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Correlation of Waste Management and Tourist Visits at Tourist Destinations in Indonesia

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Abstract

The majority of Indonesia's tourism sites manage waste improperly and in violation of the law. In tourism sites, the 3R principle has not been fully adopted. Tourism sites that have embraced the 3R concept have seen a higher number of tourists than those that have not, according to the correlation study results. The 3R concept of waste management is still mostly absent from Indonesia's tourism industries, which contributes to less tourists. Following years of research, only a small number of Indonesian tourism-related sectors have successfully applied the 3R approach.

Keywords: correlation, 3 R, tourism industry, tourist.

INTRODUCTION

Due to its ability to stimulate national economic growth and serve as a source of foreign cash, the tourism industry is one of Indonesia's most significant industries. Currently, the tourism industry in Indonesia contributes about 4% of the country's GDP (https://mediakeuangan.kemenkeu.go.id/, 2024). The goals of tourism in Indonesia are to boost economic growth, enhance people's welfare, end poverty and unemployment, protect the environment, save natural resources, promote culture, improve the country's reputation, cultivate a love for the country, fortify national identity and unity, and fortify international friendships, according to Law Number 10 of 2009 concerning Tourism, Article 4. One of the things that draws potential visitors to the tourist destination is its

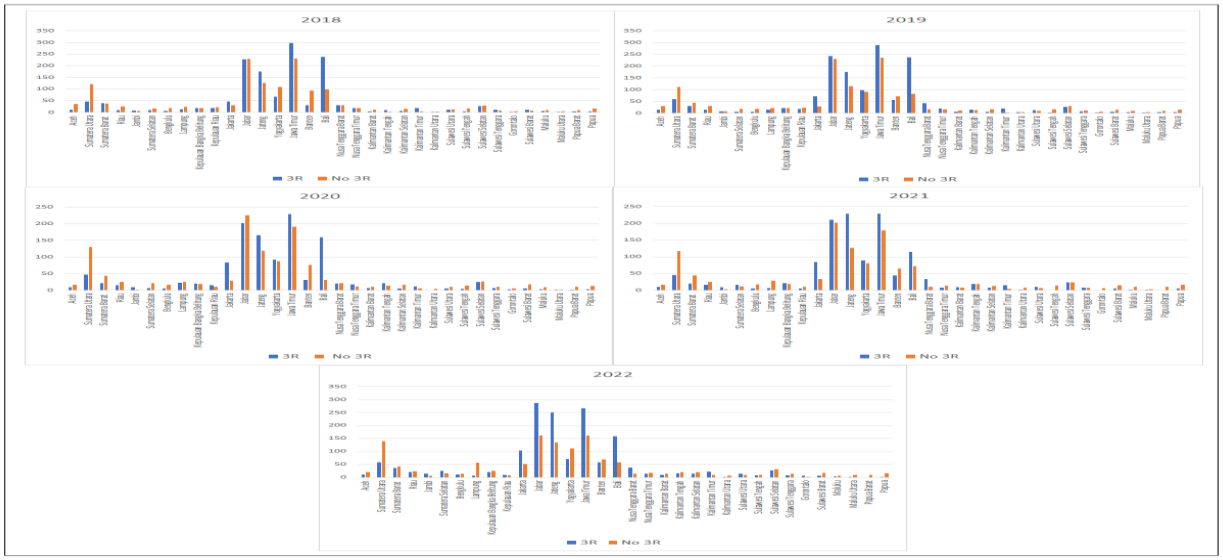
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cleanliness. If the environment is kept clean, guests will be uncomfortable and have a prolonged sense of home (Loehr et al., 2021).

The SNI 9042 CHSE (Cleanliness, Health, Safety, and Environmental Sustainability) certificate is issued by the Ministry of Tourism and Creative Economy and the National Certification Agency (BSN). This certificate assures the public and visitors that the goods and services offered have complied with environmental sustainability, health, safety, and cleanliness standards. The community environment, tourist sites, businesses and facilities associated to tourism, and other businesses are all awarded the SNI CHSE accreditation. The economy will be impacted by the adoption of CHSE, as more tourists will visit various tourist destinations (Hariyono, Sujoko, and Wening, 2022).

The provision of closed wastebaskets and special waste containers for personal protective equipment in appropriate quantities, along with timely cleaning and waste sorting by type, is one of the points in SNI 9042 CHSE. Sorting waste as an implementation of the 3R principle (reuse, reduce, recycle). Sorting waste is necessary to decrease the amount of rubbish that ends up in the TPA, as per Law No. 8/2008 concerning Waste Management. The 3R approach is now generally ignored when it comes to waste management in Indonesian tourist regions. This is consistent with the following Figure 1.



Source: BPS, several years of publication, processed

Figure 1: Waste Management with 3R and Not in Indonesian Tourist Destinations

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According to a number of studies, there are popular tourist destinations in Indonesia where waste is left all over the place, making upkeep of the cleanliness lacking. There hasn't been any environmentally conscious managing waste (Yusuf et al., 2019; Widyarsana and Agustina, 2019; Assa and Wibisono, 2020). This state of affairs differs from the Sapta Pesona in the tourist sector, where cleanliness is one of the key elements to ensuring guest comfort and promoting the expansion of tourism in Indonesia.

A clean tourism venue is one of the prerequisites for making visitors feel at ease. (Liew, Abdullah, and Hussin, 2021). Encouraging tourism earnings requires that tourists are comfortable. It's evident that a lot of nations nowadays rely on the travel and tourism sector. The advantages of tourism in terms of the economy:

a. Receiving foreign exchange through taxes on employment, restaurants, airports, and other establishments.
b. Providing job possibilities to those who are prepared to work. The tourism industry employs people to work as ticket clerks, restaurateurs, retailers, hoteliers, and in other capacities
c. Diversifying employment and stabilizing the regional economy. The community's economic situation will improve thanks to tourism, and this will undoubtedly stabilize the local economy.
d. The growth of tourist destinations in both urban and rural locations. As a result, the tourism industry is crucial to regional growth that will draw both local and foreign travelers (Saragih, Surya, and Mesra, 2021).

In light of these circumstances, maintaining cleanliness in tourist destinations is essential to setting up the tourism sector in a way that may make visitors feel at ease (Awan, Shamim, and Ahn, 2020). If travelers are at ease at a tourism destination, Doğan, Üngüren, and Barutçu (2012) assert that those travelers will return and tell other travelers about the place to visit.

The purpose of this paper is to perform a descriptive analysis of waste management in Indonesian tourist locations as well as a correlation analysis between the use of the 3R concept and domestic tourist visits. This study's correlation analysis, which comes with a mapping of the travel and tourism sector in every Indonesian province and a research locus that encompasses popular tourist spots across the country, is what makes it novel.

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LITERATURE REVIEW

Saragih, Surya, and Mesra (2019) define tourist supply as the infrastructure and amenities related to tourism. The development of the tourist industry genuinely depends on the availability or preparation of tourism infrastructure, as tourism-related activities are fundamentally economic sector activities. Infrastructure serves as a supplement to tourism facilities, enabling them to offer services in the proper manner. Facilities for tourists include:

- Basic facilities are travel agencies, tour operators, lodging providers, and businesses that supply food and beverages at the location.
- Complementary tourism facilities, such as tourist attractions, are amenities that can be used in conjunction with basic facilities to allow visitors to remain longer in the destination.
- Assisting with the upkeep of tourist facilities, such as cleaning and waste management services, which serve to supplement basic and supplemental facilities.

The idea of sustainable tourism development is taken into consideration when implementing tourism. Sustainable tourist development is tourism development that is done over the long term, not just for now, so that future generations can enjoy it. The environmental aspect is one of the aspects. The management of waste and rubbish is one component of the environment that must be taken into account. If waste is not managed appropriately, tourist sites will suffer. As a result, tourism locations will suffer environmental harm (Ashoer et al., 2021).

As per UNEP (2004) the following is the 3R concept:

- Reduce. Reducing usage or behavioral patterns can help cut down on waste creation and avoid engaging in excessive consumption practices. By doing this, the likelihood of product container trash building up at home is decreased.
- Reuse/Make use of. Reusing materials or resources that are still in good condition is known as recycling.
- Recycle. Recyclables reprocess or recycle materials. In theory, this method makes use of leftover items by transforming them into new resources.

Khajuria et al. (2022) list the following advantages of waste managed with 3 R:

1. Saving natural resource sustainability. As per the report by Good News from Indonesia, recycling one ton of paper can save 17 trees, 7000 gallons of water, 628.5 gallons of fuel, and 4000 KWh of electricity (based on research conducted

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by the Purdue Research Foundation and US Environmental Protection Agency in 1996).

2. Keeping open spaces natural.
3. Utilizing less energy. The world's energy resource reserves benefit from energy saving.
4. Lowering the emission of greenhouse gases
5. There will be an extended lifespan for the landfill.
6. Building a long-lasting future.

In SNI CHSE, cleanliness is defined as the absence of pollutants, dangerous chemicals, viruses, and pathogenic microorganisms as well as debris, dust, and odors from unclean water puddles. In SNI CHSE, waste is regulated in terms of infrastructure and waste facilities throughout the board. One of the cleanliness standards that is followed is the provision of enough closed trash cans and designated trash cans that are cleaned on a regular basis. Another is the provision of temporary waste storage prior to the final processing site, so that visitors can dispose of garbage in its proper location. There are two sections that regulate management or governance criteria, which are as follows:

a. A comprehensive, healthy, and environmentally responsible method of sorting both organic and inorganic waste as well as medical waste.
b. A thorough, healthy, and environmentally responsible method of processing liquid waste from household activities.

The therapist is responsible for maintaining cleanliness in the spa dimension. Specifically, they must remove and discard any potentially contaminated items, such as tissues, cotton, and other items, and dispose of them in an infectious pedal trash can that is kept in a designated temporary shelter after treatment is completed.

METHOD

Tourism Attraction Object Statistics, a type of secondary data released by BPS, are used in this study. 2018–2022 is the analysis year that was used. The research object encompasses all 34 provinces in Indonesia. To determine how strongly two variables are related, the Pearson correlation approach is employed.

The formula for Pearson correlation is

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$$r = \frac{\sum xy - \frac{(\sum x)(\sum y)}{n}}{\sqrt{\left(\sum x^2 - \frac{(\sum x)^2}{n}\right)\left(\sum y^2 - \frac{(\sum y)^2}{n}\right)}}$$

where
r = correlation
x = 3R notion existence or absence
y = quantity of domestic visitors

Apart from utilizing the Pearson correlation, a descriptive method will be employed to depict multiple Indonesian regions where garbage from tourist sites is disposed of straight into the environment without any prior processing.

DISCUSSION

Tourism standards pertaining to hygiene, safety, health, and environmental sustainability have received a lot of attention since the SNI CHSE was put into effect in 2021. Particularly with regard to hygiene, the SNI CHSE has a number of requirements. Among these requirements are:

1. Criteria for management and governance. One of the cleaning facilities is a closed garbage can with a dedicated waste container for personal protective equipment in adequate numbers. The waste is sorted according to kind and cleaned on schedule.
2. Standards for human resource preparedness. The availability of cleaning personnel who have undergone counseling or training as cleaning personnel (cleaning services) that is provided either independently or by a third party is one indicator of resource preparedness.
3. Conditions for guest participation. Visitors to the vacation rental bring

Table 1 Correlation between the 3R Concept and tourist visits

	Correlation between tourist destinations in each province that implement 3R and tourist visits	Correlation between tourist destinations in each province that do not implement 3R and tourist visits
2018	858*	910*
2019	867*	929*

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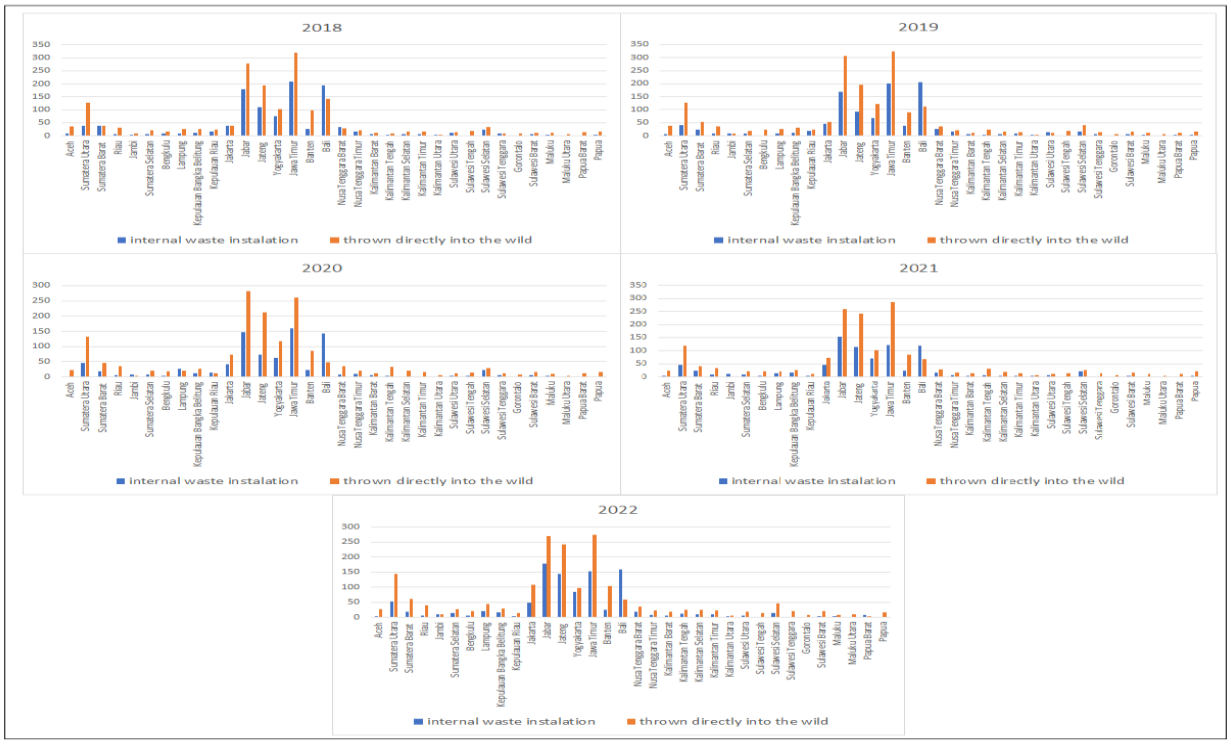
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2020	872*	840*
2021	938*	852*
2022	908*	830*

Note: * significant at 1 % level

Table 1 illustrates that in 2018–2019, the number of tourists visiting tourist destinations was higher in those that did not apply the 3R concept; in 2020–2022, the number of tourists visiting tourist destinations was higher in those that did apply the 3Rs. This indicates that travelers are becoming more conscious of the environment, particularly with regard to the 3R concept of waste management (Wang et al., 2020; Dolnicar, 2020).

Besides correlation, waste at tourist attractions is treated in two ways: either it is managed in an internal processing installation or it is disposed of directly into nature without any management. The description of this is as follows.



Source: BPS, several years, processed

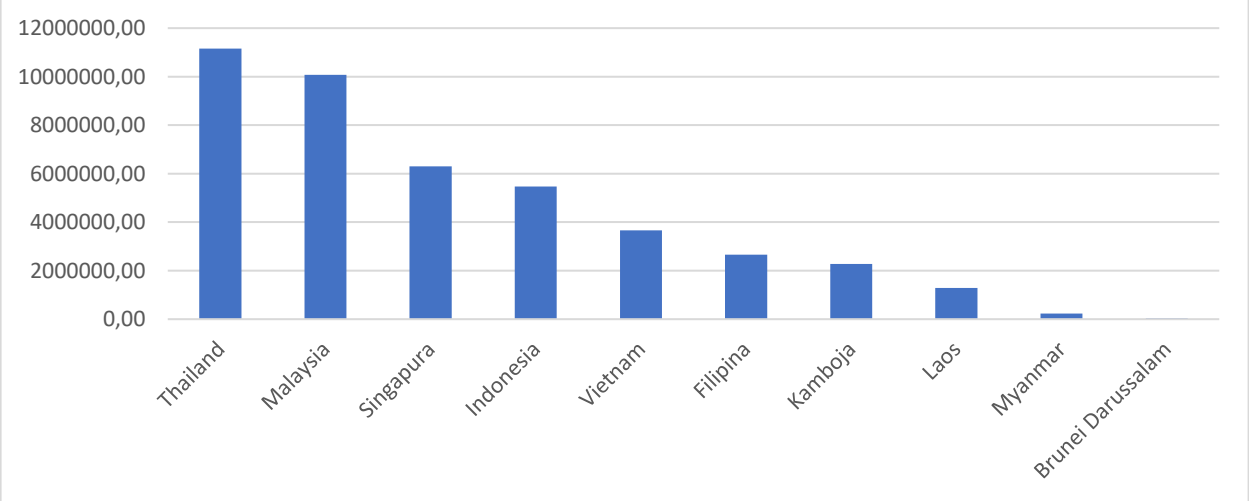
Figure 2. Waste Management at Tourist Attractions in Indonesia

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According to Figure 2, most waste in Indonesian tourist destinations is disposed of straight into the environment without previously being treated. When it comes to the waste that accumulates in tourist regions, only the Province of Bali is inconsistent. Bali's tourism regions manage their waste, and the quantity of waste disposed of there is more than that of rubbish dumped into the environment. Improper waste management in tourist areas can lead to a decline in visitors as well as negative effects on the ecosystem (Koliotasi, Abeliotis, and Tsartas, 2023). Unmanaged tourism waste will have a detrimental effect on the industry's sustainability (Hayati et al., 2020).

Given that tourism is one of Indonesia's primary industries, it is imperative that efforts to ensure its sustainability continue. According to Mun'im (2022), tourism accounts for about 5% of Indonesia's GDP overall. However, Indonesia faces competition from other ASEAN member countries in this regard. It's hardly implausible that Indonesian tourism will lag behind if sanitation is neglected (Dodds, Graci and Holmes, 2009). The following figure shows that Thailand is currently receiving more foreign visitors.



Source: Ahdiat (2024)

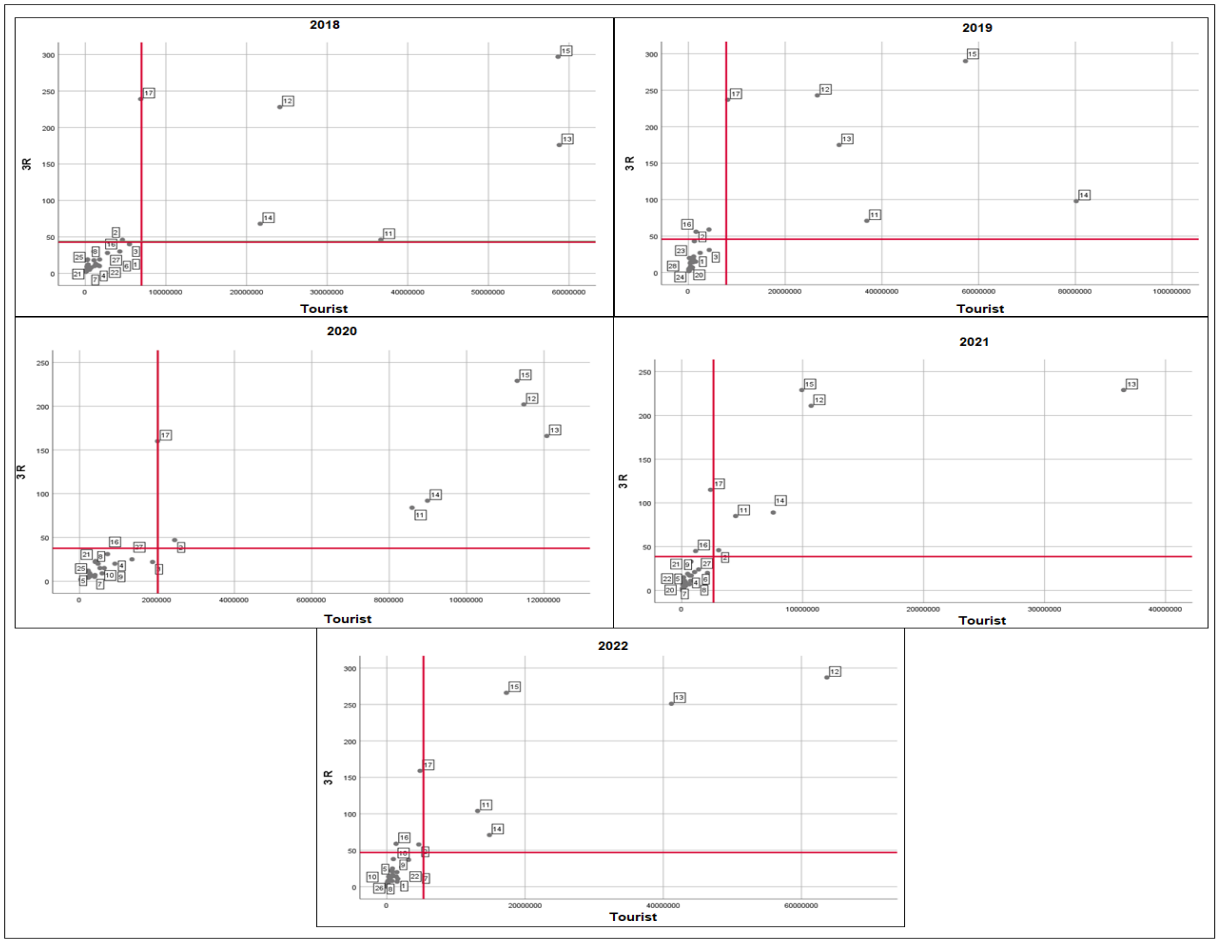
Figure 3. Tourist Visits to ASEAN Countries, 2022

Given these circumstances, CHSE implementation is necessary to boost Indonesian tourism. Per the findings of a study conducted in 2021 by Hidayatullah et al., the number of visitors to tourist locations will decline if they do not apply CHSE. One crucial idea in CHSE is the need for appropriate implementation of environmentally friendly waste management as a component of environmental sustainability. Most waste

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management practices at Indonesian tourist sites do not adhere to environmental sustainability principles (Suryawan et al., 2024; Agyeiwah, 2020, Hayati et al., 2020). The figure below, Figure 4, confirms this.



Source: BPS several years of publication, processed.

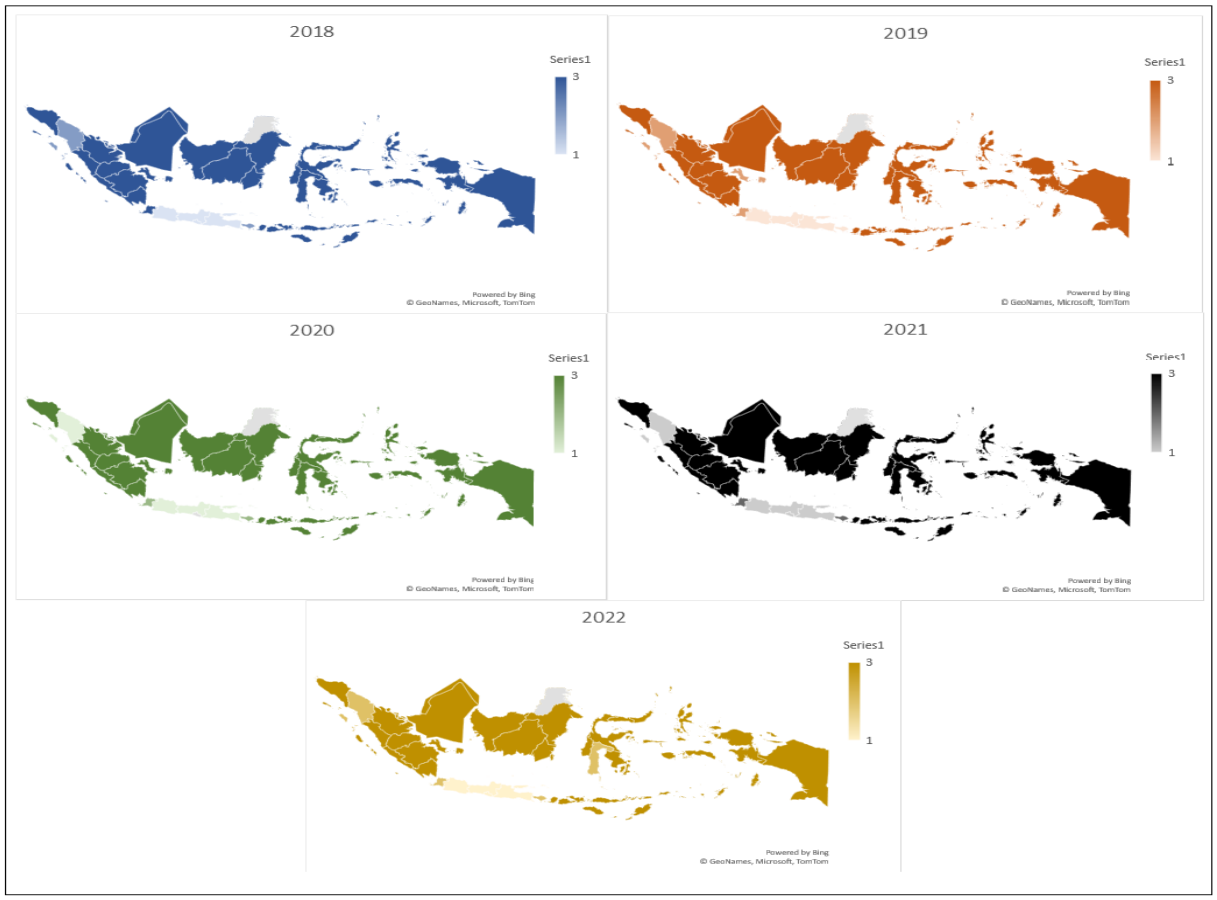
Figure 4. Four quadrants representing the three R's of tourism attractions and the quantity of tourists

Figure 4 indicates that most Indonesian provinces are located in quadrant 3, which indicates that if the country's tourism sector does not apply the 3R concept, the number of tourists visiting Indonesia will decline. According to studies conducted by Grilli et al. (2021), Koliotasi, Abeliotis, and Tsartas (2023), this is the case. In Indonesia, during the analysis year, only a few provinces—DKI Jakarta Province, West Java, Central Java, East

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Java, and the Special Region of Yogyakarta—had high visitor numbers and had adopted the 3R tourism industry. Figure 5 below provides an explanation of the relationship between 3R and visitors, as shown in Figure 4.



Source: BPS several years of publication, processed.

Figure 5: Indonesian Tourism Industry Distribution with 3 R and Visiting Tourists

The thicker color map in Figure 5 illustrates how many provinces in Indonesia's tourism industry still do not practice the 3R idea. Waste generation from the tourism sector is projected to rise by 12.5% annually (United Nations Environment Programme and World Tourism Organization, 2012). The rise in tourism is the cause of waste generation (Dolnicar, 2020). The behavior of visitors and tourism operators, who occasionally fail to properly dispose of the waste that is generated. The tourism sector can perform better

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without causing environmental difficulties when waste is managed well (Shamshiry et al., 2011). Baloch et al. (2023) asserted that lowering environmental pollution is necessary for the growth of tourism. Baloch et al. (2023) claimed that lowering environmental pollution is necessary for the growth of tourism. In order to lessen the negative effects of tourism development, the government and other stakeholders must support the efforts to reduce environmental degradation. If comprehensive environmental management, including managing waste, is appropriately taken into consideration, visitors will choose to return to a tourist destination (Grilli et al., 2021).

CONCLUSION

Tourism sites that do not apply the 3R idea attract less tourists than those that do, indicating that visitors are becoming more conscious of cleanliness with time, according to data research. Waste still accumulates and is improperly managed at Indonesian tourist attractions. Future tourist numbers will decline as a result of this situation, which will harm the ecosystem.

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