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Eco-Labelling of Products as a Tool for Environmental Protection

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Abstract

The increasing awareness of environmental degradation has led to a growing demand for sustainable products, prompting the adoption of eco-labelling as a pivotal tool for environmental protection. This article aims to examine eco-labelling's multifaceted role in fostering environmentally responsible consumer choices and incentivising businesses to embrace sustainable practices. By providing a comprehensive overview of the fundamental principles and mechanisms underlying eco-labelling, the paper explores how these labels communicate vital information about a product's ecological impact to consumers. Drawing insights from case studies and existing frameworks, the article evaluates the effectiveness of various eco-labelling programs in influencing consumer behaviour and steering market forces toward sustainability. However, it also addresses challenges such as greenwashing and the lack of standardised criteria, proposing potential solutions to enhance the credibility and transparency of eco-labels. Furthermore, the discussion encompasses the regulatory landscape and industry collaboration, emphasising the crucial role of government policies and collective efforts in fortifying the success of eco-labelling initiatives. In conclusion, the article asserts that eco-labelling is a dynamic force for environmental protection, urging continuous research, collaboration, and refinement to solidify its impact on shaping a more sustainable and eco-conscious marketplace.

Keywords: Sustainable consumption, environmental protection, consumer behaviour, Eco-labelling

JEL classification: M10, M30, Z33

1. Introduction

The deteriorating state of the environment is one of the critical issues of our time, requiring an immediate and effective response at all levels of society. Environmental problems such as climate change, air and water pollution, loss of biodiversity and overexploitation of natural resources threaten not only our planet but also the quality of life of future generations. Public awareness of the need for sustainable behaviour and consumption has increased in response to these challenges. This awareness is reflected in a growing demand for products that are not only of high quality but also environmentally friendly.

One of the critical tools for promoting sustainable consumption and production is the environmental labelling of products. Environmental labelling is a system through which products are marked with specific labels or certificates that inform consumers about their environmental performance and impact. These labels may include information on energy efficiency, use of renewable raw materials, low carbon footprint, biodegradability and other aspects relevant to environmental protection.

Eco-labelling aims to provide consumers with transparent and trustworthy information to enable them to make informed purchasing decisions. In this way, consumers can actively contribute to protecting the environment by giving preference to products less harmful to nature. In addition, eco-labelling encourages businesses to adopt sustainable practices and technologies as consumers increasingly prefer environmentally friendly products. This pressure from consumers can lead to broader adoption of environmentally responsible production practices and innovations along the value chain. The importance of eco-labelling goes beyond individual purchasing decisions. These labels and certificates can influence broader market forces and support the transition to a green economy. Businesses that invest in eco-innovation and obtain environmental certification can gain a competitive advantage in the marketplace. In this way, eco-labelling can support economic growth while ensuring that this growth is sustainable and respectful of natural resources.

The Article examines the multifaceted role of eco-labelling in fostering environmentally responsible consumer choices and incentivising businesses to embrace sustainable practices.

2. Literature review

Environmental labelling of products is based on several fundamental principles that are key to its effectiveness and credibility (Giacomarra et al., 2021). These principles include transparency, verifiability, reliability and relevance of information (Abbas & Sagsan, 2019).

Other theories on the environmental labelling of products have been professionally elaborated in several publications and articles: Galati et al. (2022), Geissdoerfer et al. (2017), Bravi et al. (2020), Bjerregaard & Møller (2020), Smith & Mayer (2018), Boons et al. (2013), Harris et al. (2021), Geissdoerfer et al. (2016), Bocken et al. (2014), Ricky et al. (2012), Dangelico & Vocalelli (2017) and Sun & Sun (2021).

Transparency is one of the most important principles of environmental labelling. Transparency means that the information provided through an eco-label must be clear, accessible and understandable to consumers (Ardakani & Soltanmohammadi, 2019). Research shows transparent information increases consumer trust in eco-labels and promotes responsible decision-making (Yusliza et al., 2020). Transparency also includes providing detailed information on the criteria and methodologies used to evaluate the environmental performance of products (Corona et al., 2019).

Verifiability means that claims about the environmental impact of products must be verifiable by independent bodies (Daddi et al., 2016). Independent certification and regular inspections ensure that products meet the environmental criteria. This verifiability is critical to maintaining the credibility and reliability of ecological labels (Islam et al., 2024). Another crucial factor is the reliability and relevance of information. It is essential for environmental labelling to fulfil its purpose. Label information must be accurate, up-to-date and relevant to consumers (Morant et al., 2017). Relevance means that labels should provide pertinent information to consumers' environmental decision-making, such as carbon footprint, water consumption, chemicals used, etc. (Marruccii et al., 2021).

Environmental labelling mechanisms include various types of labels and certifications that inform consumers about the environmental performance of products (Abdullah et al., 2017). Some of the most well-known include the EU Ecolabel, energy labels for electrical appliances, organic certifications such as USDA Organic, and many others (Cankaya & Sezen, 2019). Environmental labels provide consumers with information to make informed purchasing decisions (Nakaishi & Chapman, 2024). Labels can inform about various aspects such as energy efficiency, use of renewable raw materials, low carbon footprint, biodegradability, and more. This information helps consumers choose more environmentally friendly products, promoting sustainable consumption (Sandoval et al., 2016).

Research shows that eco-labelling programmes can significantly impact consumer behaviour and market forces (Mousa & Othman, 2020). Case studies and empirical research prove how environmental labels influence consumer purchasing decisions and drive the market towards sustainability.

3. Methodology

We used quantitative research methods to evaluate the effectiveness of environmental labelling. We analysed existing case studies and secondary data. The case studies and secondary data provided a deeper insight into specific labelling schemes and a wide range of views and experiences.

We have selected several case studies from various sectors, including the food, textiles, and energy industries. These studies allowed us to assess examples of successful and unsuccessful eco-labelling schemes.

The study included case studies from different sectors that illustrate various aspects and approaches to eco-labelling. The case studies were selected using the following criteria:

- Representativeness: We have included case studies from sectors as diverse as food, textiles, electronics and energy to cover a wide range of approaches to eco-labelling.
- Geographical diversity: We have considered case studies from different regions to gain a global perspective on the effectiveness and challenges of eco-labelling.
- Success and failure rates: We have included examples of successful and less successful programmes to identify the factors contributing to their effectiveness or failure.

We are aware of several limitations of our study, which include:

- Sample selection: Despite efforts to be representative, the choice of case studies and respondents may influence the results.
- Subjectivity of the analysis: Interpretation of data may be influenced by the subjective views of the researchers.
- Data availability: Not all data on eco-labelling schemes and their effectiveness was available, which may have affected a deeper understanding of some aspects.

Despite these limitations, the study provides valuable insights into the role of eco-labelling in environmental protection and offers practical recommendations to improve its effectiveness and credibility.

4. Results and Discussion

One of the main benefits of eco-labelling is its ability to inform consumers about products' environmental impact. These labels serve as an essential communication tool that simplifies complex ecological information into a form that consumers can easily understand and use in purchasing decisions. This process increases consumer awareness of environmental responsibility and encourages the purchase of more sustainable products. Case studies show that consumers are willing to pay more for products that are labelled as environmentally friendly, suggesting that eco-labelling can effectively motivate consumer behaviour change.

Since September 2023, there has been an upward trend in licensing and products, with most EU Ecolabel product groups experiencing growth. The number of EU Ecolabel licences and products currently awarded is the highest ever recorded (see Figure 1). This increase reflects the continued interest of businesses, consumers and retailers in environmentally friendly products (EC 2024).

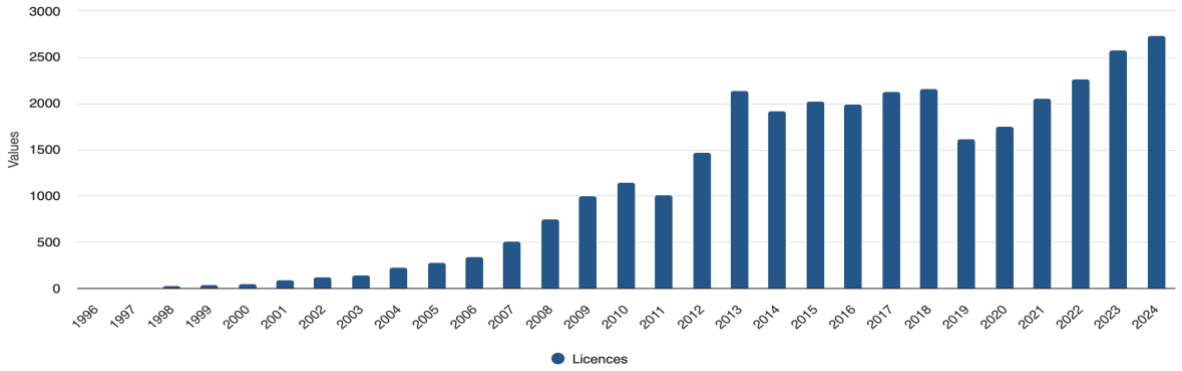
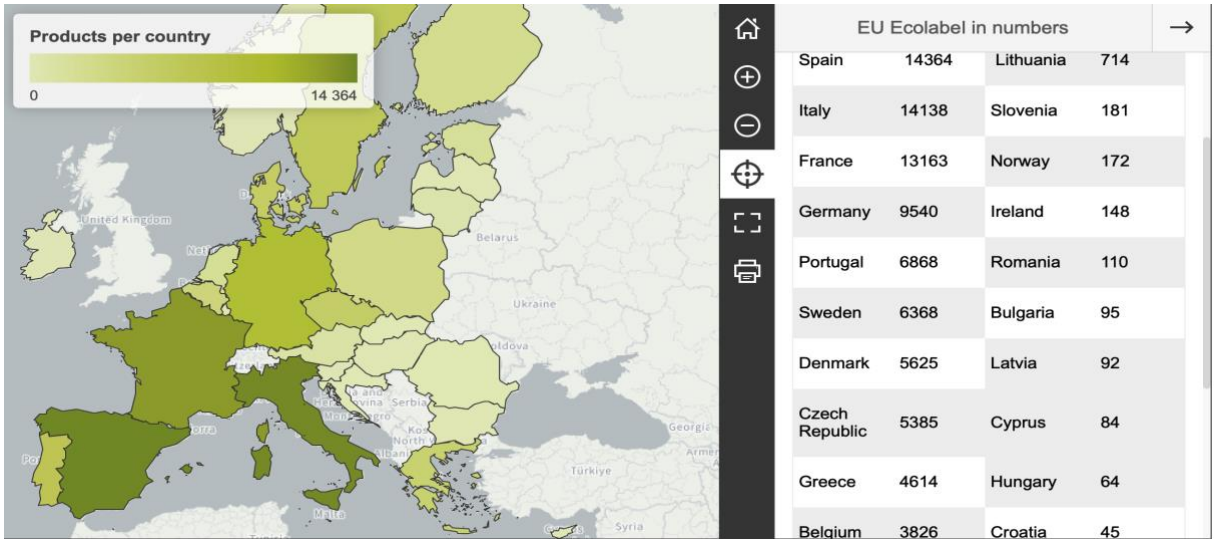


Figure 1: Evolution of the number of EU Ecolabel licenses
Source: European Commission, 2024

Despite the positive impact of eco-labelling, significant challenges must be addressed. One of the biggest problems is the phenomenon of greenwashing, where companies use misleading claims about the environmental credentials of their products to present themselves as environmentally responsible without actually meeting the necessary criteria. This phenomenon undermines consumer confidence in eco-labels and can reduce their effectiveness. To address this problem, harmonisation and standardisation of eco-labelling criteria are essential to ensure consistency and transparency across the sector. In particular, licensed products could help in this regard.

The leading product group regarding licences granted remains tourist accommodation services, with 684 licences. During the last six months, 85 new licences were granted, representing an increase of 14%. Cosmetics, printed paper, stationery, paper bags, and furniture also recorded high gains (+17, +14 and +9 licences respectively). (EC, 2024).



Picture 1: Products per country
Source: European Commission, 2024

Most EU Ecolabel licences are granted in Italy (17%), France (16%), Germany (16%) and Spain (13%). Similarly, Spain (15%), Italy (15%), France (14%) and Germany have the highest number of products awarded (10%).

Another important aspect is the regulatory environment, which promotes and regulates eco-labelling. Governments can implement policies encouraging eco-labels but must also ensure these labels meet clear and strict criteria. Collaboration between governments, NGOs, and industry is essential to developing and maintaining effective eco-labelling programmes. Collective efforts can lead to the development of better tools and strategies that promote sustainability and responsibility throughout the production and consumption chain.

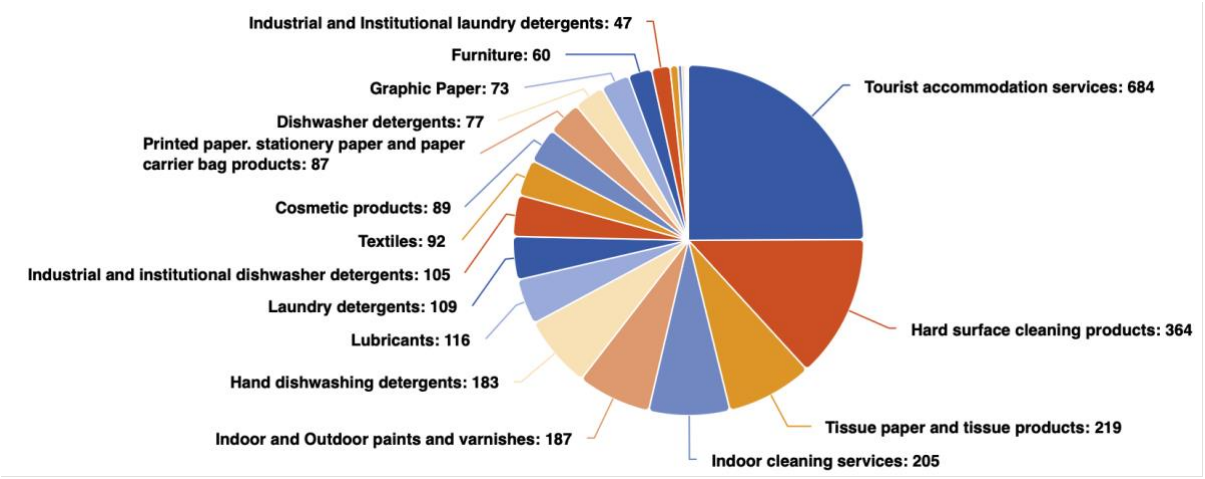


Figure 2: Distribution of awarded Licenses per product group
Source: European Commission, 2024

As you can see in Picture 2, out of a total of 2,743 licences, the majority belong to the following product groups: tourist accommodation services (25%), hard surface cleaners (13%), and paper and toiletries (8%).

Eco-labelling is a dynamic tool for environmental protection. To realise its full potential, all stakeholders - from governments and businesses to consumers - must create a sustainable and environmentally conscious market.

5. Conclusion

Environmental product labelling plays a crucial role in transforming the market towards sustainability. In an era where growing ecological awareness is leading consumers to prefer sustainable products, eco-labelling is becoming not only an information tool but also a catalyst for behavioural change among businesses and consumers. This mechanism enables consumers to make informed choices through clearly defined environmental criteria, promoting sustainable development.

This article examined the multifaceted role of eco-labelling in fostering environmentally responsible consumer choices and incentivising businesses to embrace sustainable

practices. Eco-labelling has a multidimensional function, including its ability to improve transparency and accountability in supply chains. The case studies presented in the paper demonstrate that properly implemented eco-labelling programmes can effectively influence consumer behaviour while motivating businesses to implement green practices. However, this effect is contingent on the integrity of product labelling, where the presence of greenwashing and the lack of standardised criteria can undermine the credibility of eco-labels and weaken their impact.

The regulatory environment and cooperation between different sectors are critical elements for strengthening the effectiveness of eco-labelling. Governments and international organisations are called upon to set clear and consistent standards to prevent the misuse of environmental claims and enhance consumer confidence. Collaboration within and between industries is critical to sharing best practices and harmonising standards, ensuring eco-labelling benefits all stakeholders.

Finally, we call for continued research and development in environmental labelling. Increased support for innovation and the improvement of labelling criteria are essential to maintain the relevance and effectiveness of this tool in a changing global economy. The joint efforts of government, businesses and consumers are necessary to create a more sustainable and environmentally conscious marketplace that will serve current and future generations. Eco-labelling can be a dynamic force for the future to protect our planet and promote sustainable development.

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References

- Abbas, J., Sagsan, M., 2019. A structural analysis of the impact of knowledge management practices on green innovation and corporate sustainability. *J. Clean. Prod.* 229, 611–620. https://doi.org/10.1016/j.jclepro.2019.05.024.

- Abdullah, R., Mohamad, M. N., & Thurasamy, R. (2017). Supply chain integration: Level of existence in Green supply chain management practices among Malaysian ISO 14001 manufacturing firms. *International Journal of Supply Chain Management*, 6(2), 243–249.

- Albort-Morant, G., Leal-Mill´ an, A., Cepeda-Carri´ on, G., 2016. The antecedents of green innovation performance: a model of learning and capabilities. *J. Bus. Res.* 69 (11), 4912–4917. https://doi.org/10.1016/j.jbusres.2016.04.052.

- Andalib Ardakani, D., & Soltanmohammadi, A. (2019). Investigating and analysing the factors affecting the development of sustainable supply chain model in the industrial sectors. *Corporate Social Responsibility and Environmental Management*, 26(1), 199–212. https://doi.org/10.1002/csr.1671

- Antonino Galati, Leonardo Salvatore Alaimo, Teresa Ciaccio, Demetris Vrontis, Mariantonietta Fiore. Plastic or not plastic? That's the problem: analysing the Italian students purchasing behavior of mineral water bottles made with eco-friendly packaging, *Resources, Conservation and Recycling*, Volume 179, 2022, 106060, ISSN 0921-3449, https://doi.org/10.1016/j.resconrec.2021.106060.

- Blanca Corona, Li Shen, Denise Reike, Jesús Rosales Carreón, Ernst Worrell. Towards sustainable development through the circular economy—A review and critical assessment on current circularity metrics, Resources, *Conservation and Recycling*, Volume 151, 2019, 104498, ISSN 0921-3449, https://doi.org/10.1016/j.resconrec.2019.104498.

- Bravi, L., Santos, G., Pagano, A., & Murmura, F. (2020). Environmental management system according to ISO 14001:2015 as a driver to sustainable development. *Corporate Social Responsibility and Environmental Management*, 27(6), 2599–2614. https://doi.org/10.1002/csr.1985

- Casper Bjerregaard, Niels Framroze Møller. The impact of EU's energy labeling policy: An econometric analysis of increased transparency in the market for cold appliances in Denmark, *Energy Policy*, Volume 128, 2019, Pages 891-899, ISSN 0301-4215, https://doi.org/10.1016/j.enpol.2019.01.057.

- Daddi, T., Testa, F., Iraldo, F., & Frey, M. (2016). Exploring the link between institutional pressures and environmental management systems effectiveness: An empirical study. *Journal of Environmental Management*, 183(3), 647–656. https://doi.org/10.1016/j.jenvman.2016.09.025

- European Commission. 2024. EU Ecolabel facts and figures. Available at: https://environment.ec.europa.eu/topics/circular-economy/eu-ecolabel/business/ecolabel-facts-and-figures_en

- Frank Boons, Carlos Montalvo, Jaco Quist, Marcus Wagner- Sustainable innovation, business models and economic performance: an overview, *Journal of Cleaner Production*, Volume 45, 2013, Pages 1-8, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2012.08.013.

- Julia Meis-Harris, Celine Klemm, Stefan Kaufman, Jim Curtis, Kim Borg, Peter Bragge. What is the role of eco-labels for a circular economy? A rapid review of the literature, *Journal of Cleaner Production*, Volume 306, 2021, 127134, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2021.127134.

- Keith Smith E., Adam Mayer. A social trap for the climate? Collective action, trust and climate change risk perception in 35 countries, *Global Environmental Change*, Volume 49, 2018, Pages 140-153, ISSN 0959-3780, https://doi.org/10.1016/j.gloenvcha.2018.02.014.

- Luca Marrucci, Tiberio Daddi, Fabio Iraldo. The contribution of green human resource management to the circular economy and performance of environmental certified

organisations, *Journal of Cleaner Production*, Volume 319, 2021, 128859, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2021.128859.

- Marcella Giacomarra, Maria Crescimanno, Demetris Vrontis, Lluís Miret Pastor, Antonino Galati. The ability of fish ecolabels to promote a change in the sustainability awareness, *Marine Policy*, Volume 123, 2021, 104292, ISSN 0308-597X, https://doi.org/10.1016/j.marpol.2020.104292.

- Martin Geissdoerfer, Nancy M.P. Bocken, Erik Jan Hultink. Design thinking to enhance the sustainable business modelling process – A workshop based on a value mapping process, *Journal of Cleaner Production*, Volume 135, 2016, Pages 1218-1232, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2016.07.020.

- Martin Geissdoerfer, Paulo Savaget, Nancy M.P. Bocken, Erik Jan Hultink. The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, Volume 143, 2017, Pages 757-768, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2016.12.048.

- Md Shamimul Islam, Mohammad Rabiul Basher Rubel, Nadia Newaz Rimi, Mohammad Bin Amin, Proma Quadir. Attaining sustainable excellence: Investigating the impact of sustainable scm and circular economy on green garment industry in Bangladesh, *Sustainable Futures*, Volume 8, 2024, 100234, ISSN 2666-1888, https://doi.org/10.1016/j.sftr.2024.100234.

- N.M.P. Bocken, S.W. Short, P. Rana, S. Evans. A literature and practice review to develop sustainable business model archetypes, *Journal of Cleaner Production*, Volume 65, 2014, Pages 42-56, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2013.11.039.

- Ricky Y.K. Chan, Hongwei He, Hing Kai Chan, William Y.C. Wang. Environmental orientation and corporate performance: The mediation mechanism of green supply chain management and moderating effect of competitive intensity, *Industrial Marketing Management*, Volume 41, Issue 4, 2012, Pages 621-630, ISSN 0019-8501, https://doi.org/10.1016/j.indmarman.2012.04.009.

- Rosa Maria Dangelico, Daniele Vocalelli. "Green Marketing": An analysis of definitions, strategy steps, and tools through a systematic review of the literature, *Journal of Cleaner Production*, Volume 165, 2017, Pages 1263-1279, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2017.07.184.

- Sharifa K. Mousa, Mohammed Othman. The impact of green human resource management practices on sustainable performance in healthcare organisations: A conceptual framework, *Journal of Cleaner Production*, Volume 243, 2020, 118595, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2019.118595.

- Sun, Y.; Sun, H. Green Innovation Strategy and Ambidextrous Green Innovation: The Mediating Effects of Green Supply Chain Integration. *Sustainability* 2021, 13, 4876. https://doi.org/10.3390/su13094876

- Tomoaki Nakaishi, Andrew Chapman. Eco-labels as a communication and policy tool: A comprehensive review of academic literature and global label initiatives, *Renewable and Sustainable Energy Reviews*, Volume 202, 2024, 114708, ISSN 1364-0321, https://doi.org/10.1016/j.rser.2024.114708.

- Vanessa Prieto-Sandoval, José A. Alfaro, Andrés Mejía-Villa, Marta Ormazabal. ECO-labels as a multidimensional research topic: Trends and opportunities, *Journal of Cleaner Production*, Volume 135, 2016, Pages 806-818, ISSN 0959-6526, https://doi.org/10.1016/j.jclepro.2016.06.167.

- Yildiz Çankaya, S. and Sezen, B. (2019), "Effects of green supply chain management practices on sustainability performance", *Journal of Manufacturing Technology Management*, Vol. 30 No. 1, pp. 98-121. https://doi.org/10.1108/JMTM-03-2018-0099

- Yusliza, M.Y.; Amirudin, A.; Rahadi, R.A.; Nik Sarah Athirah, N.A.; Ramayah, T.; Muhammad, Z.; Dal Mas, F.; Massaro, M.; Saputra, J.; Mokhlis, S. An Investigation of Pro-Environmental Behaviour and Sustainable Development in Malaysia. *Sustainability* 2020, 12, 7083. https://doi.org/10.3390/su12177083