



SOCIAL PRACTICE ANALYSIS OF SINGLE-USE PLASTICS (SUPs) UTILIZATION IN CAFES AND RESTAURANTS : A CASE STUDY OF BANDACEH CITY

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Received: 09 June 2026

Accepted: 05 July 2026

Published: July 2026

ABSTRACT

Single-use plastics (SUPs) remain widely used in cafés and restaurants in Banda Aceh because they are perceived as practical, hygienic, and cost-efficient, despite their environmental impacts. This study examined the factors sustaining SUP use, the relationship between environmental awareness and behavior among business owners and consumers, and strategies for reducing reliance on SUPs. A qualitative descriptive approach was applied through field observations and in-depth interviews with 48 respondents, comprising 24 café and restaurant owners or managers and 24 consumers. Interview and observational data were coded and analyzed using NVivo within the framework of Social Practice Theory. The findings show that SUPs is influenced by product availability, convenience, perceived cleanliness, operational costs, consumer habits, inadequate washing facilities, limited access to environmentally preferable alternatives, and weak policy implementation. Although respondents generally understood the environmental consequences of SUPs, this awareness did not consistently translate into behavioral change, particularly among café owners and consumers. Reducing SUPs therefore requires coordinated interventions, including environmental education, business-level standard operating procedures, incentives for reusable alternatives, improved infrastructure, and stronger local regulations. These measures can support more sustainable consumption practices in Banda Aceh's food-service sector.

Keywords : Environmental behavior, Social practice analysis, Single-se Plastics (SUPs), Cafés and restaurants

ABSTRAK

Plastik Sekali Pakai (PSP) masih digunakan di kafe dan restoran di Banda Aceh karena dianggap praktis, higienis, dan ekonomis, meskipun menimbulkan dampak terhadap lingkungan. Penelitian ini bertujuan menganalisis faktor-faktor yang mempertahankan penggunaan PSP, hubungan antara kesadaran lingkungan dan perilaku pemilik usaha serta konsumen, dan strategi pengurangan ketergantungan terhadap PSP. Penelitian menggunakan pendekatan deskriptif kualitatif melalui observasi lapangan dan wawancara mendalam terhadap 48 responden, yang terdiri atas 24 pemilik atau pengelola kafe dan restoran serta 24 konsumen. Data wawancara dan observasi dikodekan dan dianalisis menggunakan NVivo berdasarkan kerangka Teori Praktik Sosial. Hasil penelitian menunjukkan bahwa penggunaan PSP dipengaruhi oleh ketersediaan produk, kemudahan penggunaan, persepsi kebersihan, biaya operasional, kebiasaan konsumen, keterbatasan fasilitas pencucian, terbatasnya akses terhadap alternatif yang lebih ramah lingkungan, serta lemahnya penerapan kebijakan. Meskipun responden umumnya memahami dampak lingkungan dari PSP, kesadaran tersebut belum selalu diterapkan dalam

perubahan perilaku, khususnya pada pemilik kafe dan konsumen. Pengurangan PSP memerlukan intervensi terpadu berupa edukasi lingkungan, penerapan prosedur operasional standar pada tingkat usaha, insentif untuk penggunaan alternatif pakai ulang, peningkatan infrastruktur pendukung, dan penguatan regulasi daerah. Upaya tersebut dapat mendukung praktik konsumsi yang lebih berkelanjutan pada sektor jasa makanan di Banda Aceh.

Kata kunci : *Perilaku lingkungan, Analisis praktik sosial, Plastik Sekali Pakai; Kafe dan restoran*

Introduction

Plastic is a synthetic polymeric material that degrades slowly and requires several decades to centuries to fully decompose. During this degradation process, improperly managed plastics waste can fragment into microplastics particles, which pose serious threats to the environment as well as to the health of living organisms. The increasing consumption of plastics, combined with uncontrolled disposal practices, has further exacerbated this issue. Therefore, implementing effective waste management strategies is a crucial step in minimizing the negative environmental impacts caused by plastic pollution (Van et al., 2021).

The use of single-use plastics (SUPs) has emerged as an increasingly urgent global issue over the past few decades. Numerous studies have demonstrated that this type of plastics significantly contributes to environmental pollution, causes damage to marine ecosystems, and poses negative implications for human health. In urban areas, the consumption of SUPs tends to be particularly high and has become a common practice in daily life. In fact, in many major cities, the presence of plastics bags and disposable food and beverage containers have become deeply embedded in the routines and lifestyle of urban communities (Thompson et al., 2009).

Indonesia is currently facing a serious challenge in waste management. According to data from the Ministry of Environment and Forestry (2023) through the National Waste Management Information System (SIPSN), the country generated approximately 34.6 million tons of waste throughout 2023, of which 19.75% consisted of plastic waste. From this total, only about 15.5 million tons, or 44.85%, have been successfully reduced through various waste reduction efforts, while the remaining portion remains unmanaged. One of the contributing factors to the growing volume of plastics waste is the increasing number of cafés and restaurants, which have grown by around 18% in line with the changing lifestyles of urban communities (Anggraini & Aryono, 2020).

Banda Aceh City is one of the regions with a relatively high number of restaurants and cafés compared to other cities in the Aceh Province. According to data from the Banda Aceh Central Bureau of Statistics (2020), there are approximately 568 culinary businesses operating in the city, including coffee shops, cafés, and restaurants. Along with this growth, the volume of SUPs waste generated has also increased, thereby placing additional pressure on waste management systems and environmental sustainability. In 2024, approximately 940,267.22 thousand tons of waste were generated in Aceh, with around 22.71% or 213,534.68 thousand tons consisting of plastic waste (Kementerian Lingkungan Hidup dan Kehutanan, 2023).

Efforts to reduce SUPs consumption cannot be separated from the role of government policy. The Banda Aceh City Government has issued Mayor Regulation (Banda Aceh Mayor Regulation) No. 111 of 2020 concerning the mandatory

restriction on the use of plastic bags in supermarkets, convenience stores, and shopping malls. This policy serves as a strategic measure to decrease public dependence on plastic bags while promoting more environmentally friendly consumption behavior. However, the implementation of this regulation still faces several challenges, particularly due to prevailing social behaviors and the limited availability of feasible plastics alternatives.

Changing human habits to avoid the use of SUPs requires considerable time and effort. This challenge becomes even more complex when alternatives such as eco-friendly plastics, paper bags, or biodegradable plastic bags are less preferred due to their higher costs. In fact, social behavior plays a crucial role in reducing SUPs consumption, contributing significantly to addressing environmental issues caused by plastic pollution. The shift in public attitudes toward reducing SUPs largely depends on the level of environmental awareness within the surrounding community (Kamaruddin, et al., 2016). Environmental awareness serves as a crucial factor in driving changes in consumption practices, both from the perspective of service providers (such as café and restaurant owners) and consumers. This study aimed to examine the social practices related to the use of SUPs from the viewpoint of business owners, particularly those operating cafés and restaurants in Banda Aceh City.

Methods

This study was conducted in Banda Aceh City, Indonesia, where cafés and restaurants are widely distributed across the city centre, commercial districts, and tourist areas. The concentration of food-service activities and the intensity of urban consumption make Banda Aceh an appropriate setting for investigating the social practices that sustain single-use plastic use in the food and beverage sector.

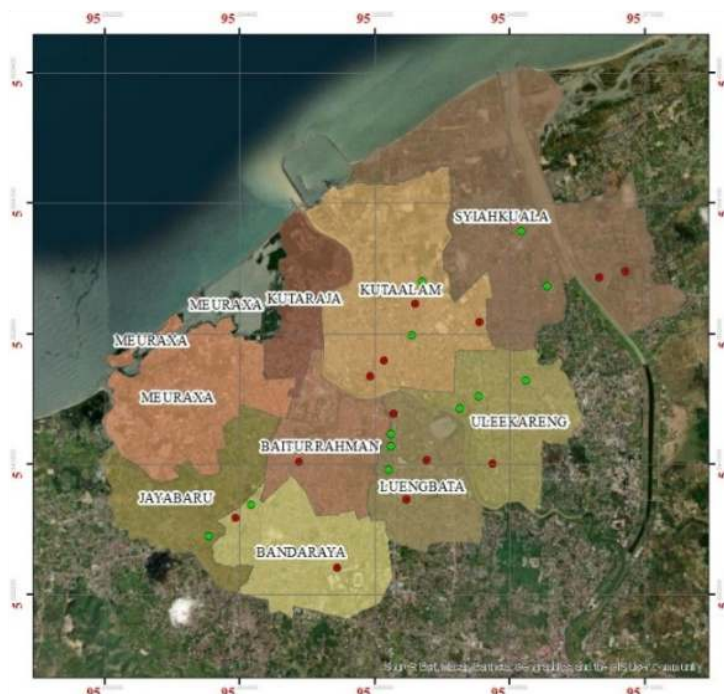


Figure 1. Sampling Location Map in Banda Aceh City

This study employed a qualitative descriptive approach aimed at gaining an in-depth understanding of social practices in the use of SUPs and the factors influencing them. This approach emphasizes direct researcher engagement in the field through observation and in-depth interviews with café and restaurant owners or managers as well as consumers. Through this method, data were obtained naturally without variable manipulation, allowing a contextual depiction of public behavior and awareness regarding SUPs consumption.

Data were collected from two types of sources primary and secondary data. Primary data were obtained through direct field observation and in-depth interviews with café and restaurant owners/managers and visiting customers. Observations were conducted to examine the forms and frequency of SUPs utilization within the businesses, while interviews explored the reasons for using plastic, challenges in switching to eco-friendly alternatives, and levels of environmental awareness. Secondary data were obtained through a literature review of journals, books, institutional reports, data from the Banda Aceh Central Statistics Agency (BPS), and government regulations related to SUPs reduction efforts.

Sampling was carried out using the simple random sampling method based on the SNI 19-3964-1994 formula:

$$S = C_d \sqrt{T_s} \dots \dots \dots (1)$$

Where:

C_d = coefficient for non-residential buildings = 1

T_s = total number of non-residential buildings

Based on this calculation, the number of samples obtained was:

$$S = 1 \times \sqrt{568}$$

$$S = 23,8 \text{ cafés and restaurants}$$

Which was rounded up to 24 cafés and restaurants strategically located across the city. The respondents consisted of two main groups: business owners or managers involved in decision-making related to plastics use, and consumers representing diverse social backgrounds and consumption habits.

The collected data were analyzed using Social Practice Theory, focusing on its three main elements material, meaning, and competence. The analysis process began with verbatim transcription of interview data and observation notes, followed by data reduction to select information relevant to the research objectives. Manual coding was then performed to identify key themes before further processing using NVivo software. The software facilitated data organization, pattern recognition, and analysis of relationships among themes such as the driving factors of SUPs, levels of environmental awareness, and barriers to implementing eco-friendly alternatives.

Pattern analysis was conducted through relationship mapping to understand the interconnection between behavior, awareness, and SUPs consumption practices among both business operators and consumers. The findings were interpreted narratively and presented through various data visualizations, including network diagrams, social relationship maps, and fishbone diagrams. These visual tools helped to illustrate the interaction among factors, depict the relationship between awareness

Results and Discussion

The results of the word frequency analysis derived from in-depth interviews with café and restaurant owners as well as consumers in Banda Aceh City were visualized in the form of a word cloud using the NVivo software. This visualization in Figure 2 illustrates the most frequently occurring terms in discussions related to the use of SUPs, providing an overview of dominant themes and topics that emerged from the participants' responses.



The word cloud visualization shows that the term “plastic (plastik)” is the most dominant, emphasizing that the issue of SUPs usage remains a central focus in both operational activities and consumer behavior within cafés and restaurants. Other frequently appearing words such as “customers (pelanggan),” “cups (gelas),” “straws (sedotan/pipet),” and “practical (praktis)” indicate that aspects of convenience, service efficiency, and customer satisfaction are still the primary considerations influencing the continued use of SUPs.

No	Word	Frequency
1	Plastic	225
2	Customer	88
3	Cup	81
4	Straw	46
5	Environment	42
6	Practical	40
7	Price	38
8	Government	38

9	Alternative	32
10	Policy	23
11	Education	17

In addition, the appearance of words such as “environment,” “government,” “alternatives,” “policy,” and “education,” although with lower frequencies, reflects an increasing awareness of the environmental impacts of SUPs and a growing attention toward efforts to reduce their usage. These findings indicate a shifting perspective among business owners and consumers from merely emphasizing practicality and cost considerations toward a broader understanding of sustainability. However, economic factors and ease of use remain the dominant determinants influencing decisions regarding plastics usage in the culinary sector of Banda Aceh City.

Factors Influencing the Use of SUPs in Cafés and Restaurants in Banda Aceh City

Figure 3 illustrates various factors influencing the use of SUPs in cafés and restaurants across Banda Aceh City. Based on the interview results, these factors include practicality and efficiency, hygiene, operational costs, policies and regulations, availability of plastics alternatives, and social factors such as consumer comfort and habitual behavior. Both café and restaurant owners agreed that SUPs are perceived as the most efficient materials to support fast service and reduce workload. As expressed by one café owner (BO-001), “*Most dine-in and takeaway menus still use plastics for the sake of speed and service convenience.*” This indicates that the decision to use SUPs is closely linked to practical needs and operational efficiency.

In addition to efficiency, cost and hygiene perceptions also emerge as major influencing factors. Café owners perceive SUPs as more economical because they eliminate the need for additional expenses related to washing and maintenance, whereas restaurant owners consider reusable utensils more beneficial in the long term. From the consumer’s perspective, SUPs are often viewed as cleaner and safer container compared to other alternatives as they are single-use. As noted by one respondent (C-005), “*Disposable utensils sometimes feel cleaner because they’ve never been used before... while reusable ones depend on how well they’re washed.*” This suggests that cleanliness is not only understood in a technical sense but also as a perceptual and behavioral construct shaping consumption habits. Thus, psychological and social aspects reinforce the continued use of plastics in daily life.

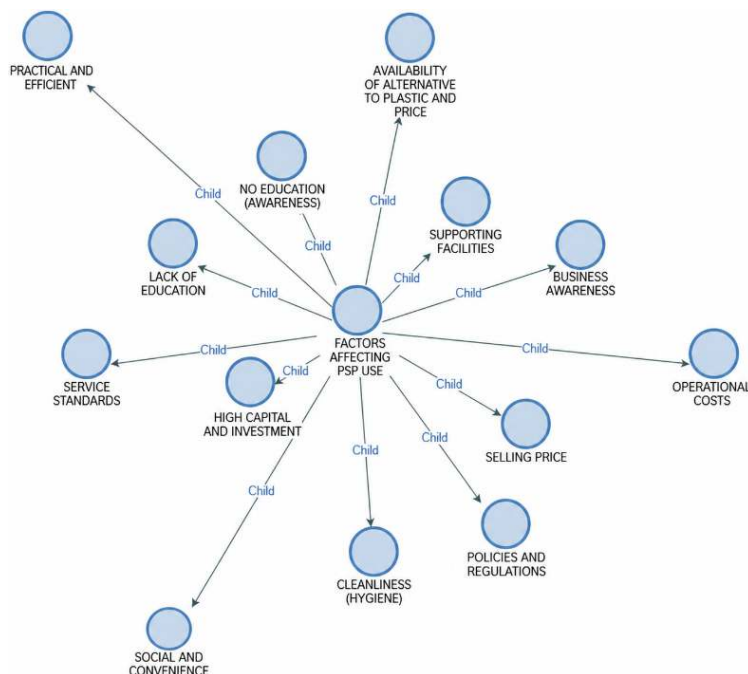


Figure 3 Project Map Diagram of Factors Influencing the Use of SUPs

Other contributing factors include limited washing facilities, high initial investment costs, and weak policy implementation, all of which strengthen dependence on SUPs. Several business owners admitted that the process of transitioning to environmentally friendly alternatives remains difficult due to uneven infrastructure and regulatory support. The Banda Aceh Mayor Regulation No. 111 of 2020 concerning the restriction of plastics bag use is considered not yet fully effective, particularly among small-scale businesses such as cafés. Overall, these findings indicate that the practice of using SUPs results from the interaction among meaning (practicality and cleanliness), material (availability of plastic), and competence (knowledge and habitual use), as described in Social Practice Theory (Shove, Pantzar, & Watson, 2012).

The Relationship Between Awareness and Behavior of Business Owners and Consumers Toward the Use of SUPs in Cafés and Restaurants in Banda Aceh City

The relationship between the level of awareness and behavior of café and restaurant owners, as well as consumers, regarding the reduction of SUPs in Banda Aceh demonstrates a mutually influencing dynamic, though at varying degrees (See Figure 4). In general, knowledge of the negative impacts of plastics is relatively high among all groups; however, this understanding does not always translate into consistent action. Factors such as cost efficiency, market demand, and consumer habits that prioritize practicality remain the main barriers to adopting environmentally friendly behavior.



Figure 4. Levels of Awareness and Behavioral of Café Owners, Restaurant Owners, and Consumers Towards Single-Use Plastics Issue

Café owners generally possess a basic awareness of the environmental harm caused by SUPs, yet their implementation remains limited. Decisions to use SUPs are often driven by considerations of efficiency and the need for fast service. Their awareness tends to remain at the cognitive level due to external constraints such as high operational costs and persistent consumer demand for plastic packaging. This creates a gap between environmental understanding and actual behavioral practice within the café sector.

By comparison, restaurant owners exhibit higher and more consistent levels of awareness that are reflected in their operational practices. Many have replaced SUPs with reusable utensils as part of their service standards and business image. This commitment is motivated by a focus on quality, reputation, and customer satisfaction. A restaurant owner explained: *“I know plastic is hard to decompose... so I banned cups from the start even if cost is higher.”* This indicates that environmental awareness has evolved into tangible behavioural change in this group (Amos, 2008).

Meanwhile, consumers show the highest level of environmental knowledge but display ambivalent behavioral patterns. Most still prefer SUPs for reasons of convenience, hygiene, and lifestyle practicality. Although many claim a willingness to switch to eco-friendly alternatives, behavioral change remains limited due to the lack of supporting facilities and social norms that reinforce sustainable habits. This suggests that heightened awareness alone is insufficient to foster consistent environmentally responsible behavior.

Overall, the findings indicate that knowledge and understanding do not always correspond directly with behavior. Restaurant owners occupy the most balanced position, while café owners and consumers still exhibit noticeable gaps between awareness and action. In this context, the push–pull system theory (Horbach, Rammer, & Rennings, 2012) helps explain the dynamics observed, wherein changes are predominantly driven by policies and business initiatives (push system), while the growing consumer awareness functions as a pull system that encourages producers to adapt. The integration of both mechanisms is essential to ensure that SUPs reduction efforts in Banda Aceh proceed consistently and sustainably.

Recommendations for Reducing Single-Use Plastics in Cafés and Restaurants (Fishbone Analysis)

Efforts to reduce SUPs in the culinary sector, particularly in cafés and restaurants across Banda Aceh, require a systematic and comprehensive approach.

Based on the Fishbone Diagram analysis in Figure 5, the primary causes of SUPs usage can be categorized into six main factors: human, method, material, infrastructure, environment, and policy. This approach highlights that the issue of SUPs is not merely an individual behavioral problem, but also deeply connected to operational systems, regulatory frameworks, and structural support that interact with one another.

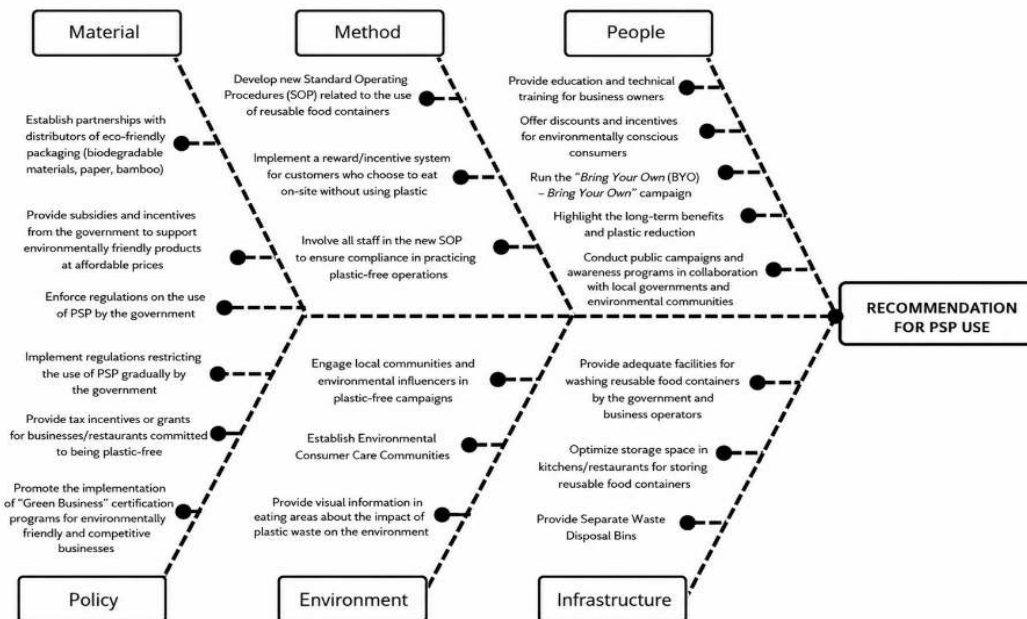


Figure 5 Fishbone Diagram of Recommendations for Reducing SUPs Usage in Cafés and Restaurants

The human factor is the most critical aspect, as the environmental awareness of business owners and consumers remains relatively low. Education and technical training programs are needed to instill sustainability values among business owners, while public campaigns should encourage consumer participation through initiatives such as the "Bring Your Own" movement. For instance, one restaurant owner (O-011) implemented a lifelong 20% discount for customers who bring their own tumblers, illustrating an effective incentive-based approach. This finding aligns with (White, Rishad, & David J, 2019) who emphasized that emotional engagement combined with incentive systems can significantly enhance consumer involvement in pro-environmental behaviors.

From a methodological perspective, the absence of specific Standard Operating Procedures (SOPs) governing the use of eco-friendly dining utensils remains a major barrier. Each café and restaurant is encouraged to develop new SOPs supporting plastic-free practices and to involve all staff members in their implementation. Providing financial incentives to customers who avoid plastic usage can also be effective (Lipinski, Kunkle, & Lange, 2025) argue that long-term behavioral change is most sustainable when supported by consistent financial rewards and habitual reinforcement toward environmentally responsible actions.

Moreover, the material and infrastructure factors strongly influence the effectiveness of SUPs reduction policies. The limited availability of eco-friendly materials and inadequate dishwashing facilities for reusable utensils pose ongoing

challenges for businesses. Stronger collaboration among local governments, distributors, and business owners is essential to ensure the availability of sustainable alternatives such as bamboo, banana leaves, or biodegradable paper. The government can further support this effort by providing shared washing facilities, segregated waste bins, and optimized kitchen layouts designed for non-plastic operations.

Finally, environmental and policy factors require robust regulatory backing and cross-sector collaboration. Local authorities should implement phased restrictions on SUPs, coupled with tax incentives, green business certifications, and the provision of eco-friendly utensils. Community-based public campaigns and impactful visualizations of environmental consequences can also help foster behavioral change. Thus, the Fishbone analysis highlights that reducing SUPs consumption requires synergy among education, policy enforcement, infrastructure development, and collective participation to build a more sustainable consumption system in Banda Aceh.

Conclusion

The findings of this study indicate that the use of SUPs in cafés and restaurants across Banda Aceh remains high due to reasons of efficiency, cost-saving considerations, and consumer preferences for convenience further compounded by limited facilities and weak policy enforcement. Although environmental awareness has increased among business owners and consumers, behavioral change has not been fully realized due to insufficient structural and regulatory support. Therefore, a comprehensive approach is required integrating continuous environmental education, stronger regulatory implementation, financial incentives for eco-conscious businesses, and the development of supporting infrastructure to drive a sustainable transformation in consumption practices within the culinary sector of Banda Aceh.

References

- Amos, N. (2008). *Kesadaran Lingkungan*. Jakarta: PT Rinika Cipta.
- Anggraini, J., & Aryono, H. (2020). Perancangan kampanye sosial bahayanya sampah plastik untuk bumi. *Jurnal Barik*, 1(2), 64–70.
- Badan Pusat Statistik Kota Banda Aceh (2020). *Kota Banda Aceh dalam angka 2020. BPS Kota Banda Aceh*.
- Badan Standarisasi Nasional (1994). *SNI 19-3964-1994: Metode pengambilan dan pengukuran contoh timbulan dan komposisi sampah perkotaan*. Badan Standarisasi Nasional
- Horbach, J., Rammer, C., & Rennings, K. (2012). Determinants of eco-innovations by type of environmental impact: The role of regulatory push/pull, technology push and market pull. *Ecological Economics*, 78, 112–122.
- Kamaruddin, M. A., Mohd, S. Y., Hamidi, A. A., Mohd, N. A., N. Qamaruz, Z., & Noozalina, M. (2016). Assessment of municipal solid waste generation,

- composition and recyclable potential at selected Kelantan dumping sites, Malaysia. *Journal Of Scientific Research And Development*, 204-211.
- Kementerian Lingkungan Hidup dan Kehutanan. (2024). *Capaian Kinerja Pengelolaan Sampah*. Indonesia: Sistem Informasi Pengelolaan Sampah Nasional (SIPSN).
- Lipinski, P. A., Kunkle, S., & Lange, F. (2025). Effects of financial incentives on pro-environmental behavior before and after incentive discontinuation. *Journal Of Environmental Psychology*, Vol 105.
- Pemerintah Kota Banda Aceh (2020). *Peraturan Wali Kota Banda Aceh Nomor 111 Tahun 2020 tentang pembatasan penggunaan kantong plastik*. Pemerintah Kota Banda Aceh.
- Shove, E., Pantzar, M., & Watson, M. (2012). *The dynamics of social practice: everyday life And how it changes*. Sage Publications.
- Thompson, R. C., Swan, S. H., Moore, C. J., & Vom Saal, F. S. (2009). Our plastic age. *Philosophical Transactions Of The Royal Society B: Biological Sciences*, 364(1526), 1973-1976.
- Van, L., Abdul Hamid, N., Ahmad, M. F., Ahmad, A. N. A., Ruslan, R., & Muhamad Tamyaz, P. F. (2021). Factors of single use plastic reduction behavioral intention. *Emerging Science Journal*, Vol. 5, No. 3.
- White, K., Rishad, H., & David J, H. (2019). How to shift consumer behaviors to be more sustainable: a literature review and guiding framework. *Journal Of Marketing*, 83(3), 22–49.