



The Dynamics of Human Environmental Behaviour: A Behavioural Approach to Nature Conservation Efforts

Ilal Ilham¹ , Aldri Oktanedi² 

¹Departement of Sociology, Universitas Sriwijaya

²Departement of Sociology, Universitas Sriwijaya

*Corresponding Author: ilalilham@fisip.unsri.ac.id

ARTICLE INFO

Article history:

Received 29 October 2024

Revised 20 November 2024

Accepted 23 November 2024

Available online 30 November 2024

E-ISSN: 2830-5388

P-ISSN: 2541-6642

How to cite:

Ilham, I., & Oktanedi, A. (2024). The Dynamics of Human Environmental Behaviour: A Behavioural Approach to Nature Conservation Efforts. *Journal of Sumatera Sociological Indicators*, 3(2), 308–317.

ABSTRACT

This article examines the dynamics of human environmental behavior through a behavioral approach to nature conservation efforts. The research highlights the importance of pro-environmental behavior, which can be influenced by social norms, economic incentives, and environmental education. By analyzing various studies and successful interventions applied in several regions, such as the recycling program in Surabaya and the "Bye Bye Plastic Bags" movement in Bali, this article demonstrates how behavioral change can support environmental conservation. The behavioral approach, which includes the Theory of Planned Behavior (TPB) and social influence, is considered an effective tool for changing community habits to actively participate in environmental preservation. By utilizing interventions based on social norms, economic incentives, and educational campaigns, this research provides recommendations for more effective behavior-based environmental conservation policies in Indonesia.

Keywords: Environmental behavior, social norms, economic incentives, environmental education, nature conservation

ABSTRAK

Artikel ini mengkaji dinamika perilaku lingkungan manusia melalui pendekatan behavioral dalam upaya pelestarian alam. Penelitian ini menyoroti pentingnya perilaku pro-lingkungan yang dapat dipengaruhi oleh norma sosial, insentif ekonomi, dan pendidikan lingkungan. Dengan menganalisis berbagai studi dan intervensi yang berhasil diterapkan di beberapa daerah, seperti program daur ulang di Surabaya dan gerakan "Bye Bye Plastic Bags" di Bali, artikel ini menunjukkan bagaimana perubahan perilaku dapat mendukung konservasi lingkungan. Pendekatan behavioral, yang mencakup teori perilaku terencana (TPB) dan pengaruh sosial, dianggap sebagai alat yang efektif dalam mengubah kebiasaan masyarakat untuk berpartisipasi lebih aktif dalam pelestarian alam. Dengan menggunakan intervensi berbasis norma sosial, insentif ekonomi, dan kampanye pendidikan, penelitian ini memberikan rekomendasi untuk kebijakan pelestarian lingkungan berbasis perilaku yang lebih efektif di Indonesia.

Kata kunci: Perilaku lingkungan, norma sosial, insentif ekonomi, pendidikan lingkungan, pelestarian alam.



This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International.

DOI: [10.32734/jssi.v3i2.18715](https://doi.org/10.32734/jssi.v3i2.18715)

1. Introduction

Human behaviour plays a crucial role in environmental conservation, especially in the context of an increasingly pressing ecological crisis at the global and local levels. Human activities such as over-consumption of natural resources, pollution and deforestation have had a significant impact on the environment. Therefore, understanding human behaviour and finding approaches that can motivate pro-environmental behaviour is very important. One approach that is considered effective is the behavioural

approach, which focuses on how human behaviour can be changed through interventions, incentives and positive social norms.

In the context of the sociology of human ecology, this approach offers a new perspective to address environmental challenges. The behavioural approach underlines that changes in human behaviour can be achieved through understanding what motivates individuals to act ecologically. Factors such as social norms, economic incentives and educational campaigns can significantly influence pro-environmental behaviour. For example, recycling and plastic use reduction programmes in various countries show that appropriate behavioural interventions can bring significant changes to people's participation in environmental conservation (Cheng, Wu, & Huang, 2020).

However, behaviour change is often hindered by various factors, such as a lack of environmental awareness and the comfort of old habits. Gifford (2020) explains that there are psychological barriers called 'dragons of inaction,' which make it difficult for individuals to take pro-environmental actions even though they know the consequences of their actions. These barriers can include fear of change, uncertainty about the impact of their behaviour, or even the influence of their social group who are not concerned with environmental issues.

The purpose of this article is to analyse how behavioural approaches can be applied in environmental conservation efforts and address these challenges. By reviewing relevant literature in the last five years, this article will explore various interventions that have been conducted to promote pro-environmental behaviour, such as the use of economic incentives, education, and the influence of social norms. Several studies have shown that incentivising or directly engaging communities can increase awareness and participation in sustainability programmes (De Silva, Wang, & Kuah, 2021).

The importance of this approach lies in its ability to address a fundamental problem in behaviour change: most individuals do not see the immediate impact of their pro-environmental actions. For example, the use of more efficient resources, such as electricity, often does not have immediate results for individuals, thus making the motivation for change low (Geller, Farris, & Post, 1973). Therefore, interventions such as financial incentives and campaigns that emphasise the long-term impact on communities can be an effective solution.

This article will also discuss the role of social norms and education in shaping pro-environmental behaviour. Research shows that strong social norms can serve as a powerful impetus to motivate green behaviour, especially in communities with high ecological awareness (Collado, Staats, & Sancho, 2019). By understanding the various factors that encourage or inhibit behaviour change, this article aims to provide practical recommendations for the implementation of behaviour-based environmental conservation policies.

1.1. Behavioural Theories in Environmental Conservation

In an effort to understand human behaviour in relation to the environment, there are several behavioural theories that have proven relevant in the context of environmental conservation. The two main theories that are often used are Theory of Planned Behaviour (TPB) and Social Influence theory. Both explain how human behaviour can be influenced and modified to achieve environmental conservation goals.

a. Theory of Planned Behavior (TPB)

This theory, introduced by Ajzen in 1985, is one of the most frequently used behavioural models in environmental conservation studies. TPB focuses on how an individual's intention to behave is formed through three main factors:

1. Attitude towards behaviour: A person's belief about whether a particular behaviour has a positive or negative outcome.
2. Subjective norms: A person's perception of social expectations from others, such as family, friends, or society.
3. Perceived behavioural control: An individual's beliefs about how easy or difficult it is to perform the behaviour.

In an environmental context, the TPB has been used to explain environmentally friendly behaviours such as recycling, energy saving, and the use of sustainable transport. Research by De Leeuw et al. (2015) showed

that the TPB was effective in identifying the beliefs underlying pro-environmental behaviour among secondary school students. The results of this study suggest that interventions that increase perceived behavioural control and positive social norms can increase student participation in pro-environmental activities.

a. Social Influence Theory

Social influence is another important theory in environmental behavior change. This theory emphasizes that individuals' behavior is strongly influenced by the behaviors and expectations of those around them, including family, friends, and the wider community. Social norms can act as a powerful force in encouraging pro-environmental behavior.

Collado, Staats, and Sancho (2019) found that social norms play an important role in motivating environmental behavior, especially in adolescents. These findings suggest that when parents and friends support environmentally friendly behaviors, individuals are more likely to follow such behaviors. In addition, research by Goldstein et al. (2008) showed that the use of social norms in messages promoting water and energy conservation in hotels resulted in a significant increase in energy-saving behavior.

b. Previous Studies Examining Behavior and the Environment

Various studies have shown the close relationship between human behavior and its impact on the environment. For example, a study by Dumont, Shen, and Deng (2017) examined how environmentally friendly human resource management practices can influence employee behavior in reducing environmental impacts in the workplace. Another study by Gelino, Erath, and Reed (2020) examined sustainability-focused behavioral interventions and how they can be applied to reduce energy consumption in universities.

These studies highlight the importance of understanding the factors that encourage and inhibit pro-environmental behavior. Using behavioral approaches such as the TPB and social influence theory, we can develop more effective interventions to encourage sustainability actions. For example, interventions that emphasize perceived behavioral control and strong social norms can strengthen individuals' commitment to pro-environmental actions, such as reducing energy use and waste.

1.2 Behavioral Approach in Human Ecology Studies

Behavioral approaches in human ecological studies focus on how individual or group behaviors interact with their environment and how those behaviors can be modified to support environmental conservation goals. In this context, behavioral approaches use the principles of behavioral science to understand the factors that influence individual and group decisions in responding to environmental challenges. Research in this field has shown that human behavior, both positive and negative, plays a major role in determining ecosystem health.

One of the main applications of behavioral approaches is through social norm-based interventions, which have been shown to be effective in changing environmental behavior. For example, a study by Goldstein et al. (2008) showed that messages that promote social norms about energy conservation in hotels, such as telling guests that others are already participating in energy saving, significantly increased energy-saving behavior. Such interventions target individuals' internal motivations by highlighting how their behavior aligns or differs from that of their social group, thus encouraging conformity to pro-environmental norms.

In addition to social norms, economic incentives have also been used to modify behavior. These interventions use positive reinforcement, such as financial or material incentives, to encourage pro-environmental behavior. For example, research by Dumont et al. (2017) showed that workplace incentive programs that promote green behaviors, such as reduced energy consumption, can significantly increase employee participation in green activities.

Behavioral approaches also incorporate subtle nudges, which focus on small changes in the decision-making environment that can lead to behavior change without requiring direct instruction or enforcement. Research by Hansen and Sato (2011) found that the use of nudges in household energy saving, such as providing feedback on energy consumption relative to their neighbors, can increase energy awareness and reduce electricity use. These nudges work because they use social comparison as a tool to motivate behavior change.

Human ecology studies using behavioral approaches have also successfully demonstrated that environmental education campaigns can help raise awareness and change behavior. For example, a study by De Leeuw et al. (2015) that used behavioral approaches in school education found that teaching students about the impact of their behavior on the environment can increase their participation in conservation activities, such as recycling and waste reduction.

The results from this study confirm that behavioral approaches in human ecology can influence individual decisions and actions in an effective way. Using a combination of social norms, economic incentives, nudges, and education, various interventions have shown that significant pro-environmental behavior change can result. This approach provides a strong foundation for policy makers and environmental activists to design more effective strategies to encourage environmentally friendly behavior.

1.3 Factors Affecting Environmental Behavior

Pro-environmental behavior is influenced by various factors that encourage or inhibit individual or group actions in protecting the environment. Understanding these factors is critical to designing effective interventions for environmental conservation. Some of the key factors that influence environmental behavior include social norms, economic incentives, and environmental education.

a. Social Norms

Social norms are one of the main factors that influence human behavior. Social norms refer to behaviors that are accepted by society and how individuals comply with or reject these social expectations. In the context of environmental behavior, social norms can play a big role in encouraging individuals to follow pro-environmental actions that are accepted by the group or society.

Research by Cialdini, Reno, and Kallgren (1990) found that social norms can be used to reduce negative behaviors, such as littering, and increase positive behaviors, such as recycling and waste reduction. Another study by Collado, Staats, and Sancho (2019) showed that adolescents tend to follow pro-environmental behaviors when they feel social pressure from family or friends to do so. Strong social norms can change an individual's behavior because they don't want to feel isolated or rejected by their community.

b. Economic incentives

Economic incentives are also an important factor in influencing environmental behavior. Financial or material incentives can be used to encourage green behavior by offering direct rewards for individuals who engage in pro-environmental activities.

Studies by Dumont, Shen, and Deng (2017) show that economic incentives implemented in the workplace, such as programs that offer rewards for reduced energy consumption, increase employees' motivation to participate in pro-environmental activities. These incentives work on the principle of positive reinforcement, where individuals tend to repeat rewarded behaviors, making them an effective tool for encouraging behavior change in the short term. However, economic incentives do not always work in the long term. Gifford (2011) warns that reliance on incentives alone may lead to individuals only engaging in pro-environmental behaviors for as long as they receive economic benefits, without deep attitudinal change. Therefore, economic incentives must be complemented with other approaches, such as education and social norms, to create sustainable behavior change.

c. Environmental education

Environmental education is one of the most effective tools in influencing pro-environmental behavior, especially in the long run. Through education, individuals gain a more in-depth knowledge of environmental issues and the solutions they can put in place. Environmental education can help individuals develop a greater awareness of the impact their behavior has on the ecosystem, and ultimately encourage more environmentally responsible actions.

Research by De Leeuw et al. (2015) found that education programs in schools using the Theory of Planned Behavior (TPB) approach can help students identify pro-environmental beliefs and values, which in turn increases their participation in environmental conservation activities. Education also provides a foundation for individuals to make more informed decisions regarding resource consumption, recycling and waste reduction.

Furthermore, environmental education can change attitudes and beliefs on which pro-environmental behavior is based. The study by Gelino et al. (2020) shows that well-designed education programs

can facilitate behavior change through increasing perceived behavioral control, i.e. individuals' belief that they have the ability to take environmentally friendly actions.

1.4 Case Study

Indonesia, as a country with abundant natural resources, faces great challenges in environmental conservation. Efforts have been made to promote pro-environmental behavior among the public through programs that target recycling, plastic reduction, and more sustainable resource utilization. Here are some case studies that demonstrate behavioral changes in environmental conservation efforts in Indonesia:

1. Waste Recycling Program in Surabaya

The city of Surabaya has become one of the successful examples in managing waste with a community-based approach. The city government launched a “Bank Sampah” program, where residents can exchange their waste, especially inorganic waste such as plastic and paper, for money or daily necessities. This program not only reduces the amount of waste going to landfills, but also changes people's behavior to be more conscious in sorting waste.

Studies conducted showed that community participation in the recycling program increased significantly after the Bank Sampah program was introduced. Surabaya residents started to be more active in sorting their household waste and sending inorganic waste to the waste bank. This success is also due to the continuous education conducted by the local government and non-governmental organizations, which encourage environmentally friendly behavior.

2. Plastic Bag Diet Movement in Bali

The island of Bali, famous for its tourism, has a big problem with plastic waste. In 2013, two high school students, Melati and Isabel Wijzen, launched the “Bye Bye Plastic Bags” movement to reduce the use of plastic bags in Bali. The movement gained huge attention both locally and internationally. The movement successfully influenced a change in Bali government policy, which in 2019 passed a regulation to ban the use of single-use plastic bags. This was an important milestone in changing Balinese behavior towards plastic use. In addition, the program is supported by an education campaign targeting schools, communities, and local businesses to switch from single-use plastics to more environmentally friendly materials.

2. Method

This research uses a literature review approach that aims to identify, analyze, and synthesize various academic sources related to environmental behavior and behavioral approaches in environmental conservation efforts. Literature review allows researchers to utilize existing findings and assess the relevance and contribution of previous studies in the context of human ecology in Indonesia.

2.1. Research Design

This research is based on a literature review, where data and information are obtained from various journal articles, books, and scientific reports relevant to the topic of behavior change in environmental conservation. The literature study was chosen because it is able to provide a comprehensive overview of theories, concepts, and empirical findings related to human behavior in the context of ecology and the environment.

a. Literature Selection Criteria

The literature selected for analysis in this study are sources that:

- Directly related to environmental behavior, both in the context of behavior change through social norms, economic incentives, and environmental education.

- Published in reputable scientific journals and recognized academic sources, such as the *Journal of Environmental Psychology, Sustainability, as well as reports from research institutions in Indonesia such as the Ministry of Environment and Forestry (KLHK).
 - Focuses on case studies in Indonesia, especially on community-based environmental conservation programs, plastic waste reduction policies, and environmental movements in various regions.
- b. Data Collection

The data used in this literature study was collected through:

- Online database searches: Articles from scientific databases such as ScienceDirect, SpringerLink, Wiley Online Library, and Google Scholar were used as the main source of literature. The search was conducted using keywords such as “environmental behavior”, “social and environmental norms”, “economic incentives and environmental conservation”, and “environmental education in Indonesia”.
- Policy documents and government reports: Environment-related policy reports from the Indonesian government and NGOs active in environmental conservation were also used as references.

2.2. Data Analysis Process

Data analysis was conducted using a thematic approach, where research results were categorized based on relevant themes, such as:

- The role of social norms in environmental behavior change: Findings related to how social norms influence pro-environmental actions were analyzed based on various behavioral theories, including the Theory of Planned Behavior (TPB).
- Effectiveness of economic incentives: Studies that examine the impact of financial incentives on community participation in environmental conservation programs, such as recycling or plastic waste reduction programs, are identified and evaluated.
- Environmental education as a behavior change tool: Articles and reports that discuss the role of education in shaping pro-environmental awareness and action are analyzed to evaluate the effectiveness of educational programs implemented in schools and communities.

2.3 Validity and Reliability Testing

To ensure the validity and reliability of the research findings, the analyzed articles were sourced from peer-reviewed journals. This is crucial to ensure that the findings used are based on scientifically validated research. Additionally, a data triangulation approach was employed by comparing various findings from different sources to obtain a more comprehensive conclusion.

a. Methodological Limitations

As a literature-based study, there are limitations in terms of direct involvement in the field. This study did not collect primary data through surveys or interviews, thus the results obtained are entirely dependent on existing studies and secondary data. Nevertheless, the literature review still offers the strength of providing an in-depth review of existing theories and findings, as well as the relevance of the environmental behavior context in Indonesia.

3. Result and Discussion

3.1. Key Findings from the Literature

Based on the literature review, several key findings can be concluded regarding the influence of behavioral approaches in environmental conservation. These findings provide an overview of how human behavior can be changed and modified through behavior-based interventions to achieve environmental conservation goals.

1. Social Norms as a Primary Driver of Behavioral Change

One of the primary findings from various studies is the importance of social norms in driving environmental behavioral change. Social norms refer to the unwritten rules that govern individual behavior within a society, including how society reacts to environmental issues. In this context, research shows that when society believes that pro-environmental behavior is expected or socially accepted, individuals are more likely to adopt such behavior.

Research by Collado, Staats, and Sancho (2019) highlights how social norms, especially from family and friends, have a strong influence on eco-friendly behavior among adolescents. Another study by Goldstein et al. (2008) demonstrates that the influence of social norms can be effectively used in environmental campaigns to promote water and energy conservation in hotels. This study shows that when individuals know that others around them are engaging in environmentally friendly actions, they are more motivated to follow similar behavior. In Indonesia, programs like "Bye Bye Plastic Bags" in Bali, which successfully reduced the use of single-use plastic, were also influenced by social pressures and community expectations.

2. Effectiveness of Economic Incentives in Changing Behavior

The second finding from the literature is that economic incentives are effective in driving pro-environmental behavior, although their impact can vary depending on the design and implementation of the incentives. Incentives such as financial rewards, cost reductions, or prizes have been proven to increase individual participation in environmental programs.

A study by Dumont, Shen, and Deng (2017) affirms that economic incentives in the workplace, such as bonuses for reduced energy consumption, can increase employee motivation to engage in eco-friendly behavior. In Surabaya, the concept of "Bank Sampah" which allows residents to exchange waste for money or daily necessities demonstrates the effectiveness of economic incentives in changing people's habits to become more environmentally aware.

However, research also shows that economic incentives can lose their effectiveness if not accompanied by deeper attitudinal changes towards environmental issues. Gifford (2011) mentions that when incentives are stopped, individuals may revert to old habits if they are not internally motivated to continue pro-environmental behavior.

3. The Role of Environmental Education in Shaping Awareness and Behavior

Another significant finding from the literature is the importance of environmental education in increasing awareness and promoting more responsible behavior towards the environment. Environmental education has proven to be an important factor contributing to more sustainable behavioral changes. Environmental education not only provides knowledge about the importance of protecting the environment but also helps to shape individual awareness of the impact of their behavior on ecosystems. Through effective educational programs, individuals can understand the interconnectedness between their actions and global environmental conditions, which in turn can drive long-term behavioral changes.

Research by De Leeuw et al. (2015) shows that behavior-based educational programs, using the Theory of Planned Behavior (TPB) approach, can help students identify beliefs and values relevant to pro-environmental behavior. This finding emphasizes that education focused on shaping attitudes and a deeper understanding of environmental issues can motivate more responsible actions. In Indonesia, environmental education campaigns have been implemented in various schools and communities, such as in the Adiwiyata School program, where schools strive to build the character of students who care about the environment through curricula and extracurricular activities focused on conservation.

In addition, environmental education also increases perceived behavioral control, which is the belief of individuals that they have the ability to perform environmentally friendly actions. Educational programs that provide practical skills, such as recycling or waste management, help increase individuals' self-confidence in taking actions that have a positive impact on the environment. This is evident in various initiatives in Indonesia, where public education on waste management and resource utilization has successfully changed people's behavior in minimizing waste and using energy efficiently.

4. Integration of Findings into Environmental Conservation Practice

The results of various studies above emphasize that behavior-based approaches in environmental conservation must combine three main elements: social norms, economic incentives, and environmental education. This multidimensional approach is more effective because it can overcome various psychological and social barriers that often hinder behavioral change.

Interventions targeting social norm change can create greater collective awareness, while economic incentives provide short-term motivation to encourage pro-environmental actions. However, for long-term

sustainability, environmental education plays an important role in changing attitudes and beliefs of individuals, so that environmentally friendly behavior becomes part of daily habits, not just a response to incentives.

3.2. Analysis of Factors Supporting and Hindering Pro-Environmental Behavior

Based on various studies analyzed, pro-environmental behavior is influenced by a number of supporting and hindering factors that determine how effectively individuals and communities engage in environmental conservation efforts. These factors can be divided into two broad categories: supporting factors, which motivate pro-environmental behavior, and hindering factors, which prevent or hinder individuals from acting in accordance with the principles of environmental conservation.

a. Driving Factors of Pro-Environmental Behavior

1. Strong Social Norms

Strong social norms that encourage pro-environmental behavior are a primary driving factor. When individuals feel that pro-environmental actions are expected and accepted by their society or community, they are more likely to engage in actions that support environmental conservation. For example, research by Goldstein et al. (2008) showed that social norms, such as messages mentioning other people's participation in energy conservation programs in hotels, successfully increased energy-saving behavior. In Indonesia, the "Bye Bye Plastic Bags" movement in Bali successfully utilized this social norm to encourage the reduction of single-use plastic among the community.

2. Economic Incentives

Economic incentives, such as financial rewards or cost reductions, can also be significant drivers in increasing public participation in pro-environmental activities. Research by Dumont, Shen, and Deng (2017) affirms that economic incentives provided in the workplace can increase employee motivation to adopt eco-friendly behavior. In Surabaya, the "Bank Sampah" program, which offers financial incentives for recycling inorganic waste, has successfully encouraged people to be more active in sorting waste. These economic incentives provide direct motivation for individuals to engage in pro-environmental behavior that they might not do without financial encouragement.

3. Education and Environmental Awareness

Environmental education and public awareness campaigns are significant driving factors in shaping pro-environmental behavior. Effective educational programs can increase individuals' knowledge of the impact of their behavior on the environment and provide the skills needed to take more sustainable actions. Research by De Leeuw et al. (2015) shows that behavior-based education targeting school students can increase their participation in environmental conservation activities. In Indonesia, the Adiwiyata School program, which focuses on environmental education in schools, has helped increase students' awareness and create an environmentally friendly culture among the younger generation.

b. Barriers to Pro-Environmental Behavior

1. Lack of Awareness and Information

One of the main barriers to pro-environmental behavior is a lack of adequate awareness and information about the importance of environmental conservation. Gifford (2011) mentioned that many individuals are unaware of the long-term impacts of their actions on the environment. In many regions of Indonesia, there is still a gap in environmental knowledge among the public, especially in rural areas. Without sufficient awareness, individuals tend to ignore actions that can support environmental conservation.

2. Negative Social Norms

In addition to being a driving factor, social norms can also be a barrier when the prevailing norms in a community do not support pro-environmental behavior. For example, in societies where littering is considered normal or acceptable, it is difficult to encourage behavioral change. Research by Collado, Staats, and Sancho (2019) highlights how non-supportive social norms can hinder adolescents from engaging in pro-environmental activities, especially if their family or friends' environment does not support such behavior.

3. Limited Resources and Access

Economic factors and access also often hinder pro-environmental behavior. Individuals who do not have access to supporting infrastructure, such as recycling facilities or renewable energy sources, tend to find it difficult to adopt eco-friendly behavior. Additionally, the cost of participating in pro-environmental activities is often seen as a barrier, especially for individuals in low-income groups. While economic incentives can help, without adequate infrastructure support, behavioral change becomes more difficult to achieve.

4. Comfort and Old Habits

Another psychological barrier is the comfort of maintaining old habits. Changing behavior often requires extra effort and sacrifice in terms of time or comfort, causing individuals to be reluctant to participate in pro-environmental activities. Gifford (2011) identified "dragons of inaction" or psychological barriers that make people more likely to maintain comfortable habits, even though they know that behavioral change is needed to support environmental conservation.

4. Conclusion

This article highlights the importance of behavioral approaches in environmental conservation, demonstrating that human behavioral change is a key factor in addressing global environmental challenges. This approach underscores the crucial role of social norms, economic incentives, and environmental education in motivating pro-environmental actions. The studies discussed show that social norms can be a primary driver of eco-friendly behavior, while economic incentives provide an additional boost, although their impact is often short-term. Additionally, environmental education has proven to be effective in increasing awareness and public participation in long-term conservation efforts.

Several case studies in Indonesia, such as the recycling program in Surabaya and the "Bye Bye Plastic Bags" movement in Bali, demonstrate that a combination of interventions based on social norms, incentives, and education can lead to significant behavioral changes. Nevertheless, there are barriers that need to be overcome, such as a lack of environmental awareness and the influence of negative social norms.

Reference

- Cheng, T. M., Wu, H. C., & Huang, L. M. (2020). The influence of place attachment on environmentally responsible behavior for island tourism. *Journal of Sustainable Tourism*, 28(6), 883-898.
- De Silva, M., Wang, P. J., & Kuah, A. T. H. (2021). Why wouldn't green appeal drive purchase intention? Moderation effects of consumption values in the UK and China. *Journal of Business Research*, 122, 713-724.
- Collado, S., Staats, H., & Sancho, P. (2019). Normative influences on adolescents' pro-environmental behaviors: The role of parents and friends. *Environment and Behavior*, 51(3).
- Gifford, R. (2020). The dragons of inaction: Psychological barriers to pro-environmental behavior. *American Psychologist*, 66(4), 290-302.
- Dumont, J., Shen, J., & Deng, X. (2017). Effects of green HRM practices on employee workplace green behavior. *Human Resource Management*, 56(4), 613-627.
- Ding, Z. H., Jiang, X., Liu, Z. H., Long, R. Y., Xu, Z. N., & Cao, Q. R. (2018). Factors affecting low-carbon consumption behavior of urban residents. *Resources Conservation and Recycling*, 132, 3-15.
- ElHaffar, G., Durif, F., & Dube, L. (2020). Towards closing the attitude-intention-behavior gap in green consumption: A narrative review. *Journal of Cleaner Production*, 275, 122556.
- Fritz, J. N., Dupuis, D. L., Wu, W. L., Neal, A. E., Rettig, L. A., & Lastrapes, R. E. (2017). Evaluating increased effort for item disposal to improve recycling at a university. *Journal of Applied Behavior Analysis*, 50(4), 825-829.
- Dumitru, A., De Gregorio, E., Bonnes, M., Bonaiuto, M., Carrus, G., & Garcia-Mira, R. (2016). Low carbon energy behaviors in the workplace. *Energy Research & Social Science*, 13*, 49-59.
- Gelino, B. W., Erath, T. G., & Reed, D. D. (2020). Review of sustainability-focused empirical intervention published in behavior analytic outlets. *Behavior and Social Issues*.
- Ajzen, I. (1985). Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.

- Cheng, T. M., Wu, H. C., & Huang, L. M. (2020). The influence of place attachment on environmentally responsible behavior for island tourism. *Journal of Sustainable Tourism*, 28(6), 883-898.
- De Leeuw, A., Valois, P., Ajzen, I., & Schmidt, P. (2015). Using the Theory of Planned Behavior to identify key beliefs underlying pro-environmental behavior in high-school students: Implications for educational interventions. *Journal of Environmental Psychology*, 42, 128-138.
- Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66(4), 290-302.
- Goldstein, N. J., Cialdini, R. B., & Griskevicius, V.(2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research*, 35(3), 472-482.
- Hansen, P. G., & Sato, M. (2011). Nudging in the world of energy. *Energy Policy*, 39(2), 1030-1031.