Trends, an analytical tool that provides data on search volumes for specific keywords over time. The steps for data collection are as follows:

1. Time Period: Data is collected for the past five years to obtain a comprehensive overview of search trends. This period is chosen to identify changes in public interest and awareness of the circular economy over time.
2. Geographical Region: The analysis is performed geographically for all regions of Indonesia. Google Trends allows data mapping based on provinces and cities, enabling us to identify areas with high and low interest in the selected topics.
3. Parameter Settings: Search parameters are set to display relative search volumes for the chosen keywords. Google Trends normalization data is used to ensure that the displayed search volumes are representative of the total searches in the region, not absolute numbers.

## Data Analysis

After data collection, the next stage is data analysis to assess search trends and identify patterns and regions with high interest. The analysis techniques used include:

1. Time Trend Analysis: Data is analyzed to observe changes in search volumes over time. Line graphs are used to display search trends for each keyword. This helps in identifying peak interest periods and understanding factors that might influence these changes.
2. Geographical Analysis: Data is analyzed geographically to identify regions with high and low interest in the selected topics. Heatmaps are used to display the geographical distribution of search volumes. This allows for the identification of provinces or cities that are more aware of the circular economy and those that require further policy intervention.
3. Keyword Comparison: Comparative analysis is conducted among various keywords to understand which ones are of most interest to the public. This helps in determining the most relevant and engaging aspects of the circular economy for the Indonesian population.
4. Correlation with External Events: Search trend data is also analyzed to see if there is a correlation with external events such as government campaigns, natural disasters, or

## RESULTS AND DISCUSSION

This research uses Google Trends data to analyze the interest and awareness of the Indonesian public regarding the concept of the circular economy, measured through search volumes for the keywords "recycling," "waste management," "circular economy," and

"waste reduction." The analysis is conducted both temporally (time trends) and geographically (by region).

**Time Trends for Each Keyword Search**

The time trend analysis shows how the search volumes for each keyword have changed over the past five years.

**Figure 1. Google search trends for keywords related to circular economy**
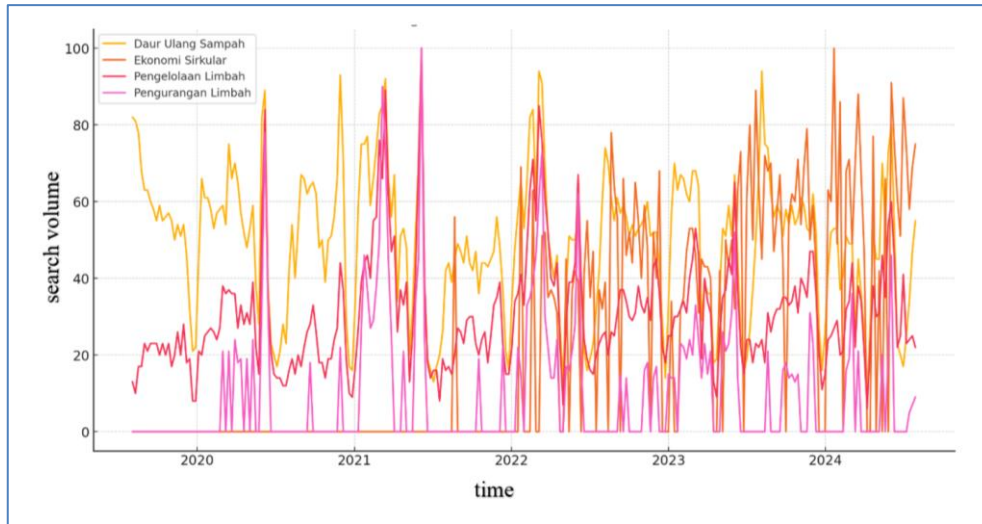


Source: Result research

The graph above depicts the Google search volume for four keywords related to the circular economy in Indonesia over the past five years. The analyzed keywords are "Recycling," "Circular Economy," "Waste Management," and "Waste Reduction."

**Recycling (Orange Line)**: The search volume for "Recycling" shows a high and relatively stable trend throughout the analyzed time period. Peak searches occur at several points each year, indicating sustained interest and fluctuations that may follow specific recycling campaigns or events. This stability indicates good public awareness of the importance of recycling, likely due to consistent government campaigns or community initiatives.

**Circular Economy (Pink Line)**: The search volume for "Circular Economy" is relatively lower compared to "Recycling." There are a few peaks indicating spikes in interest at certain times, but overall, the trend is lower and less stable. This suggests that the concept of the circular economy is still relatively new to the public and requires more education and promotion to increase understanding and adoption.

**Waste Management (Red Line)**: The search volume for "Waste Management" shows a lower and consistent trend with slight fluctuations. Interest in waste management is not as popular as recycling, but there is stable awareness of the importance of waste management. The small fluctuations suggest that interest can be influenced by certain events or news related to waste issues.

**Waste Reduction (Magenta Line)**: This keyword shows the lowest search volume among the four analyzed keywords. The search trend tends to be flat with a few small peaks, indicating that the topic of waste reduction may be less known or prioritized by the public. The low search volume suggests the need for more intensive educational campaigns to raise awareness about the importance of waste reduction.

Time trend analysis provides several important conclusions regarding public awareness and interest in circular economy topics in Indonesia. First, strong public awareness of waste recycling is reflected in high and stable interest. This indicates that recycling campaigns have successfully increased public awareness, creating a solid foundation for expanding the circular economy concept. However, there is a need for increased education on the circular economy. The lower and inconsistent search volume indicates that the circular economy requires more promotion and education to be widely understood and accepted by the public. On the other hand, stable awareness of waste management is shown by the lower search volume, but this consistency indicates stable awareness. However, further encouragement is needed to ensure better waste management practices are implemented in various regions. Lastly, the low interest in waste reduction shows that this topic has not yet become a major priority for the public. The low search volume indicates the need for specific campaigns and education to increase awareness and actions in reducing waste.

Thus, the conclusions from this time trend analysis show the successes and challenges in increasing public awareness of various aspects of the circular economy, as well as the need for more effective educational strategies and campaigns to support environmental sustainability in Indonesia.

**Word Search by Region**

The regional analysis shows how the search volume for each keyword varies across different areas, as depicted in Figure 2 below.

**Figure 2. Google search volume for circular economy related keywords by region**
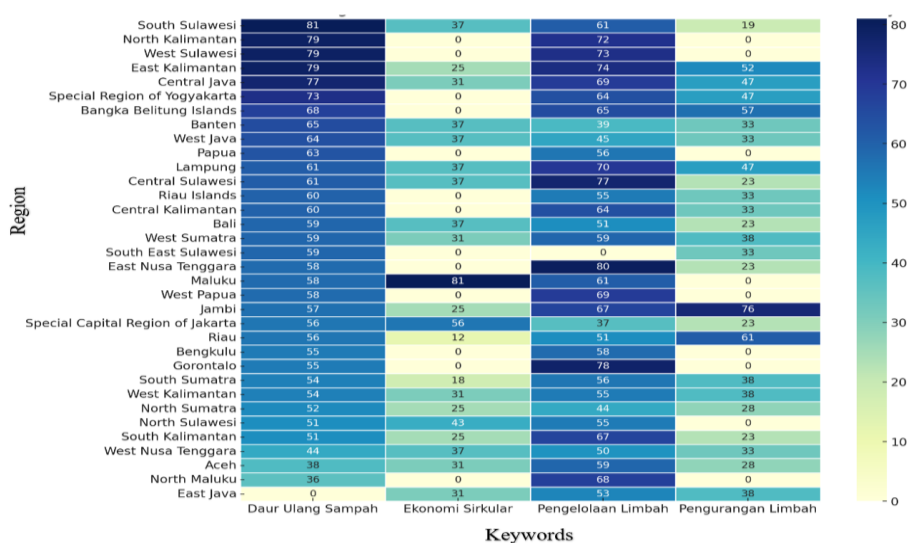


Source: Research result

The heatmap above displays the Google search volume for keywords related to the circular economy in various regions of Indonesia. The analyzed keywords include "Recycling," "Circular Economy," "Waste Management," and "Waste Reduction." Here are the key findings based on the regional analysis:

1. **Recycling**

   South Sulawesi, North Kalimantan, West Sulawesi, and East Kalimantan all have volume values above 70. This indicates strong awareness and interest in recycling practices in these regions. Conversely, regions such as East Java and North Maluku show very low search volumes, suggesting that recycling campaigns may not be very effective in these areas.

2. **Circular Economy**

   Interest in "Circular Economy" varies greatly between regions. Regions with high search volumes include Maluku and the Special Capital Region of Jakarta, with volume values of 81 and 56, respectively. This indicates that the concept of the circular economy is better known and understood in metropolitan and more developed areas. On the other hand, many regions such as North Kalimantan and West Sulawesi show low or zero search volumes, indicating that this concept may not be well known in these areas.

3. **Waste Management**

   Search volumes for the keyword "Waste Management" also show significant variation between regions. Regions such as East Nusa Tenggara and Central Sulawesi show high search volumes, with values of 80 and 69, respectively. This indicates good awareness of the importance of waste management in these regions. However, regions such as Gorontalo and South East Sulawesi show lower or zero interest, indicating a need for increased education and campaigns in these areas.

4. **Waste Reduction**

   The keyword "Waste Reduction" has relatively lower search volumes in most regions. Regions with high search volumes include Jambi and Lampung, with values of 76 and 47, respectively. This indicates that awareness of the importance of waste reduction still needs to be increased in many regions. Regions such as West Papua and North Maluku show zero search volumes, indicating that this topic may not yet be a major priority in these areas.

The regional analysis provides important insights into public awareness and interest in circular economy topics in Indonesia. First, high awareness and interest in recycling are evident in regions such as South Sulawesi and North Kalimantan. The strong interest in these regions indicates the success of local campaigns and initiatives in raising public awareness about the importance of recycling. However, the need for increased education about the circular economy becomes clear from the low search volumes in many regions. This shows that the concept of the circular economy still requires more promotion and education to increase understanding and adoption across Indonesia.

On the other hand, stable awareness of waste management is reflected in some regions showing good awareness. Nevertheless, there is a need to expand campaigns and support in regions with low search volumes to ensure better waste management practices are

evenly implemented. The low interest in waste reduction in many regions shows that this topic has not yet become a major focus for the public. The low interest indicates the need for more intensive educational campaigns to increase awareness and actions in reducing waste.

Thus, the regional analysis highlights the successes and challenges in increasing public awareness of various aspects of the circular economy and underscores the importance of more effective educational strategies and campaigns to support environmental sustainability in Indonesia.

### Trends in Public Interest in Circular Economy Topics Over Five Years

A time trend analysis comparing all keywords is shown in Figure 3 below.

**Figure 3. Comparison of search volumes for keywords related to the circular economy (last 5 years)**
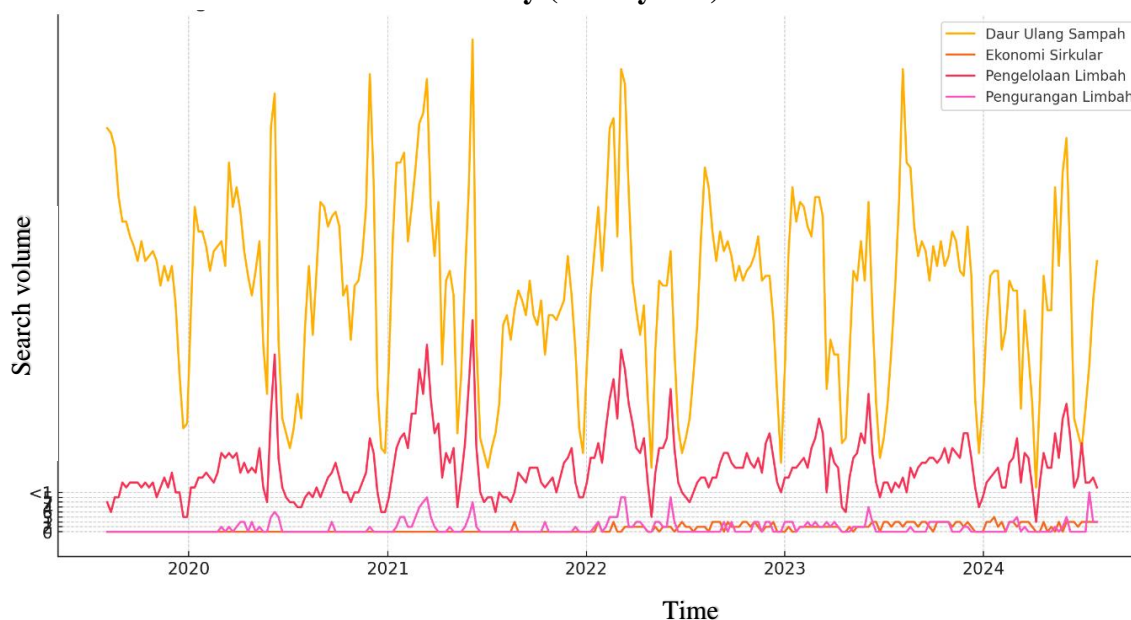


Source: Research result

The above graph depicts the Google search volume for four key keywords related to the circular economy in Indonesia over the past five years. The keywords are "Recycling," "Circular Economy," "Waste Management," and "Waste Reduction." This analysis provides deep insights into the public's interest and awareness of these topics over time.

### Recycling (Orange Line)

The search volume for the keyword "Recycling" shows a high and relatively stable trend throughout the analyzed period. Several search peaks occur periodically each year, indicating sustained interest and fluctuations that may be related to specific campaigns or events promoting recycling. This trend's stability indicates that the public has a good awareness of the importance of recycling, possibly due to consistent government campaigns or community initiatives.

### Circular Economy (Pink Line)

The search volume for the keyword "Circular Economy" is relatively lower compared to "Recycling." There are several search peaks indicating spikes in interest at certain times, but overall, the trend is lower and less stable. This suggests that the concept of the circular economy is still relatively new to the public and requires more education and promotion to increase understanding and adoption.

### Waste Management (Red Line)

The search volume for the keyword "Waste Management" shows a lower and consistent trend with slight fluctuations. Interest in waste management is not as popular as recycling, but there is stable awareness of the importance of waste management. The small fluctuations indicate that interest may be influenced by certain events or news related to waste issues.

### Waste Reduction (Magenta Line)

The keyword "Waste Reduction" shows the lowest search volume among the four analyzed keywords. The search trend tends to be flat with a few small peaks, indicating that the topic of waste reduction may be less known or prioritized by the public. The low search volume suggests the need for more intensive educational campaigns to raise awareness about the importance of waste reduction.

The comparative time trend analysis provides several important conclusions regarding public awareness and interest in circular economy topics in Indonesia. First, strong public awareness of waste recycling is evident from the high and stable interest. The campaigns and initiatives undertaken have successfully raised public awareness about the importance of waste recycling, creating a solid foundation for expanding the circular economy concept. However, the need for increased education on the circular economy becomes clear from the lower and inconsistent search volume. This indicates that the circular economy concept still requires more promotion and education to be widely understood and accepted by the public.

Additionally, the stable awareness of waste management, despite the lower search volume, indicates a consistent awareness of the importance of waste management. However, further encouragement is needed to ensure better waste management practices can be implemented across various regions.

Another finding from the analysis is the low interest in waste reduction, as indicated by the low search volume. This shows that waste reduction has not yet become a major priority for the public. Therefore, specific campaigns and education are needed to raise awareness and actions in reducing waste.

The conclusions from this comparative time trend analysis highlight the successes and challenges in increasing public awareness of various aspects of the circular economy and underscore the importance of more effective educational strategies and campaigns to support environmental sustainability in Indonesia.

## Regional Comparison of Google Search Volumes for Circular Economy Keywords Over Five Years

The analysis based on regional comparison is shown in Figure 4 below.

**Figure 4 Google search volume comparison for circular economy related keywords by region (last 5 years)**
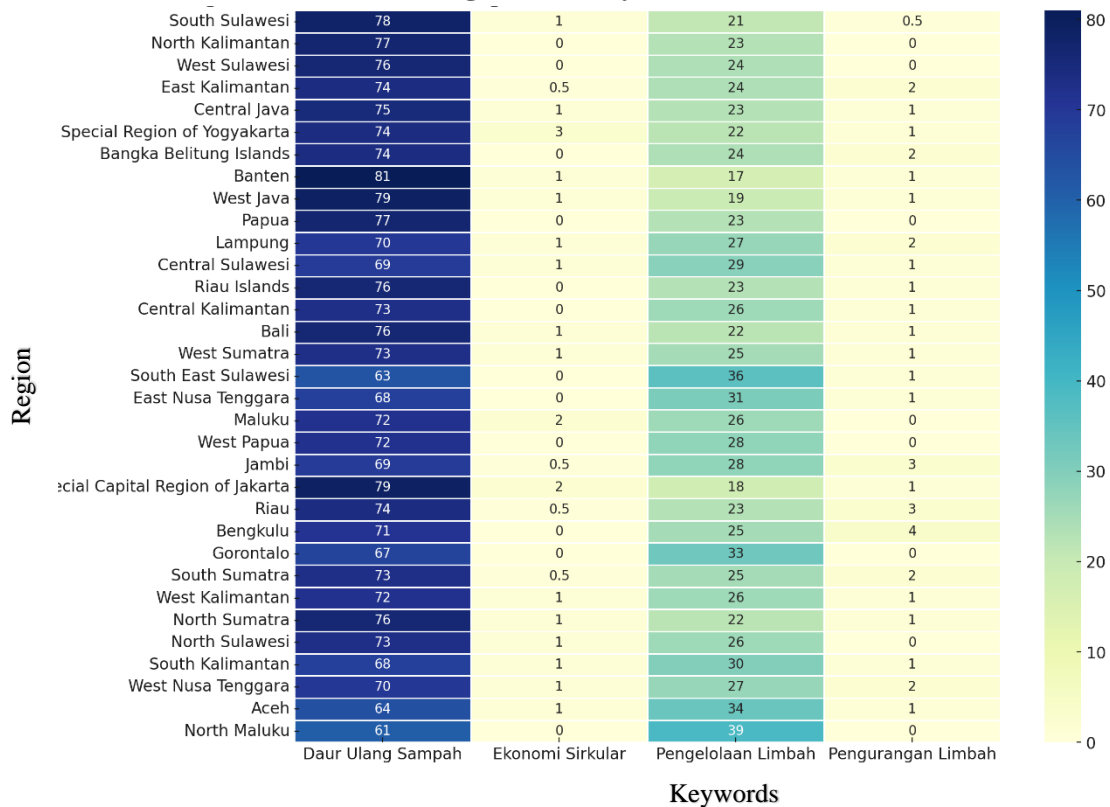


Source: Research result

The heatmap above displays the Google search volume for four key keywords related to the circular economy in various regions of Indonesia. These keywords are "Recycling," "Circular Economy," "Waste Management," and "Waste Reduction." This analysis provides deep insights into how interest and awareness of these topics vary across different regions of Indonesia.

### Recycling

Interest in "Recycling" appears to be very high in various regions, with South Sulawesi (78), North Kalimantan (77), and West Sulawesi (76) showing the highest search volumes. Regions like Central Java (75), Special Region of Yogyakarta (74), and Bangka Belitung Islands (74) also show high interest. This indicates strong awareness of the importance of recycling in many areas. Conversely, regions such as North Maluku (61) show lower search volumes, indicating that awareness about recycling might still need to be increased in these areas.

### Circular Economy

Interest in "Circular Economy" appears relatively low across all regions, with a few exceptions like the Special Capital Region of Jakarta (2), Special Region of Yogyakarta (3), and Maluku (2) showing higher interest. Many regions show very low or zero search volumes, such as West Sulawesi, East Nusa Tenggara, and West Papua. This indicates that the concept of the circular economy is still relatively new and not widely understood by the general public, requiring more education and promotion.

### Waste Management

The search volume for "Waste Management" shows significant variation between regions. Regions such as East Nusa Tenggara (31), Gorontalo (33), and South East Sulawesi (36) show high search volumes, indicating good awareness of the importance of waste management. On the other hand, some regions like West Papua and North Kalimantan show lower interest, indicating the need for increased education and campaigns in these areas.

### Waste Reduction

Interest in "Waste Reduction" appears to be very low in most regions, with a few exceptions like Bengkulu (4), Jambi (3), and East Nusa Tenggara (2). The low search volumes indicate that the topic of waste reduction might not yet be a major priority for the public in many areas, requiring more intensive educational campaigns to raise awareness about the importance of waste reduction.

The regional comparative analysis provides several important conclusions regarding public awareness and interest in circular economy topics in Indonesia. First, the high awareness and interest in waste recycling are evident from the high search volumes in various regions. This indicates that campaigns and initiatives to raise public awareness about waste recycling have been successful. Regions with high interest in waste recycling can serve as models to expand the circular economy concept to other areas. However, the need for increased education on the circular economy becomes clear from the low search volumes in many regions. This indicates that the circular economy concept still requires more promotion and education to be widely understood and accepted by the public. More intensive campaigns are needed to raise awareness and understanding of the circular economy throughout Indonesia.

On the other hand, stable awareness of waste management is seen in some regions that show good awareness. Nevertheless, there is a need to expand campaigns and support in regions with low search volumes to ensure better waste management practices are evenly implemented.

Lastly, the low interest in waste reduction is indicated by the low search volumes in many regions. This shows that the topic of waste reduction has not yet become a main focus for the public. Therefore, more intensive educational campaigns are needed to increase awareness and actions in reducing waste.

The conclusions from this regional analysis highlight the successes and challenges in increasing public awareness of various aspects of the circular economy and underscore

the importance of more effective educational strategies and campaigns to support environmental sustainability in Indonesia.

This study aims to understand the interest and awareness of the Indonesian public regarding the concept of the circular economy through an analysis of Google Trends search volumes for related keywords over the past five years. The keywords analyzed include "waste recycling," "waste management," "circular economy," and "waste reduction." Data were analyzed based on time trends and geographical distribution to provide deep insights into how these topics are understood and adopted in various regions of Indonesia.

Waste recycling shows the highest and most consistent search volume throughout the analysis period. Regions such as South Sulawesi, North Kalimantan, and West Sulawesi show very high interest, indicating that awareness about the importance of recycling is quite good in many parts of Indonesia. This reflects the success of recycling campaigns in certain regions and the potential to further expand these programs. A study by Jambeck et al. (2015) underscores the importance of recycling in reducing marine plastic waste, which is relevant to the high public interest in recycling in these regions (Jambeck et al., 2015).

The search volume for the circular economy is lower compared to waste recycling, with metropolitan areas like Jakarta and Maluku showing higher interest. This indicates that the concept of the circular economy is still relatively new and may not be well understood by the general public. The circular economy is a more sustainable economic model that still requires more education and public understanding, especially in developing countries like Indonesia (Schröder, Lemille, & Desmond, 2020).

Interest in waste management varies, with regions such as South East Sulawesi, East Nusa Tenggara, and Central Sulawesi showing high search volumes. This indicates awareness of the importance of waste management but needs to be further enhanced through adequate policies and infrastructure. Batista et al. (2021) highlight that effective waste management requires a combination of strong policies, adequate infrastructure, and public participation (Batista et al., 2021).

The keyword waste reduction shows the lowest search volume, indicating that this concept may not yet be fully understood or prioritized by the public. Regions such as North Maluku, South Kalimantan, and Lampung show higher interest, but overall, awareness about waste reduction needs to be increased. According to Zorpas (2020), waste reduction is a crucial step in achieving environmental sustainability but requires intensive educational efforts to enhance public understanding and participation (Zorpas, 2020).

Geographical analysis shows significant variations in interest in circular economy topics across different regions. Regions with high interest can become centers for education and training programs, while regions with low interest require greater intervention to raise awareness. Research by Van Langen et al. (2021) indicates that the adoption of the circular economy varies based on local contexts and requires approaches tailored to the needs and characteristics of each region (van Langen et al., 2021).

Stronger educational campaigns are needed in areas with low interest in the circular economy and waste reduction. Using the popularity of the waste recycling topic as an entry point can help introduce the broader concept of the circular economy. According to research,

effective education and awareness campaigns are key to changing public behavior towards waste management and the adoption of sustainable practices (Debrah, Vidal, & Dinis, 2021).

This data can be used to identify more specific policy needs and support initiatives related to waste management and reduction. Strengthening infrastructure and support in low-interest areas is essential to enhance the effectiveness of circular economy programs. According to the Circular Economy Action Plan from the European Commission (2020), data-driven and locally adaptive policies are essential for the successful implementation of the circular economy.

Thus, the results of this study provide valuable insights into the variation in public awareness and interest in the concept of the circular economy across different regions of Indonesia. These findings can serve as a basis for developing more effective policies and educational campaigns to support environmental sustainability.

## Implications and Recommendations

To enhance public understanding of the circular economy and waste reduction, more intensive and widespread educational campaigns are needed. This education should focus on the long-term benefits of the circular economy and how each individual can contribute. Effective campaigns will help the public understand the importance of sustainable practices and how they can take an active role in supporting them.

The government needs to develop policies that support the implementation of the circular economy. This includes providing incentives for companies that adopt sustainable practices and investing in waste management infrastructure. Support should be focused on areas with low interest to ensure an equitable distribution of knowledge and resources. With supportive policies, companies and the public will be more motivated to adopt circular economy practices.

Closer collaboration between the government, private sector, academics, and civil society organizations is essential to promote the adoption of the circular economy. Sharing best practices and success stories from high-interest areas can help accelerate adoption in other regions. By working together, various parties can create more effective and sustainable solutions to address existing challenges.

Further research is needed to understand the specific barriers faced by regions with low interest in the circular economy. This research will help develop more effective strategies to overcome these barriers. With a better understanding of the factors hindering adoption, more targeted and effective efforts can be made to increase awareness and implementation of the circular economy throughout Indonesia.

## CONCLUSION

This research provides deep insights into the interest and awareness of the Indonesian public regarding the concept of the circular economy through the analysis of Google Trends data. The findings show that although awareness of waste recycling is quite high and stable across various regions, the concepts of the circular economy, waste management, and waste reduction still require more promotion and education.

The high search volume for the keyword "recycling" in regions such as South Sulawesi and North Kalimantan indicates the success of local campaigns and initiatives in raising public awareness. However, the low search volume for the keyword "circular economy" in many regions indicates the need for further education to enhance understanding and adoption of this concept.

Stable awareness of waste management in some regions shows good understanding, but efforts are still needed to expand campaigns and support in areas with lower interest. The low interest in waste reduction suggests that this topic has not yet become a main priority for the public, necessitating more intensive educational campaigns.

The implications of these findings highlight the importance of more effective educational strategies and campaigns, the development of policies that support the implementation of the circular economy, and collaboration among various stakeholders to promote the adoption of sustainable practices. Further research is needed to understand the specific barriers faced by regions with low interest and to develop more effective strategies to overcome these barriers.

With a comprehensive and collaborative approach, we can enhance the awareness and implementation of the circular economy in Indonesia, support environmental sustainability, and create a better future for all.

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