ESGSB
Environmental, Social, Governance, and Sustainable Business
ESGSB 1(1): 50–59
ISSN 3062-844X

Institute for Advanced Science, Social and Sustainable Future
MORALITY BEFORE KNOWLEDGE

The effect of using single-use plastics causes climate change in Indonesia

ELSADDAY PANJAITAN[1]*

[1] *Environmental Engineering, Faculty of Engineering, President University, Bekasi, Jawa Barat, 17530, Indonesia*

*Correspondence elsaddaypanjaitan@student.president.ac.id

Received Date: February 15, 2024 Accepted Date: April 17, 2024

ABSTRACT

Background: The global environmental hazards that threaten people and nature are becoming increasingly clear. One of these hazards includes climate change that affects sea level rise, ocean warming, increased temperature and rainfall and tropical storms. Indonesia is one of the countries that has abundant natural resources with a high level of environmental damage. Indonesia as a tropical country is also one of the countries vulnerable to the negative impacts of climate change. With descriptive analysis method, this research aims to analyze Indonesia's position and strategy in Climate Change. The results show that, Indonesia in preparing action plans and funding uses a multi-sector coordination scheme implemented through the National Action Plan in Facing Climate Change and National Development Planning Response to Climate Change documents. The active role of the business community, academics, civil society organizations, development partners, and all elements of society is needed so that efforts to address climate change can be realized effectively to increase national resilience. The purpose of this study is to analyze public awareness of how dangerous it is to use single- use plastics and as an effort to reduce plastic waste in Indonesia. **Methods:** The method used in this research is quantitative with a survey approach. And the second research tries to explain the description of a particular object from one variable consisting of independent variables, namely campaign messages. The type of research used in this research is quantitative descriptive research. **Findings:** After analyzing the results of this study, we all know how important it is for us to protect the environment and control us to stop overusing materials that contain plastic because it is very damaging to the environment and causes a lot of climate change in Indonesia. **Conclusion:** As we know, Indonesia is the largest contributor to waste, especially the plastic waste that we always use in everyday life. I hope that the journal can broaden our horizons to always maintain our environment to be a good environment for survival.

KEYWORDS: climate change; plastic waste; waste.

1. Introduction

Your point highlights the critical connection between climate change and plastic waste, emphasizing the urgency for action. To summarize and expand on your information. Climate change and its impacts: the Intergovernmental Panel on Climate Change (IPCC) has confirmed that climate change is ongoing and predicted to worsen if not mitigated. The World Meteorological Organization (WMO) reported that 2020 experienced the highest temperatures on record. Plastic waste contribution: Single-use plastics are significant contributors to climate change, emitting greenhouse gases throughout their lifecycle-from production to disposal. In 2020, Indonesia produced over 1 million tons of plastic waste, contributing to its status as the second-largest contributor

Cite This Article:
Panjaitan, E. (2024). The effect of using single-use plastics causes climate change in Indonesia. Environmental, Social, Governance, and Sustainable Business, 1(1), 50-59. https://doi.org/10.61511/esgsb.v1i1.2024.961

to ocean waste globally. Marine pollution: Indonesia's extensive marine areas are heavily polluted with plastic waste, harming marine life and ecosystems. Plastic waste in the ocean disrupts the ability of coral reefs and marine organisms to absorb carbon dioxide effectively, exacerbating environmental pollution. Actions for mitigating climate change and plastic waste. Reducing plastic use: promote alternatives to single-use plastics, such as biodegradable materials and reusable items. Implement stricter regulations on plastic production and waste management. Improving waste management: Enhance recycling programs and infrastructure to ensure plastic waste is effectively processed and reused. Encourage community participation in waste reduction and recycling initiatives. Protecting marine environments: Conduct regular clean-up operations in marine and coastal areas. Support research and conservation efforts to restore and protect marine ecosystems. Raising awareness: Educate the public about the impacts of plastic waste on climate change and marine life. Advocate for policies that address both climate change and plastic pollution. By addressing these interconnected issues through comprehensive strategies, we can work towards a sustainable future for our planet.

The threat of climate change, which is classified as an environmental problem, is no longer a problem for one or two countries, but has become a global problem involving almost all countries. Indonesia has been actively participating in various international regulations and agreements to address global climate issues. Indonesia's participation in these agreements highlights its commitment to addressing climate change through international cooperation and implementing national policies aligned with global standards.

The relationship between international law and national law is indeed crucial, as it determines how international commitments and standards are integrated and enforced within a country's legal framework. In the context of Indonesia, several international regulations have been ratified into national laws, allowing these global agreements to be implemented domestically. This integration is essential for effective implementation and enforcement, contributing to global efforts to address environmental and climate challenges.

The invention of plastic has had a tremendous positive impact due to its numerous advantages over other materials. Because of these properties, plastic waste has significant potential if it can be effectively recycled and repurposed into new products. This could help mitigate the environmental impact of plastic waste by promoting sustainable use and reuse of plastic materials.

Plastic was first introduced by Alexander Parkes in 1862 at an international exhibition in London, England. Parkes' invention, called parkesine, was made from organic materials derived from cellulose. Parkes noted that parkesine had characteristics similar to rubber but at a lower price. Additionally, parkesine could be made transparent and shaped into various forms. Unfortunately, the high cost of the raw materials prevented parkesine from becoming widely publicized or adopted. Later, in the 19th century, the demand for billiard balls led to the extensive killing of elephants for their ivory. In 1866, American inventor John Wesley Hyatt discovered that celluloid, another cellulose-based material, could be formed into a hard substance. Hyatt used celluloid to create billiard balls as a replacement for ivory. However, these celluloid billiard balls proved to be too brittle and would break upon collision.

Bakelite, developed by Leo Baekeland in 1907, is often considered the first true synthetic plastic. This thermosetting phenol formaldehyde resin became widely used due to its nonconductivity and heat-resistant properties, making it ideal for electrical insulators, radio and telephone casings, kitchenware, and countless other applications. Baekeland's invention marked the beginning of the modern plastics industry, revolutionizing manufacturing and everyday life.

Bakelite and rayon are both significant materials in the history of industrial and household applications. Bakelite: Bakelite can be added to a variety of materials, including softwood. It was used in a wide range of items, including weapons and light machinery for war purposes. For household purposes, Bakelite was commonly used as a material for

making electrical insulation due to its non-conductive properties. Rayon: Rayon, another modification of cellulose, was first developed by Louis Marie Hilaire Bernigaut in 1891 in Paris. Bernigaut aimed to create man-made silk by observing silkworms. Initially, rayon was highly flammable, posing a significant problem. This issue was later resolved by Charles Topham, making rayon safer for various uses. Both materials played crucial roles in their respective domains, with Bakelite revolutionizing the manufacturing of durable and heat-resistant products and rayon providing an alternative to natural silk.

Plastic waste is indeed a significant environmental issue. Its widespread use by individuals, shops, and large companies contributes to the high volume of discarded plastic. Addressing the plastic waste issue requires a multifaceted approach involving individuals, businesses, and governments working together to reduce plastic consumption, improve waste management, and innovate sustainable solutions. So therefore plastic waste is one of the causes of climate change on earth, one of which is Indonesia. So we must contribute at least a little to reduce climate change in Indonesia by reducing the use of single-use plastic so that this earth can be better and we can live in peace and comfort.

2. Methods

The method used in this research is quantitative with a survey approach. The data collection technique uses primary data in the form of tests on knowledge of environmental pollution and questionnaires on the behavior of using disposable plastic items. The data analysis technique in this study is a simple linear regression test. Based on the results of simple linear regression data processing, a simple regression equation was obtained for the effect of environmental pollution knowledge on behavior in the use of plastic, resulting in a regression direction coefficient with a significance value (Sig.) of 0.001. With the value of Sig. = 0.001, because 0.001 <0.05, H0 is rejected and H1 is accepted, meaning that the regression coefficient is significant and it can be said that there is a significant influence of knowledge of environmental pollution knowledge on the behavior of using disposable plastic items. Data collection used in this study is in the form of primary data. By distributing environmental pollution knowledge test questions using a guttman scale with a score of 1 if the answer is correct and a score of 0 if the answer is wrong, to determine the level of environmental pollution knowledge in the community and filling out questionnaires about behavior in the use of disposable plastic items using a Likert scale to find out how people's behavior in the use of disposable plastic.

Your research aims to provide a detailed description of an object by analyzing independent variables, specifically campaign messages. The study adopts a quantitative descriptive research approach. This method focuses on presenting an accurate depiction or overview of the object being studied, utilizing collected data or samples. It does so without delving into analysis or drawing broad conclusions. Your quantitative research will specifically analyze how non-governmental organization (NGO) campaign messages address the issue of plastic waste.

3. Results and Discussion

To analyze the data from your research on the effect of knowledge of environmental pollution on behavior in the use of disposable plastic, you can follow these steps. Descriptive statistics: Summarize the data to understand the distribution of knowledge and behavior scores. Correlation analysis: Determine if there is a relationship between knowledge of environmental pollution and behavior in using disposable plastics. Regression analysis: Assess the strength and direction of the relationship between knowledge and behavior. Visualizations: Create graphs to help illustrate the findings. To start, could you provide the data from your study, including the knowledge scores and behavior scores for each of the 80 respondents? If you have this data in a file, you can upload it here. If not, you can provide a summary or sample data.

The overall research results of variable X (knowledge of environmental pollution) get a score of 74-100 or 94.84%. This can be interpreted that the knowledge of environmental pollution in the general public in an area is fairly good.

On variable Y (disposable plastic use behavior). Based on the results of the study, the majority of respondents scored 57 to 73 or 60.82% of the respondents. number of respondents, this can be interpreted that the behavior of using disposable plastics is quite good.

The One Sample Kolmogorov-Smirnov (K-S) test is used to test the normality of residuals in regression analysis. In your case, the significance value is 0.2, which is greater than 0.05. Therefore, you conclude that the residuals are normally distributed, satisfying the normality assumption in your regression model.

It appears there might be a misunderstanding in interpreting the results of the linearity test. Typically, in hypothesis testing, if the calculated F value is smaller than the F table (critical) value, it suggests that the null hypothesis cannot be rejected. Since 0.622 < 2.04, this means that you fail to reject the null hypothesis (H0). Therefore, the correct interpretation should be that there is no significant linear relationship between the environmental pollution knowledge variable and the variable of disposable plastic use behavior.

It involves regressing the absolute values of the residuals on one or more of the independent variables and checking the significance of the coefficients. In your case, the significance value (Sig.) for the variable "knowledge about environmental pollution" is 0.282, which is greater than the commonly used significance level of 0.05. This indicates that the relationship between the residuals and the variable is not statistically significant. Hence, according to the Glejser test, you can conclude that there are no symptoms of heteroscedasticity in your regression model, meaning the assumption of homoscedasticity holds.

Since the significance value (Sig.) of 0.001 is less than the significance level of 0.05, the null hypothesis (H0) is rejected, and the alternative hypothesis (H1) is accepted. This means that the regression coefficient is significant.

In the regression equation, it is known that the constant value is 53.844. While the regression coefficient number is -0.860. This figure means that every 1% increase in the level of knowledge (X), the behavior (Y) will decrease by 0.860. So that it has a regression equation, namely Y = a + bX or Y = 53.844 - 0.860X.

From the results of the t-test calculation, t count is 3.545. With the t table value df = n2 = 97-2 = 95 is 1.985. From the calculation of the value of t count> t table (3.545> 1.985), then H0 is accepted and H1 is rejected, so it can be concluded that there is a significant influence between the variables of environmental pollution knowledge on plastic use behavior.

The second study obtained research results showing the characteristics of respondents based on gender grouping, namely those who were male as many as 36 respondents with a percentage of 31.03%. Meanwhile, 80 respondents were female with a percentage of 68.97%. Your conclusion indicates that awareness of the Bye Bye Plastic Bags campaign is higher among women compared to men. Additionally, it highlights that the majority of respondents who are aware of the campaign fall within the 21-25 age range, suggesting that the millennial generation is particularly active on social media platforms like Instagram. This demographic insight could be useful for targeting future campaigns and understanding the reach of social media activism within specific age groups. In addition, this millennial generation was raised when the internet culture was born, which is then referred to as digital native. The development of digital natives in Indonesia currently occupies the largest population, so their level of knowledge is sufficient to opera te social media. The results of the descriptive analysis in this study indicate that the campaign messages carried out by the Bye Bye Plastic Bags Non-Government Organization (NGO) overall show positive mean results.

In the credibility, the results show that the Bye Bye Plastic Bags Organization is a competent source in delivering campaign messages, besides that respondents also consider that the organization is a trustworthy source for delivering campaign messages related to the campaign. That the recipient of the message must trust the sender of the message or information by respecting the competence of the information source on the topic of information conveyed.

The assessment of the campaign message by the Bye Bye Plastic Bags Organization, which scored an average of 4.08 on the context indicator, indicates that respondents view the context of the campaign as effective and relevant. This score suggests that the organization's campaign message aligns well with current conditions in Indonesia, particularly the escalating issue of plastic waste. By accurately reflecting the reality of the increasing waste problem, the organization effectively connects with its audience. The relevance of the campaign to the ongoing environmental challenges underscores the importance of aligning communication programs with the actual conditions and realities faced by the target audience. In this way, mass media campaigns serve as supplements to everyday actions and speeches, reinforcing the importance of addressing environmental issues in a meaningful and contextually appropriate manner.

The results of this content research support previous research, that the content or content of campaign messages must contain meaning and be relevant to the recipient's situation. In general, people will choose information items that promise great benefits for them. So, this means that respondents will choose content or information items from a campaign message that will provide benefits to them. In this study, respondents also agreed that the information or message content conveyed by the organization provided good value and benefits for them.

The clarity results, showing a mean value of 4.01, indicate that respondents generally found the campaign message by the Bye Bye Plastic Bags Organization easy to understand. This high mean value suggests that both the sender and the recipient of the message interpreted the words in a similar way, ensuring effective communication.

It sounds like you're discussing the importance of repetition with variation in communication, learning, and persuasion. Indeed, repetition helps reinforce information, while variation can keep things engaging and aid in deeper understanding. Consistency in messaging is also crucial for effective communication and maintaining credibility. The Bye Bye Plastic Bags Organization should deliver the campaign message repeatedly, because respondents need repetition in order to enter, and the messages given must also be consistent. Absolutely, crafting effective campaign messages is crucial for organizations like Bye Bye Plastic Bags to resonate with their target audience. Sensitivity to audience demographics and issues, coupled with creativity in message design, can significantly enhance message impact and engagement. Consistency and variety in messaging also help maintain visibility and reinforce campaign objectives over time.

It sounds like the Bye Bye Plastic Bags Organization is effectively using communication channels to convey information, as indicated by the mean channel score of 4.15. Additionally, achieving a mean capability score of 4.01 suggests that respondents find the audience's capabilities to understand and engage with the campaign message to be quite satisfactory. These scores reflect positively on the organization's communication strategies and the audience's reception of their messages.

4. Conclusions

It sounds like you're summarizing findings from a study about public knowledge of environmental pollution. If the study concludes that 94.84% of people have good knowledge (in the range of 74 to 100 on a scale), it suggests that widespread access to information through seminars and electronic sources has contributed significantly to public awareness. This availability likely empowers individuals to educate themselves

effectively on environmental issues. It's encouraging to see such high levels of awareness, as informed communities are crucial for addressing environmental challenges.

It sounds like you're discussing the behavior of communities regarding the use of disposable plastic goods. You mentioned that the majority of people score between 57-73 out of 100 in terms of their behavior, indicating a moderate level of adherence. Factors contributing to this include lack of confidence and awareness, inadequate supporting facilities, and insufficiently strict regulations. These factors collectively prevent people from achieving more ideal behaviors in reducing disposable plastic usage. Addressing these gaps could potentially improve overall behavior in this area.

It sounds like you're discussing the findings of a regression analysis related to the influence of environmental pollution knowledge on student behavior regarding disposable plastic goods. If the regression coefficient shows a significant relationship, it indeed suggests that knowledge of environmental issues can impact how students behave, particularly in terms of their use of disposable plastics. This finding can be crucial for developing interventions or educational programs aimed at reducing plastic waste through increasing environmental awareness among students.

It sounds like you're suggesting future research could focus on analyzing the campaign messages used by Bye Bye Plastic Bags, an NGO, to understand their effectiveness and impact. So, in a the future research it is expected to be able to a find other research objects or NGOs that are engaged in environmental issues, especially the use of plastic.This study only examines one variable, namely the independent variable (campaign message) whose focus is only to see how the influence of campaign messages without certain dependent variables. So, future research is expected to develop the influence of campaign messages on other dependent variables, such as behavior change and so on.

Author Contribution

The authors made full contributions to the writing of this article.

Funding

This research did not utilize external funding.

Ethical Review Board Statement

Not applicable.

Informed Consent Statement

Not applicable.

Data Availability Statement

Not applicable.

Conflicts of Interest

The authors declare no conflicts of interest.

Open Access

References

Alkhajar, E. N. S., & Luthfia, A. R. (2020). Daur Ulang Sampah Plastik Sebagai Mitigasi Perubahan Iklim. Jurnal Penamas Adi Buana, 4(1), 61-64. https://jurnal.unipasby.ac.id/index.php/penamas/article/view/2524/2151

Arico, Z., & Jayanthi, S. (2018). Pengolahan limbah plastik menjadi produk kreatif sebagai peningkatan ekonomi masyarakat pesisir. Martabe: Jurnal Pengabdian Kepada Masyarakat, 1(1), 1-6. http://dx.doi.org/10.31604/jpm.v1i1.1-6

Chow, C. F., So, W. M. W., Cheung, T. Y., & Yeung, S. K. D. (2017). Plastic waste problem and education for plastic waste management. In Emerging practices in scholarship of learning and teaching in a digital era (pp. 125-140). Springer, Singapore. https://doi.org/10.1007/978-981-10-3344-5_8

Dewi, N. L. M. C. (2019). EFEKTIVITAS PELAKSANAAN PERATURAN GUBERNUR BALI NOMOR 97 TAHUN 2018 TENTANG PEMBATASAN TIMBULAN SAMPAH PLASTIK SEKALI PAKAI DI DAERAH KABUPATEN GIANYAR (Doctoral dissertation, UNIVERSITAS ATMA JAYA YOGYAKARTA). https://e-journal.uajy.ac.id/24010/

Dewi, W. W. A., & Syauki, W. R. (2022). Pesan Kampanye Non-Goverment Organization terhadap Permasalahan Sampah Plastik. Jurnal Riset Komunikasi, 5(2), 159-171. https://doi.org/10.38194/jurkom.v5i2.428

Ford, H. V., Jones, N. H., Davies, A. J., Godley, B. J., Jambeck, J. R., Napper, I. E., ... & Koldewey, H. J. (2022). The fundamental links between climate change and marine plastic pollution. Science of The Total Environment, 806, 150392. https://doi.org/10.1016/j.scitotenv.2021.150392

Franks, S. J., Weber, J. J., & Aitken, S. N. (2014). Evolutionary and plastic responses to climate change in terrestrial plant populations. Evolutionary applications, 7(1), 123-139. https://doi.org/10.1111/eva.12112

Giesler, K. (2018). The plastic problem: Plastic pollution in Bali. https://digitalcollections.sit.edu/isp_collection/2937/

Gumulya, D., Parapak, I. A., Tjunawan, L., Nareswari, N. A., Indarto, I., & Suhanto, Y. (2019). Peningkatan Kesadaran Mahasiswi Akan Sampah Gelas Minuman Plastik Di Universitas Pelita Harapan Dengan Pendekatan Desain Produk. Prosiding Konferensi Nasional Pengabdian Kepada Masyarakat dan Corporate Social Responsibility (PKM-CSR), 2, 821-833. https://doi.org/10.37695/pkmcsr.v2i0.328

Indraswara, A. I. T., Hasan, Y. A., & Oner, B. (2021). PERATURAN PENANGANAN SAMPAH PLASTIK DI KOTA MAKASSAR DALAM MENGATASI PERUBAHAN IKLIM: REGULATIONS FOR HANDLING PLASTIC WASTE IN MAKASSAR CITY IN OVERCOMING CLIMATE CHANGE. CLAVIA: Journal of Law, 19(2), 129-139. https://journal.unibos.ac.id/clavia/article/view/1116

Lazarevic, D., Aoustin, E., Buclet, N., & Brandt, N. (2010). Plastic waste management in the context of a European recycling society: Comparing results and uncertainties in a life cycle perspective. Resources, Conservation and Recycling, 55(2), 246-259.

https://doi.org/10.1016/j.resconrec.2010.09.014
Manurung, E. M. (2011). Peran Pengetahuan dan Proses Belajar terhadap Perubahan Strategi Praktek Bisnis: sebuah Analisis Wacana Tentang Perubahan Iklim. Bina Ekonomi, 15(1). https://doi.org/10.26593/be.v15i1.775.%25p
Mulyani, A. S. (2021). Pemanasan Global, Penyebab, Dampak dan Antisipasinya. http://repository.uki.ac.id/4908/
Nadlifatin, R. (2018). Pengolahan limbah plastik menjadi produk kerajinan tangan untuk meningkatkan ekonomi masyarakat Sendang Dajah. Jurnal Abdikarya: Jurnal Karya Pengabdian Dosen dan Mahasiswa, 1(1). https://jurnal.untag-sby.ac.id/index.php/abdikarya/article/view/2048
Nasution, R. S. (2015). Berbagai cara penanggulangan limbah plastik. Elkawnie: Journal of Islamic Science and Technology, 1(1), 97-104. http://dx.doi.org/10.22373/ekw.v1i1.522
Nurpratama, B. A., Supriyadi, E., & Yuliaji, D. (2022). KEUNGGULAN DAN KEKURANGAN MESIN DAUR ULANG LIMBAH PLASTIK DAN OLI MENJADI BATU BATA SERTA INOVASI LANJUTAN. Jurma: Jurnal Program Mahasiswa Kreatif, 6(1), 96-105. https://doi.org/10.32832/pkm-p.v6i1.1157
Pan, D., Su, F., Liu, C., & Guo, Z. (2020). Research progress for plastic waste management and manufacture of value-added products. Advanced Composites and Hybrid Materials, 3(4), 443-461. https://www.researchgate.net/publication/346535868_Research_progress_for_plastic_waste_management_and_manufacture_of_value-added_products
Prasangka, C. A. R. (2021). MANAJEMEN KAMPANYE BALI BUKAN PULAU PLASTIK DENGAN MENGGUNAKAN VIDEO DOKUMENTER DALAM MENGURANGI PENGGUNAAN PLASTIK SEKALI PAKAI (Studi Pada" Kampanye Bali Bukan Pulau Plastik") (Doctoral dissertation, Universitas Muhammadiyah Malang).
Qomariah, N., & Nursaid, N. (2020). Sosialisasi pengurangan bahan plastik di masyarakat. Jurnal Pengabdian Masyarakat Manage, 1(1), 43-55. https://doi.org/10.32528/jpmm.v1i1.3293
Rahmayani, C. A., & Aminah, A. (2021). Efektivitas Pengendalian Sampah Plastik Untuk Mendukung Kelestarian Lingkungan Hidup Di Kota Semarang. Jurnal Pembangunan Hukum Indonesia, 3(1), 18-33. https://doi.org/10.14710/jphi.v3i1.18-33
Rigamonti, L., Grosso, M., Møller, J., Sanchez, V. M., Magnani, S., & Christensen, T. H. (2014). Environmental evaluation of plastic waste management scenarios. Resources, Conservation and Recycling, 85, 42-53. https://doi.org/10.1016/j.resconrec.2013.12.012
Rista, Y. A. IMPLEMENTASI. PERATURAN. WALIKOTA NOMOR. 30. TAHUN. 2018. TENTANG PENGURANGAN. PENGGUNAAN. PRODUK PLASTIK. SEKALI. PAKAI. DI. KOTA. BONTANG. https://ejournal.ap.fisip-unmul.ac.id/site/wp-content/uploads/2021/06/JURNAL%20Yanti%20Anda%20Rista%20AP%202016%20(2)%20(06-14-21-01-04-14).pdf
Selpiana, S., Bahrin, D., Astuti, A., & Bayuningsih, R. Y. (2020). EDUKASI PENGGUNAAN PRODUK PLASTIK YANG TEPAT SERTA PENGENALAN TEKNOLOGI PENGOLAHAN SAMPAH PLASTIK MENJADI BAHAN BAKAR DI KAMPUNG SUNGAI PEDADO KERAMASAN PALEMBANG. Applicable Innovation of Engineering and Science Research (AVoER), 63-69. http://ejournal.ft.unsri.ac.id/index.php/avoer/article/view/79
Shen, M., Huang, W., Chen, M., Song, B., Zeng, G., & Zhang, Y. (2020). (Micro) plastic crisis: un-ignorable contribution to global greenhouse gas emissions and climate change. Journal of Cleaner Production, 254, 120138. http://ee.hnu.edu.cn/_local/0/FB/08/E8C3E13CB3CCAB3B3CD79AAAF32_6D121564_7977C.pdf
Stafford, R., & Jones, P. J. (2019). Viewpoint–Ocean plastic pollution: A convenient but distracting truth?. Marine policy, 103, 187-191. http://www.homepages.ucl.ac.uk/~ucfwpej/pdf/PlasticDistraction.pdf

Sulistyo, I., Gita, K., & Wiranata, I. J. (2022). STRATEGI PEMERINTAH KOTA BANDARLAMPUNG-INDONESIA TERKAIT PERUBAHAN IKLIM PADA 2015-2020. Jurnal Hubungan Internasional Indonesia, 4(01), 67-90. http://repository.lppm.unila.ac.id/45126/1/Jurnal%20Strategi%20Perubahan%20Iklim_gita%20K.pdf

Wahyuni, N., Rahmadi, A., & Muhammad, G. (2018). Pengaruh pencemaran lingkungan terhadap kesuburan dan produktivitas Tanah di Kawasan Cimencrang. https://digilib.uinsgd.ac.id/9311/

Zapata, O. (2021). The relationship between climate conditions and consumption of bottled water: A potential link between climate change and plastic pollution. Ecological Economics, 187, 107090. https://doi.org/10.1016/j.ecolecon.2021.107090

Biographies of Author(s)

ELSADDAY PANJAITAN, Environmental Engineering, Faculty of Engineering, President University.

- Email: elsaddaypanjaitan@student.president.ac.id
- ORCID:
- Web of Science ResearcherID:
- Scopus Author ID:
- Homepage: