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UNPACKING THE DRIVERS OF PRO-ENVIRONMENTAL BEHAVIOUR IN ASIAN: A SYSTEMATIC LITERATURE REVIEW

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Abstract

Pro-environmental behaviour (PEB) is essential for addressing environmental sustainability issues in the ASIAN countries. Nevertheless, current research on the factors influencing PEB in the region differs across different contexts and fields. This study performs a systematic literature review (SLR) to synthesise empirical data on the determinants of pro-environmental behaviour in ASIAN countries. A total of 21 studies published between 2020 until 2025 were analysed to identify key determinants of PEB. The findings indicate that pro-environmental behaviour is affected by several key factors, including environmental knowledge, psychological and value-based factors (such as attitudes, personal norms, and environmental commitment), socio-demographic characteristics, social influence, and external factors like government policies, infrastructure, and environmental education. The review emphasises the significance of theoretical frameworks, such as the Value–Belief–Norm (VBN) theory and the Theory of Planned Behaviour (TPB), in explaining environmentally responsible behaviour. With the increasing scientific interest, studies into PEB throughout ASIAN are still limited and inconsistent among countries. The findings have significant implications for policymakers, educators, and environmental organisations in formulating targeted strategies and policies to foster sustainable behaviour and environmental responsibility in ASIAN societies.

Keywords: Pro-Environmental Behaviour, Sustainability Behaviour, Asian, Systematic Review

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Introduction

Environmental sustainability has emerged as a critical global issue, especially within the rapidly developing Asian region. Pro-environmental behaviour encompasses individual actions designed to protect the environment and reducing potentially harmful activities (Pratama, 2024). This term specifically denotes the actions of individuals or societies that do not negatively impact the environment, whether directly or indirectly. Several factors can shape pro-environmental behaviours (Juvan & Dolnicar, 2017). A multitude of studies have demonstrated the impact of various motivators, including emotions and beliefs (De Miranda Coelho et al., 2016), environmental awareness (Lin and Niu, 2018), and life beliefs (Farrow et al., 2017), on individuals' pro-environmental behaviour (Irawan, 2022). Pro-environmental behaviour (PEB) is generally understood as a complex phenomenon encompassing both private actions, such as energy conservation within the home, and public engagements, including environmental advocacy and volunteering (Yusop et al., 2023; Phuphisith et al., 2020). The increasing environmental issues of recent years, including climate change, resource depletion, and pollution, have highlighted the necessity of understanding and fostering PEB, particularly within rapidly developing areas like the Asian region. Empirical research indicates that PEB is shaped by a range of psychological, social, and contextual factors, thereby highlighting the intricate nature of human-environment interactions (Hastuti et al., 2024; Rahmania, 2024).

Despite the increasing number of studies on pro-environmental behaviours, the findings remain fragmented and inconsistent across different contexts in Asian region. Variations in socio-cultural values, economic development, and policy implementation contribute to differing levels of environmental engagement among individuals (Irawan et al., 2022; Phuphisith et al., 2020). For instance, some studies highlight the importance of environmental knowledge and values, while others emphasise external influences such as infrastructure, government policies, and social norms (Lye et al., 2024; Zhang et al., 2025). This inconsistency makes it difficult to draw comprehensive conclusions regarding the key determinants of PEB in the Asian context. Furthermore, previous research often focuses on specific populations or single variables, limiting a holistic understanding of how multiple factors interact to influence behaviour.

Current research frequently categorises the determinants of pro-environmental behaviour into internal and external elements. Internal factors include personal elements including environmental knowledge, attitudes, values, and self-efficacy. These factors influence an individual's understanding and willingness to engage in environmentally responsible behaviour (Hastuti et al., 2024; Xie & Lu, 2022). On the other hand, external factors include influences from the surrounding environment, including social norms, cultural values, governmental regulations, environmental education, and the accessibility of facilities or infrastructure (Irawan et al., 2022; Kreeratiratanalak & Panyagometh, 2025). Moreover, recent studies highlight those certain factors, such as environmental awareness, perceived behavioural control, and psychological ownership, can either enhance or clarify the relationship between these elements and pro-environmental behaviour (Zhang et al., 2025; Nguyen & Nguyen, 2025). However, numerous research examines these factors in separately, so limiting a thorough understanding of their interactive roles in influencing pro-environmental behaviour.

Therefore, a comprehensive and systematic synthesis of existing research is essential to gather inconsistent findings and identify key patterns of influence. Recent studies have explored pro-environmental behaviour in specific contexts; however, they are limited in scope and lack

regional integration (Pratama et al., 2024; Hamzah et al., 2025). Furthermore, current empirical studies primarily emphasise individual determinants, lacking a comprehensive analysis of the interacting factors across the countries of Asian (Yusliza et al., 2020; Hastuti et al., 2024). Hence, this study aims to conduct a systematic literature review of empirical studies published between 2020 and 2025 to examine the factors influencing pro-environmental behaviour in Asian countries. This research aims to identify key factors, highlight theoretical and empirical gaps, and enhance understanding of the determinants of pro-environmental behaviour in a regional context through a review of past studies.

Literature review

The concept of pro-environmental behaviour (PEB) is thus broadened to include actions that reduce environmental harm and perhaps enhance it. This definition focuses enhancing environmental conditions while reducing negative impacts including greenhouse gas emissions and the depletion of natural resources. Moreover, from a sustainability perspective, pro-environmental behaviour pertains to actions that enhance environmental sustainability. This pro-environmental conduct pertains to actions that intentionally protect the environment and improve its sustainability (Tian & Liu, 2022). Despite being examined in various studies and circumstances, all these concepts essentially aim to clarify the same phenomenon and enhance understanding of environmental protection behaviour (Donmez-Turan & Kiliclar., 2021). These behaviours include activities such as recycling, energy conservation, waste reduction, and environmentally responsible consumption (Phuphisith et al., 2020; Yusop et al., 2023). Fostering pro-environmental behaviour is essential to mitigate CO₂ emissions and constrain global climate change (van Valkengoed et al., 2022). The significance of PEB has grown significantly in response to escalating environmental challenges such as climate change, pollution, and resource depletion. promoting pro-environmental behaviour (PEB) is crucial in the countries of Asian, where rapid urbanisation and economic growth have increased environmental challenges, that require individual as well as community behavioural change for sustainable development (Lye et al., 2024; Rahmania, 2024).

Understanding PEB is important as individual behaviours collectively influence broader environmental results. Understanding pro-environmental behaviour holds significance as individual actions, when taken together, play a crucial role in influencing greater environmental outcomes. Research suggests a correlation between heightened environmental knowledge and awareness and the adoption of more sustainable behaviours, encompassing waste reduction and energy conservation (Hastuti et al., 2024; Xie & Lu, 2022). Moreover, pro-environmental conduct is significantly shaped by key behavioural determinants, including attitudes, social norms, perceived control, and personal responsibility, which together impact individuals' intentions and actions (van Valkengoed et al., 2022). Social influence also plays a crucial role; individuals are more likely to engage in environmentally responsible behaviour when they perceive such actions as socially expected or commonly observed (Irawan et al., 2022). For instance, social and personal norms, have been identified as strong predictors of pro-environmental behaviour, with internalised personal norms often exerting the most substantial influence on individuals' actions (Helferich et al., 2023). Furthermore, engaging in pro-environmental behaviour yields benefits for the environment while enhancing well-being and quality of life, particularly within sustainable urban settings (Zhang & Tu, 2021).

Numerous theoretical frameworks have been widely used to explain pro-environmental behaviour. The Theory of Planned Behaviour (TPB) and the Value-Belief-Norm (VBN) models, which study human behaviour in specific contexts, developed in social psychology (Hastuti et al., 2024; Nguyen & Nguyen, 2025). The TPB model examines the attitudes and perceived factors essential for predicting human behaviour. On the other hand, the VBN model focuses on values and norms and reflects the general attitude that can predict PEB (Kaiser et al., 2005; Batool et al., 2024). The Theory of Planned action (TPB) originated from the Theory of Reasoned Action (Ajzen & Fishbein, 1980), which showed specific limits in predicting human behaviour. The Theory of Planned Behaviour (TPB) is more effective than the Theory of Reasoned Action in analysing human behaviour (Ajzen, 1991). Meanwhile, the VBN model (Stern, 2000) was formulated based on three theories: (1) the Universal Theory of Human Actions (Schwartz & Bilsky, 1987), which explains the values influencing an individual's attitude in specific contexts; (2) the Normative Influence Model (Schwartz, 1977; Schwartz, 1970), which clarifies the processes by which individuals engage in altruistic behaviour. The New Environmental Paradigm (NEP) (Dunlap et al., 2000) promotes a pro-ecological perspective. In addition, the Norm Activation Model (NAM) highlights the significance of personal norms, awareness of consequences, and responsibilities in motivating people to engage in environmentally responsible behaviour (Tan et al., 2025). These theories establish an effective structure for understanding the connection between psychological and social elements that influence pro-environmental behaviour (PEB).

Subsequently, some studies use psychological and contextual perspectives to explain PEB more effectively. For instance, environmental knowledge, attitudes, and self-efficacy are frequently seen as crucial psychological determinants that influence behaviour (Yusliza et al., 2020; Xie & Lu, 2022). Meanwhile, external factors such environmental policies, infrastructure availability, and sustainability activities significantly influence individuals' behaviour (Phuphisith et al., 2020; Kreeratiratanalak & Panyagometh, 2025). Therefore, pro-environmental behaviour is an ethical approach to promoting resource protection, conservation activities, and supporting the sustainable utilisation of the natural environment (Handoyo et al., 2021).

In summary, the literature suggests that pro-environmental behaviour is shaped by a complex interplay of internal, external, and theoretical elements. While theories such VBN, TPB, and NAM provide significant insights, empirical findings across the countries of Asian are varied and contextually dependant (Pratama et al., 2024; Rahmania, 2024). This indicates the need for a systematic approach to integrate current research and identify consistent trends and limitations within the literature. Therefore, this study builds on these theoretical foundations to provide a comprehensive understanding of the factors that influence pro-environmental behaviour in ASIAN countries.

Conceptual Framework

This study's conceptual framework was developed from the synthesis of findings obtained from a systematic literature review. The framework analyses the factors that influence public pro-environmental behaviour (PEB), as identified in 21 empirical studies conducted in Asian countries from 2020 to 2025. It provides a systematic analysis of the key factors influencing PEB that consistently were identified in the analysed studies. The framework further shows how established behavioural theories contribute to these factors and enhance the understanding of environmentally responsible behaviour within the Asian context.

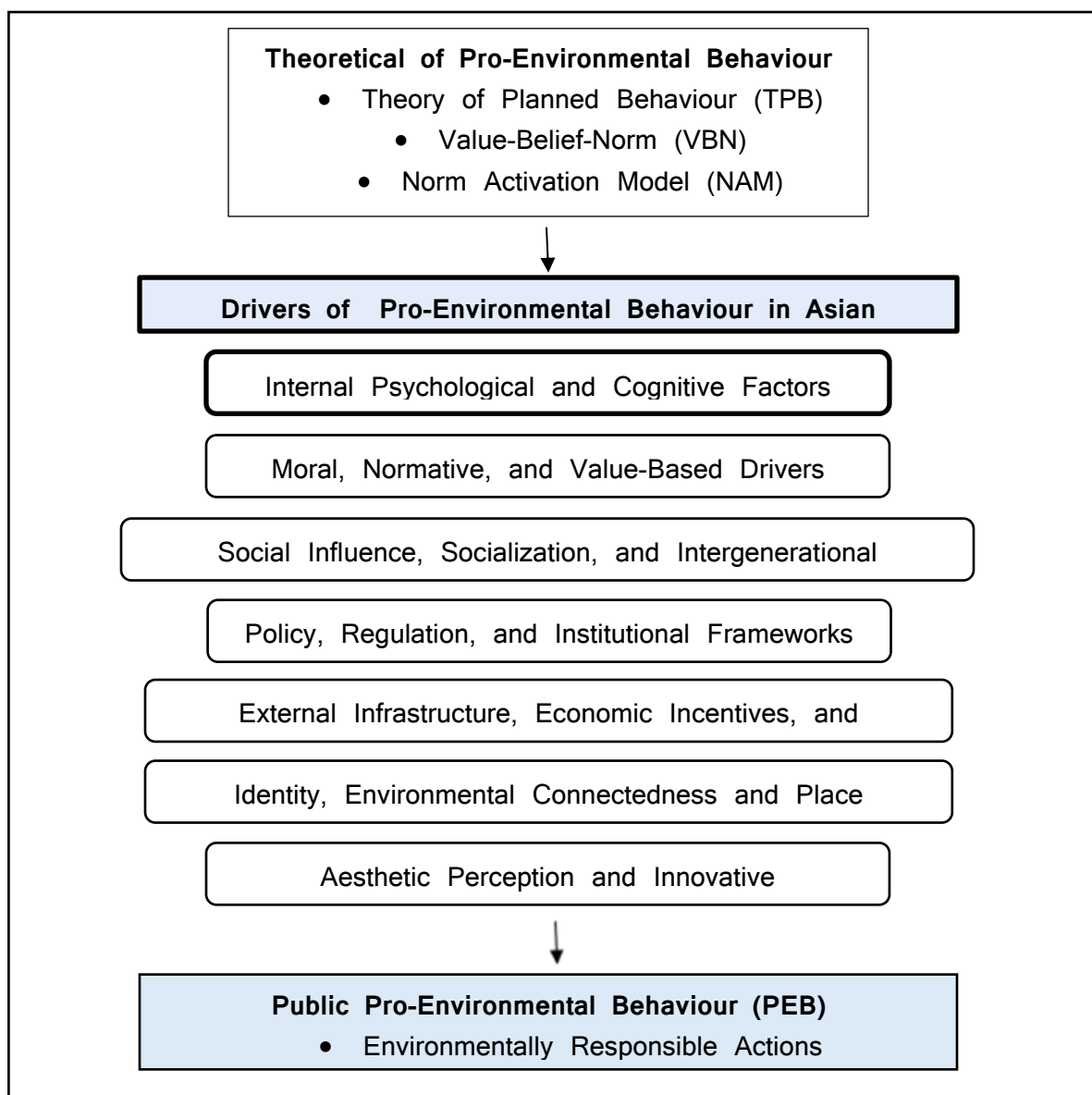


Figure 1. Conceptual Frameworks of the Drivers of Pro-Environmental Behaviour (PEB)

As shown in Figure 1, the conceptual frameworks provide a comprehensive analysis of the key factors influencing public pro-environmental behaviour (PEB) in Asian countries, as determined by the systematic literature review. The framework is based on three established theories of behaviour: the Theory of Planned Behaviour (TPB), the Value–Belief–Norm (VBN) Theory, and the Norm Activation Model (NAM). These theoretical provide the framework for understanding how various psychological, social, and environmental elements influence environmentally responsible behaviour. Based on the synthesis of 21 empirical studies, seven factors were consistently identified as influencing factors of public pro-environmental behaviour, such as internal psychological and cognitive factors; moral, normative, and value-based drivers; social influence, socialization, and intergenerational transmission; policy, regulation, and institutional frameworks; external infrastructure, economic incentives, and accessibility; identity,

environmental connectedness and place attachment; and the last is aesthetic perception and innovative communication.

Thus, the conceptual frameworks show that pro-environmental behaviour is influenced by the interaction of various interconnected factors. Internal factors, which include psychological, cognitive, moral, and value-based drivers, connect with external influences such as social factors, institutional support, infrastructure, and communication strategies to shape environmentally responsible behaviour. By integrating these factors into a single framework, this study provides a clear and comprehensive understanding of the key drivers of pro-environmental behaviour (PEB) in Asian countries. These also provides a valuable reference for future research and the development of effective environmental policies, as well as for engaging in more effective strategies to promote sustainable behaviour.

Methodology

This study employs a systematic literature review (SLR) to systematically identify, assess, and synthesise empirical studies regarding the factors that influence pro-environmental behaviour (PEB) in Asian nations. The study, conducted in accordance with the ROSES (Reporting standards for Systematic Evidence Syntheses) protocol, involved the application of systematic review methods that were adapted from the healthcare sector to the domains of conservation and environmental management in 2006, aligning with the growing movement of ‘evidence-based conservation.’ Systematic reviews are frequently used to evaluate the efficacy of management interventions or to analyse the consequences of anthropogenic actions or natural impacts (Haddaway et al., 2018). The ROSES are chosen for their adaptability in the fields of environmental and social science research, alongside their strong focus on transparency, methodological rigour, and replicability (Pulido-Chadid et al., 2023). In addition, A comprehensive literature review is a crucial component of any systematic review, aimed at reducing bias and ensuring the identification of any relevant studies. Consequently, this research employed various databases, specifically Scopus and Web of Science (WoS), as the principal sources for data collection. The decision to choose of these databases is attributed to their comprehensive coverage of high-quality, peer-reviewed publications across multiple disciplines (Baas et al., 2020; Ewald et al., 2022).

Furthermore, this study explores the publication period from 2020 to 2025, thereby covering recent developments in pro-environmental behaviour, especially considering the growing environmental awareness and sustainability efforts observed in various Asian nations. Previous study has indicated that pro-environmental behaviour is shaped by a range of psychological, social, and institutional factors, although the results have shown variability across different contexts (Hastuti et al., 2024; Irawan et al., 2022; Lye et al., 2024). Although the ROSES protocol guarantees a systematic and transparent review process, additional measures were introduced to reduce potential biases (Haddaway et al., 2018). At first, language bias was reduced by reviewing abstracts of non-English publications to guarantee that only studies lacking accessible English versions were excluded. Secondly, the issue of database bias was mitigated by combining Scopus and Web of Science, which improved both search coverage and recall. Third, the minimisation of publication bias was achieved by combining both qualitative and quantitative studies, rather than limiting the review to specific study designs or high-impact journals (Paul & Barari, 2022; Ahmad Zahran et al., 2025).

Eligibility Criteria

The eligibility criteria were formulated to define the scope of the review and ensure the inclusion of relevant and significant studies. The criteria for inclusion included empirical studies published from 2020 to 2025, with a specific emphasis on pro-environmental behaviour in Asian countries. To ensure reliability and consistency, this study only considered peer-reviewed journal articles that were published in English (Haddaway et al., 2018). The criteria for inclusion and exclusion used in this study are outlined in Table 1. The criteria developed aimed to ensure the inclusion of only relevant, high-quality, and empirical studies concerning pro-environmental behaviour within Asian countries in the review.

Table 1

Criteria for Inclusion and Exclusion

Criterion	Inclusion	Exclusion
Publication Year	2020-2025	Prior 2020
Keywords	Pro-environmental behavior, environmental behavior, sustainable behavior in Asian countries	Studies not related to pro-environmental behavior or not conducted in Asian context
Language	English	Non-English
Research Type	Empirical studies (quantitative, qualitative, mixed method)	Review-based, conceptual, theoretical, or methodological studies
Type of Document	Journal articles	Conference proceedings, book chapters, thesis, reports
Database	Indexes in Scopus and Web of Science (WoS)	Articles not available in Scopus and Web of Science (WoS)

In table 1, the application of these criteria ensured consistency in the selection process and enhanced the reliability of the findings. This review emphasises recent empirical studies conducted in Asian contexts, highlighting current developments and factors influencing pro-environmental behaviour across various cultural and institutional frameworks.

Information Sources

This study used two main academic databases, specifically Scopus and Web of Science (WoS), which offer a comprehensive discussion of high-quality, peer-reviewed publications across various disciplines. Scopus is known for its strongly curated content and extensive journal coverage, while Web of Science provides reliable indexing and citation tracking (Baas et al., 2020). The use of both databases enhances the coverage and recall of relevant studies, consequently reducing the probability of missing significant literature (Ewald et al., 2022). The finalising search was conducted in 2025 to ensure the inclusion of the most recent publications.

Search Strategy

The search strategy was developed through a combination of keywords related to pro-environmental behaviour (PEB) and Asian contexts, which ensured a comprehensive search of

relevant studies. The primary keywords identified were “pro-environmental behaviour,” “environmental behaviour,” and “sustainable behaviour,” along with geographical terms such as “Asia” and “Asian countries.” To enhance the search outcomes, specific search strings were formulated and combined using Boolean operators. The search strings were adapted to align with the specific requirements of each database, specifically Scopus and Web of Science (WoS). The input phrases utilised are as follows:

Table 2*The Search String*

Database	Search String
Scopus	(TITLE-ABS-KEY ("pro-environmental behavior" OR "environmental behavior" OR "sustainable behavior") AND TITLE-ABS-KEY ("Asia" OR "Asian countries" OR Malaysia OR Indonesia OR China OR Japan OR Thailand OR Vietnam) AND PUBYEAR > 2019 AND PUBYEAR < 2026 AND (LIMIT-TO (DOCTYPE, "ar"))) AND (LIMIT-TO (LANGUAGE, "English"))
Web of Science (WoS)	TS=("pro-environmental behavior" OR "environmental behavior" OR "sustainable behavior") AND TS=("Asia" OR "Asian countries" OR Malaysia OR Indonesia OR China OR Japan OR Thailand OR Vietnam) AND PY=(2020-2025) AND LA=(English) AND DT=(Article)

Selection, Screening, and Retrieval Process

The selection, screening, and retrieval processes were conducted according to the ROSES framework. The Scopus database produced several records, and Web of Science provided additional records, resulting in a total of 70 articles. After the removal of duplicate records, 62 articles were retained for screening. The screening process involved the examination of titles, keywords, and abstracts to identify relevant studies. 27 articles were excluded due to irrelevance to pro-environmental behaviour or lack of focus on Asian countries. The remaining articles had full-text review in the eligibility stage. At this point, 14 articles were excluded for being non-empirical, review or conceptual in nature, and lacking relevance to the study. A total of 21 articles were included in the systematic literature review. Figure 2 illustrates flow diagram detailing for this study.

Data Collection

The selected articles required a systematic review and analysis using a structured data extraction methodology. A thematic analysis was performed to identify patterns and categorise the factors influencing pro-environmental behaviour into significant themes. This approach facilitates an organised combination of findings and improves comprehension of key factors in different Asian contexts (Snyder, 2019).

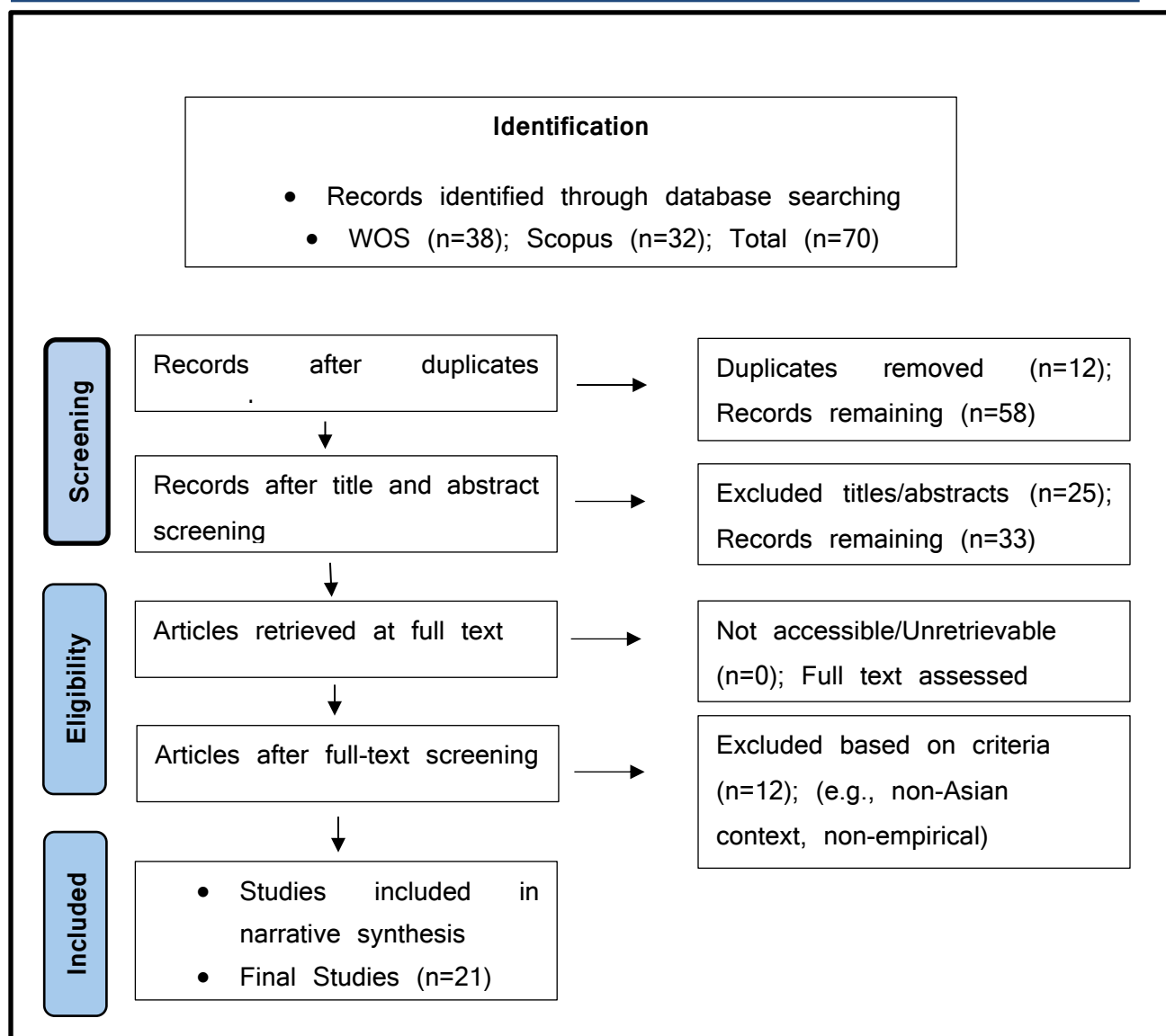


Figure 2. Flow diagram of the methodology processes

Findings

A comprehensive review of empirical studies published from 2020 to 2025 shows a complicated array of factors that influence the development of pro-environmental behaviour (PEB) throughout the Asian region. As Asian nations face the challenges of rapid urbanisation and the growing climate crisis, it is essential to understand the factors that encourage or discourage environmentally responsible actions, which has become a key focus in public policy and environmental psychology. This findings section brings together data from twenty-one primary studies, highlighting the psychological, social, structural, and cultural factors that define the Asian environmental landscape. The review is organised thematically, bringing together findings into clear conceptual groups to offer a thorough understanding of the current research. The research focuses on various Asian contexts, highlighting Malaysia, Indonesia, China, Thailand, Vietnam, and South Korea as the most represented countries. The review uses a combination of quantitative, mixed-methods, and qualitative studies, primarily focusing on survey-based structural equation modelling (SEM) to examine complex behavioural factors.

The systematic review identifies 7 major factors influencing in public pro-environmental behaviour in Asian countries. Table 3 summarizes the findings, and further explanation is provided below.

Table 3

Summary Matrix of Reviewed Studies on Factors Influencing Public Pro-Environmental Behaviour (2020–2025)

No.	Author(s) / Year	Theme	Country	Method	Factor	Key Findings
1	Phuphisith,S. , et al., (2020)	Pro- Environmental Behavior (PEB); Practice Rates; Behavioral Factors; Sustainable Consumption	Bangkok (Thailand); Tokyo (Japan); Seoul (South Korea)	Quantitative (Online Survey, Descriptive Statistics)	Internal / personal factors (reasons): Habit; Money saving; Environmentally friendly; Rule; Healthful; Moral; Convenient; Friend recommended; Many people do it. External factors: Infrastructure availability/quality (bicycle lanes & parking, public transport, clothes-collection boxes); Existence of rules/policies (waste separation, food waste recycling, plastic bag charging); Product availability (LED, refill products, eco-appliances/labels, organic products, hybrid cars).	PEB levels were different among cities. Residents of Bangkok engaged in simple energy conservation practices, but those in Tokyo and Seoul focused more on separation of waste and the use of public transportation. Government rules, facilities, and cost strongly influenced behaviour.
2	Hastuti et al., (2024)	Pro- Environmental Behaviour (PEB); Environmental Knowledge; Value-Belief- Norm (VBN)	Indonesia	Quantitative (Survey, SEM-PLS)	Environmental knowledge; Environmental responsibility; Value-Belief-Norm (VBN); Environmental education	Environmental knowledge, environmental responsibility, VBN, and environmental education positively influenced PEB. VBN was the

						strongest predictor.
3	Yusliza et al., (2020)	Pro-Environmental Behaviour (PEB); Environmental Commitment; Environmental Consciousness; Green Lifestyle; Green Self-Efficacy	Malaysia	Quantitative (Survey, SEM-PLS)	Environmental commitment; Environmental consciousness; Green lifestyle; Green self-efficacy	Environmental commitment, consciousness, green lifestyle, and green self-efficacy positively influenced PEB. Environmental commitment was the strongest predictor.
4	Yusop et al., (2023)	Pro-Environmental Behaviour (PEB); Workplace PEB	Malaysia	Quantitative	Eco-initiative; Eco-helping; Eco-civic engagement; Resource conservation; Green task performance	Pro-environmental behaviour (PEB) is a multidimensional construct. Overall, the instrument used to measure workplace pro-environmental behaviour was considered valid and reliable.
5	Noor et al., (2024)	Pro-Environmental Behaviour (PEB); Environmental Connectedness; Environmental Knowledge	Malaysia	Quantitative (Survey, SEM)	Environmental connectedness (IV); Environmental knowledge (Mediator); Pro-environmental behaviour (DV)	PEB level was high among Malaysians. Environmental connectedness significantly influenced PEB, and environmental knowledge partially mediated the relationship between environmental connectedness and PEB.

6	Kreeratiratanalak & Panyagometh, (2025)	Perceived Sustainability Policy (PSP); Pro-Environmental Behaviour (PEB); Green Shared Vision (GSV); Green Work Climate (GWC); Individual Green Value (IGV)	Thailand	Quantitative	PSP (IV); GSV + GWC (mediators); IGV (moderator); PEB (DV)	Sustainability policies influence employees to engage in pro-environmental behaviours. GSV and GWC help strengthen this behaviour within the organisation. Employees with developed IGV are less dependent on formal sustainability policies to practice pro-environmental behaviour.
7	Irawan et al., (2022)	Cultural Values; Citizens' Trust; Pro-Environmental Behaviour (PEB)	Indonesia	Quantitative	Collectivism, Femininity, Uncertainty avoidance, Future orientation (IV); Citizens' trust (moderator); Pro-environmental behaviour (DV); Education (control)	Cultural values positively influenced PEB. Citizen's trust strengthened the relationship between cultural values and pro-environmental behaviour. Higher trust led to stronger environmentally responsible actions among citizens.
8	Pratama et al., (2024)	Pro-Environmental Behaviour (PEB); Socio-Demographic, Internal &	Indonesia	Qualitative (SLR)	Socio-demographic; Internal (Knowledge; Attitudes; Psychology – e.g., interest/emotion; Values/	Students' PEB is influenced by socio-demographic factors (age, gender), internal factors (knowledge,

		External Factors			Personal norms); External (Economic factors, social norms)	attitudes, psychology, personal norms), and external factors (economic and social norms). Knowledge, attitude, and gender is suggests testing strongest predictor.
9	Liu & Kaida, (2024)	Intergenerational Transmission of Pro-Environmental Behaviour (PEB)	Japan; China	Quantitative	Environmental attitude (NEP); Environmental concern (ECI); Readiness to change; Psychological barriers; Children's influence in family decisions; PEB domains (public transport, water saving, recycling)	Parent-child bidirectional (two-way) effects in environmental attitudes, psychological barriers, and PEB in both countries. Children also influence parents' knowledge/practices. Chinese children show stronger influence on family decision-making than Japanese children.
10	Zhang et al., (2025)	Ecological public art; Pro-environmental behaviour (PEB)	China	Quantitative (Survey)	IV: Ecological public art perception (PEPA); Mediators: Environmental psychological ownership (EPO), Ecological awareness (EA); DV: Pro-	People who perceive ecological public art more strongly show higher pro-environmental behaviour (PEB). Ecological public art increases PEB by (1) making

					environmental behaviour (PEB)	people feel the environment is “mine/ours” (psychological ownership) and (2) increasing ecological awareness.
11	Tan et al., (2025)	Green Volunteerism; Volunteer Functions Inventory (VFI); Norm Activation Model (NAM); Pro- environmental Behaviour (PEB) among Higher Education Institution (HEI) Students	Malaysia	Quantitative (Survey; SEM)	Volunteer Functions Inventory (VFI): protective, value, career, social, understanding, enhancement; Norm Activation Model (NAM): personal norm, awareness of consequences, ascription of responsibility	Intention to engage in green volunteering is significantly influenced by career motivation and understanding (knowledge acquisition). The strongest predictor was personal norms, followed by awareness of consequences and ascription of responsibility.
12	Zhang, D., & Tu, Y. (2021)	Green building; Pro- environmental behaviour (PEB); Well- being; Environmental psychology; Social sustainability	Singapore	Quantitative	Building quality (Strongest effect on well-being); Greenery (Increases satisfaction); Ventilation (Improves comfort); Indoor environment (Enhances living quality); Waste facilities (Encourage green behaviour)	Green building residents report higher residential satisfaction and quality of life, and lower intention to move. Green buildings also encourage pro- environmental behaviour. Tangible green features (greenery, ventilation, indoor environment, waste facilities) have stronger

						impacts than intangible features (energy efficiency, public transport access).
13	Xie, J., & Lu, C. (2022)	Environmental knowledge, environmental perception, post-materialistic values (PMV) and pro-environmental behaviour (PEB)	China	Quantitative	Pro-Environmental Behaviour (PEB) (DV) ; Environmental Knowledge (IV) ; Environmental Perception (MV) ; Post-Materialistic Values (Moderating)	Environmental knowledge enhances pro-environmental behaviour (PEB); environmental perception partially mediates the relationship between knowledge and PEB; perceived moral values (PMV) positively moderate the development of PEB; effects differ by type of PEB (public vs private).
14	Rahmania (2024)	Environmental & psychosocial determinants of students' sustainable behaviour in schools	Indonesia	Mixed Method	Environmental factors (IV): Physical environment; Policy & governance; Social & cultural context; Economic factors; Technological advancements; Stakeholder engagement. Psychosocial factors (IV): Knowledge & awareness; Attitudes & values; Perceived behavioural control; Social norms &	Environmental factors and psychosocial factors (knowledge & awareness, attitudes & values, perceived behavioural control, social norms, motivation & incentives, social identity & connectedness) significantly and positively influence

					influence; Motivation & incentives; identity & connectedness. Outcome (DV): Sustainable behaviour	students' sustainable behaviour.
15	Khuadthong et al., (2025)	Low carbon literacy, social & environmental awareness, and sustainable tourism behaviour (elderly tourists)	Thailand	Quantitative	IV: Low carbon literacy; MV: Social awareness, Environmental awareness; DV: Sustainable tourism behaviour	Low carbon literacy significantly increases social and environmental awareness. Environmental awareness has the strongest direct effect on sustainable tourism behaviour, followed by social awareness. Demographic factors (gender, age, education, income) influence awareness and behaviour levels.
16	Lye et al., (2024)	General and specific environmental education (IBM); Household pro-environmental behaviour (3Rs/waste management)	Malaysia	Quantitative	IV: Specific knowledge, General environmental knowledge, Intention, Habits, Salience of behaviour, Environmental constraints; Outcome (DV): Household pro-environmental behaviour (3Rs waste management)	Specific environmental knowledge, behavioural intention, and behaviour salience significantly enhance household pro-environmental behaviour, while environmental constraints reduce it. Specific knowledge

						serves as a more robust and reliable predictor compared to general environmental knowledge. The findings suggest that interventions should focus on improving specific skills and providing facilities, particularly for low-performing but highly motivated households.
17	Kim & Chae (2025)	Climate communication and climate-related health awareness & adaptive behaviour.	South Korea	Quantitative	IV: Information-seeking experience, Climate communication experience; MV (Psychological factors): Climate self-efficacy, Climate social norms; DV: Pro-environmental behaviour, Health adaptation behaviour, Risk awareness	Information seeking and climate communication enhance pro-environmental and health adaption behaviours, although do not increase perceived sensitivity to health risks. Self-efficacy and social norms significantly predict awareness and behaviour. Current communication influences behaviour but is inadequate for accurate health awareness.

18	Ramadhanti et al., (2024)	Young consumers' green purchase behaviour toward circular packaging (circular economy)	Indonesia	Quantitative	IV: Environmental Attitude, Green Self-Identity, Socialization Agent; MV: Green Purchase Intention; DV: Green Purchase Behaviour	Green self-identity, environmental attitude, and socialization agents (family, peers, media) significantly increase green purchase intention, and intention strongly predicts green purchasing behaviour toward circular packaging. Income moderates the attitude–intention relationship, with the effect stronger among upper-class consumers.
19	Nagao & Yagi (2025)	Determinants of pro-environmental behaviour (PEB) to support decentralized social infrastructure (septic-tank diffusion)	Japan	Quantitative	IV: Values, Social Capital, Perspective on Nature; MV: Place attachment, Environmental knowledge; DV: Pro-environmental Behaviour (PEB)	Place attachment and environmental knowledge directly predict PEB. Values and social capital influence PEB indirectly via place attachment, while perspective on nature influences PEB indirectly via environmental knowledge. The model holds across urban–rural

						and gender groups, although some direct effects differ by subgroup.
20	Hamzah et al., (2025)	Environmental philanthropic behaviour (donations for environmental conservation)	Malaysia	Systematic Literature Review (SLR) - It based on 26 selected articles published between 2012 and 2024.	DV: Environmental philanthropic behaviour (donation-based conservation support); IV: Psychosocial Factors (Values, Attitudes, Subjective Norms), External Factors (Campaign Strategies, Environmental Non-Governmental Organizations (ENGOS); MV: Trust, Transparency (ENGO-related)	Environmental philanthropic behaviour is shaped by psychosocial factors (values, attitudes, and subjective norms) and external factors (campaign strategies and Environmental Non-Governmental Organizations -ENGOS). Trust and transparency in environmental organizations strengthen sustained financial support. The integration of TPB and VBN theories provides a strong framework for understanding and promoting environmental donation behaviour.
21	Nguyen, T., & Nguyen, G., (2025)	Household food waste reduction behaviour using Extended Theory of Planned	Vietnam	Mixed Method	DV: Food Waste Reduction Behaviour; IV: Social Norms, Awareness of Consequences, Environmental	Intention and perceived behavioural control are the strongest predictors of food waste

Behaviour (TPB)	Concern; MV: Food Waste Reduction Intention, Perceived Behavioural Control	reduction behaviour. Awareness of consequences and social norms significantly increase intention, while social norms also strengthen perceived behavioural control.
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1. Internal Psychological and Cognitive Factors

Internal psychological and cognitive constructs, including environmental knowledge, attitudes, and awareness, stand out as an essential theme throughout the studies examined. At least twelve studies recognise these factors as essential indicators to behavioural intention. However, the evidence indicates a complex relationship in which general knowledge frequently does not directly lead to action unless specific competencies or mediating psychological states are present. In Indonesia, it was discovered that environmental knowledge significantly positively impacts pro-environmental behaviour, with most significant impacts observed when paired with an awareness of environmental responsibility (Hastuti et al., 2024; Pratama et al., 2024). This suggests that being aware needs to be paired with a moral or emotional sense of responsibility to encourage real action. Findings from Malaysia further support this, indicating that environmental knowledge partially mediates the relationship between emotional environmental connectedness and behaviour (Noor et al., 2024). This suggests that people who have a strong connection with the environment are more likely to pursue knowledge, which in turn enhances their ability to act.

Beyond general awareness, the depth and specificity of knowledge play a crucial role in behavioural translation. The depth and specificity of knowledge are essential for efficiently expressing behaviour, going over mere general awareness. It's indicated in a Malaysian context that specific knowledge about waste management (the 3Rs) is a much stronger and more dependable predictor of household behaviour compared to general environmental education (Lye et al., 2024). In Thailand, found that "low carbon literacy" serves as a key factor that enhances social and environmental awareness, which in turn encourages sustainable tourism behaviour among older adults (Khuadthong et al., 2025). These findings emphasise the need for cognitive interventions to shift from general awareness to more focused literacy and skill development to bridge the gap between knowledge and action.

2. Moral, Normative, and Value-Based Drivers

Moral obligations and value-based frameworks play a crucial role in driving pro-environmental motivation in Asia, with numerous studies highlighting them as the most significant predictors

of behaviour. In Indonesia, Hastuti et al. (2024) discovered that the Value-Belief-Norm (VBN) theory was the most significant predictor of pro-environmental behaviour among citizens. The research conducted in Malaysia supports this theory, revealing that personal norms and the role of responsibility are key factors influencing higher education students' intentions to engage in green volunteering (Tan et al., 2025).

The integration of values includes cultural and socio-economic factors that influence the expression of morality. Irawan et al. (2022) observed that collectivist values in Indonesia have a positive impact on pro-environmental behaviour (PEB), a connection that is further enhanced by trust in governmental institutions and among fellow citizens. Additionally, Xie and Lu (2022) emphasised the rise of "post-materialistic values" in China, which serve to positively influence the advancement of pro-environmental behaviour as individuals place greater importance on quality of life rather than material wealth. In Malaysia, conducted a detailed study of the moral dimension relating to philanthropic behaviour (donation-based conservation support), revealing that personal values and trust in environmental organisations play a crucial role in ensuring ongoing financial support for conservation efforts (Hamzah et al., 2025).

3. Social Influence, Socialization, and Intergenerational Transmission

In Asian countries, pro-environmental behaviour is deeply integrated into social structures, where family dynamics and community norms significantly influence actions. Some studies revealed a notable bidirectional intergenerational effect in Japan and China, indicating that parents not only act as role models for their children, but children also play a crucial role in driving sustainable changes within the family. The concept of "reverse socialisation" indicates that younger generations in Asia are playing a growing role in influencing the environmental beliefs and decisions of the older generation (Liu & Kaida, 2024).

In addition to family, broader social norms and socialisation influences provide the necessary pressure to maintain behavioural changes. Nguyen and Nguyen (2025) found that social norms play a vital role in Vietnam, greatly influencing the intention to reduce household food waste and improving an individual's sense of control over their actions. In Indonesia, noted that socialisation agents such as family, peers, and digital media play a crucial role in influencing young consumers' intentions regarding green purchases and circular packaging (Ramadhanti et al., 2024). Phuphisith et al. (2020) support these findings, revealing that in megacities such as Bangkok, Tokyo, and Seoul, the pro-environmental behaviours of those in one's immediate community have the greatest impact on individual behaviour (Phuphisith et al., 2020).

4. Policy, Regulation, and Institutional Frameworks

Formal institutional frameworks, such as government regulations and workplace policies, determine the structural boundaries that direct public behaviour. Kreeratiratanalak and Panyagometh (2025) examined the influence of Perceived Sustainability Policy (PSP) in Thailand, discovering that formal policies promote workplace PEB by fostering a "Green Shared Vision" and a "Green Work Climate". They also observed that employees who have strong individual green values (IGV) tend to be self-motivated and less depend on formal rules.

This highlights the importance of creating policies that foster internal values instead of just enforcing compliance (Kreeratiratanalak & Panyagometh, 2025).

Subsequently, the impact of these policies is often seen in particular urban practices influenced by local governance. Some studies noted that the high rates of waste separation in Tokyo and Seoul were directly linked to strict government rules and the implementation of plastic bag charges, while cities with less regulation experienced lower participation in these practices (Phuphisith et al., 2020). This highlighted the importance of environmental governance and policy as key psychosocial factors influencing sustainable behaviour in schools in Indonesia (Rahmania, 2024). The findings indicate that although policies are essential for establishing standards, their effectiveness in Asia depends on their perception as supportive and their integration into the culture of the organization or community.

5. External Infrastructure, Economic Incentives, and Accessibility

The presence of physical infrastructure and economic incentives creates the "opportunity structure" that either encourages or discourages pro-environmental action. Infrastructure availability, including the quality of public transport and the presence of bicycle lanes, has been recognised as a key factor influencing the rates of PEB practices in major Asian cities (Phuphisith et al., 2020). In Singapore support this, revealing that residents of green buildings were more motivated to embrace sustainable habits due to specific elements such as waste facilities, greenery, and ventilation, instead of abstract energy efficiency ratings (Zhang & Tu, 2021).

Economic factors and physical limitations play a crucial role in determining if intentions turn into actions. Several studies have pointed out that "money saving" is a commonly mentioned reason for energy conservation in Thailand and South Korea, emphasising that sustainability is often perceived in terms of resource efficiency (Phuphisith et al., 2020). On the other hand, some studies have discovered that environmental limitations, like insufficient facilities or recycling centers, greatly reduce household PEB, even for those who are highly motivated in Malaysia (Lye et al., 2024). The findings suggest that without accessible infrastructure and affordable green options, simply having psychological motivation is not enough to maintain regional behavioural changes.

6. Identity, Environmental Connectedness, and Place Attachment

Recent studies in Asia have begun to highlight stronger psychological connections, including environmental identity and emotional attachment to specific areas. Yusliza et al. (2020) discovered that environmental commitment emerged as the strongest predictor of pro-environmental behaviour (PEB) in Malaysia, indicating that a lasting psychological connection to environmental objectives is more influential than situational incentives. Other studies support this idea, highlighting "environmental connectedness" as a key factor influencing behaviour. Those who have an emotional connection with nature are more likely to pursue knowledge and engage in responsible actions (Noor et al., 2024).

The influence of identity is further highlighted by how self-perception and local connections contribute to the formation of lasting habits. It has been noted that "Green Self-Identity"—the perception of oneself as a green consumer—strongly influences intentions

related to sustainable purchasing and circular packaging in Indonesia (Ramadhanti et al., 2024). In Japan, the significance of "place attachment" was emphasised, revealing that a person's emotional connection to their hometown directly influences their willingness to support local environmental infrastructure and initiatives (Nagao & Yagi, 2025). The results indicate that promoting stewardship and emotional connection is an essential approach for achieving sustainable change in Asian societies.

7. Aesthetic Perception and Innovative Communication

A growing focus in Asian PEB research is the incorporation of unconventional methods, like art and strategic communication, to enhance ecological awareness. Zhang et al. (2025) showed in China that the perception of ecological public art significantly enhances pro-environmental behaviour by promoting "Environmental Psychological Ownership". When people notice ecological themes in public art, they feel a connection to their surroundings, which enhances their awareness and inspires them to engage in protective actions (Zhang et al., 2025).

Strategies for communication and experiences in seeking information are crucial in enabling individuals to take action. Have studies in South Korea discovered that climate communication and the pursuit of information enhance a person's "self-efficacy," or their confidence in their capacity to engage in environmental actions. They also cautioned that current communication strategies often come inadequate in enhancing accurate health-risk awareness, highlighting the necessity for more clear and focused communication (Kim & Chae, 2025). The results highlight that engaging aesthetics and thoughtful information sharing are effective methods for turning public spaces and digital platforms into centers for environmental education.

Discussion

The systematic review of pro-environmental behaviour (PEB) in Asian countries from 2020 to 2025 shows a transition towards understanding environmental action as a complex interaction between internal psychological factors and external systemic opportunities. This review brings together various models, including the Theory of Planned Behaviour (TPB) and the Value-Belief-Norm (VBN) framework, to show that Asian environmentalism is significantly shaped by regional factors such as collectivist trust and intergenerational dynamics. The findings indicate that although awareness increases in countries such as Malaysia, Indonesia, and Thailand, there are still significant structural and cognitive gaps that remain. To enhance existing PEB strategies, stakeholders need to change from general awareness initiatives to focused, culturally relevant interventions that give citizens with specific skills, provide accessible infrastructure, and foster emotional support.

Firstly, the internal psychological and cognitive factors, the review challenges the traditional "Knowledge-Awareness-Practice" model by showing that general awareness does not ensure that action. In Indonesia and Thailand shows that for knowledge to be effective, it needs to be converted into "literacy" and "responsibility." This implies that cognitive factors act more as indicators than as direct drivers. It is recommended that governments move from broad environmental education to focused "how-to" training (Hastuti et al., 2024; Khuadthong et al., 2025). For instance, have discovered that having specific knowledge about waste management (3Rs) is a more accurate predictor of behaviour compared to general knowledge (Lye et al., 2024).

As a result, practical campaigns should focus on providing technical instructions related to recycling and energy-saving to help reduce the knowledge-action gap.

The moral and value-based drivers highlighted in the review strengthen the credibility of the VBN and Norm Activation Model (NAM) within the Asian context. In countries with deeply integrated traditional values such as Indonesia and Malaysia, revealed that personal norms and moral obligations are the most significant predictors of pro-environmental behaviour. This suggests that for Asian citizens, engaging in environmental action is frequently seen as a moral obligation instead of just a logical decision (Hastuti et al., 2024; Tan et al., 2025). It is recommended for environmental initiatives to depend on local cultural and religious values. For instance, the idea of "citizens' trust" can enhance the effectiveness of community-based programs, as people are more willing to take action when they believe their community shares the same moral commitment (Irawan et al., 2022).

Social Influence, socialization, and intergenerational transmission were also found to significantly influencing public pro-environmental behaviour (PEB). This review makes an important theoretical contribution by highlighting that intergenerational transmission occurs as a bidirectional process. In China and Japan, children not only learn from their parents but also serve as "reverse socialisation" agents, impacting family decisions. This improves the theory by expanding the concept of socialisation beyond just top-down learning (Liu & Kaida, 2024). This implies a "youth-led" strategy for PEB, encouraging schools to enable students to act as green ambassadors in their homes. According to Ramadhanti et al. (2024), socialisation agents play a crucial role for Gen Z in Indonesia. Therefore, it is essential to implement practical interventions that empower young people through digital and educational platforms to encourage changes in consumption and waste habits across families (Ramadhanti et al., 2024).

Subsequently, policy, regulation, and institutional frameworks indicates that structured frameworks most effectively when they support "Individual Green Values" (IGV). The conversation surrounding policy and regulation indicates that structured frameworks work most effectively when they support "Individual Green Values" (IGV). In Thailand, employees showing high IGV are less dependent on formal rules to engage in PEB, indicating that policy serves as a "floor" while values function as the "ceiling" (Kreeratiratanalak & Panyagometh, 2025). This emphasises how personal values can influence behaviour within institutional contexts. Organisations need to move from just punitive regulations to embracing "Green Shared Visions." The research conducted by Phuphisith et al. (2020) in Tokyo and Seoul indicates that strict waste separation rules effectively normalised behaviour (Phuphisith et al., 2020). Thus, it is crucial to combine clear regulations with initiatives that promote a green organisational climate to ensure long-term compliance.

Furthermore, the external infrastructure and economic incentives, and accessibility continue to be the most important factors for PEB in the region. Some studies show that tangible features, such as accessible public transport and waste facilities in green buildings, directly improve a person's perceived behavioural control. This suggests that external factors can take priority over strong psychological intentions (Phuphisith et al., 2020; Zhang & Tu, 2021). It is recommended that governments focus on a "convenience-first" design. Enhancing the accessibility of recycling centers and LED products transforms the "green choice" into the "easy choice," making sure that residents in developing cities such as Bangkok or Jakarta are not discouraged by the significant effort or expense often related to sustainable living (Phuphisith et al., 2020).

Moreover, the identity, environmental connectedness, and place attachment provides a stronger theoretical framework for pro-environmental behaviour compared to rational-choice models. The research revealed that emotional commitment and connectedness significantly influence behaviour in Malaysia. It is recommended for environmental campaigns to "localise" the issue to strengthen place attachment (Yusliza et al., 2020; Noor et al., 2024). Nagao and Yagi (2025) discovered in Japan that a person's connection to their hometown can motivate them to support local infrastructure initiatives. By presenting global climate challenges as efforts to preserve local communities, those who practice can connect with the strong emotional and spiritual connections that Asian residents have with their surrounding natural environments (Nagao & Yagi, 2025).

Besides that, the role of aesthetic perception and innovative communication indicates a new and exciting area in Asian PEB studies. It demonstrated that ecological public art in China fosters a sense of "Environmental Psychological Ownership," allowing people to feel a connection to public spaces, which in turn encourages better protection of those areas (Zhang et al., 2025). This concept introduces "ownership" as a factor influencing behaviour. It is recommended that urban planners involve sustainability into the visual and digital environment by utilising art and enhancing communication that promotes "self-efficacy" (Kim & Chae, 2025). By transforming sustainability into something visually attractive and interesting online, policymakers may change the perception of PEB from an exhausting task to an interesting part of modern urban living.

In conclusion, the factors influencing public pro-environmental behaviour (PEB) in Asian combine fundamental collectivist values with the changing structural patterns caused by rapid urbanisation. This SLR theoretically supports the integration of the VBN and TPB models, emphasising the distinct "Asian advantage" of intergenerational influence and community trust. The most effective way to enhance PEB involves a two-pronged strategy: boosting internal "green literacy" and "identity" while also eliminating external obstacles through "convenience-based infrastructure" and "fair policy." Future PEB initiatives should emphasise the connection between empowering youth, fostering digital socialisation, and developing "green climates" in workplaces and urban areas. This approach will help ensure that Asia's environmental transition is sustainable and culturally relevant.

Limitation of the Study

The systematic literature review has several limitations that should be considered when analysing the findings. First, the review was limited to empirical studies published from 2020 to 2025, which may have resulted in the exclusion of relevant studies published outside this time frame. Then, the review focused only on the Asian countries, which indicates that the findings may not be generalisable to other geographical regions with different environmental, cultural, and socio-economic contexts. Furthermore, the review synthesised evidence from studies conducted in various Asian countries, where differences in environmental policies, institutional support, and cultural values may have influenced the factors of pro-environmental behaviour (PEB).

Subsequently, another limitation is that the review focused on empirical studies, which resulted in the systematic literature review being limited by the specified inclusion and exclusion criteria. Specifically, the review included only empirical journal articles published in English and indexed within the Scopus and Web of Science (WoS) databases. Although these criteria enhanced the quality and reliability of the selected studies, they may have limited the comprehensiveness of

the review by excluding potentially relevant evidence found in other languages, publication types, and databases.

Conclusion

This systematic literature review aimed to identify and synthesise the key factors influencing pro-environmental behaviour (PEB) among the public in Asian countries, focusing on empirical studies published from 2020 to 2025. The research focused on 21 articles to offer a straightforward guide for researchers and policymakers in the area. The research covered a broad range of Asian countries, such as Thailand, Japan, South Korea, Indonesia, Malaysia, China, Singapore, and Vietnam. The review aimed to explore the relationship of cultural, psychological, and structural factors in shaping environmentally responsible behaviours across various contexts in both rapidly developing and developed Asian economies.

The thorough analysis revealed seven key themes that influence PEB in the Asian context: internal psychological and cognitive factors; moral, normative, and value-based drivers; social influence and intergenerational transmission; policy, regulation, and institutional frameworks; external infrastructure and economic incentives; identity, emotional connectedness, and place attachment; and aesthetic perception and innovative communication. These themes emphasise that although internal motivations like environmental knowledge and personal norms are essential, their real influence is greatly affected by external factors such as the availability of infrastructure, cost-effectiveness, and institutional support. The results indicate that a comprehensive strategy is needed to connect awareness with action in the area.

This systematic literature review has reached thematic saturation; however, it is limited by the scope and availability of empirical studies that specifically focus on public pro-environmental behaviour in Asian contexts. The inclusion of 21 articles offers a solid basis, however the findings largely depend on the depth and quality of these particular studies. Additionally, the review mainly focuses on Southeast and East Asia, indicating that making broader generalisations about the entire Asian continent, especially regarding Central or West Asian subregions, should be done thoroughly because of the limited geographical scope of the existing research.

This analysis recognises potential limitations due to the use of certain academic databases and language limitations as it only included publications in English. This might have left out important regional or non-English studies found in local environmental or administrative journals that could provide greater cultural and linguistic perspectives. The predominant use of quantitative survey-based research in most of the studies reviewed indicates that the results mainly reflect cross-sectional views of behaviour, rather than reflecting the long-term evolution of behaviour or the deeper qualitative aspects of cultural change.

Finally, future studies should focus on using multilingual databases and expanding the scope to cover a wider variety of Asian subregions to enhance the external validity of the findings. Longitudinal research designs are strongly advised for monitoring the consistency of pro-environmental behaviours over time and assessing the lasting impact of policy and infrastructure initiatives. Furthermore, upcoming research should utilise a combination of mixed-method and qualitative strategies to better understand the intricate cultural values, including the distinct intergenerational transmission and collectivist norms highlighted in this review. These efforts will assist researchers in gaining a deeper understanding of the underlying psychological mechanisms

and systemic barriers that either encourage or discourage sustainable transformation in Asian societies.

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References:

- Ahmad Zahran, S. M., Mohd Noor, N. H., & Ghazali, M. (2025). Determinants of job performance of public servants in Asian countries: a systematic literature review. *Journal of Administrative Science*, 22(2), 225-252.
- Batool, N., Wani, M. D., Shah, S. A., & Dada, Z. A. (2024). Theory of planned behavior and value-belief norm theory as antecedents of pro-environmental behaviour: Evidence from the local community. *Journal of Human Behavior in the Social Environment*, 34(5), 693-709.
- Baas, J., Schotten, M., Plume, A., Côté, G., & Karimi, R. (2020). Scopus as a curated, high-quality bibliometric data source for academic research in quantitative science studies. *Quantitative science studies*, 1(1), 377-386.
- Donmez-Turan, A., & Kiliclar, I. E. (2021). The analysis of pro-environmental behaviour based on ecological worldviews, environmental training/knowledge and goal frames. *Journal of Cleaner Production*, 279, 123518.
- Ewald, H., Klerings, I., Wagner, G., Heise, T. L., Stratil, J. M., Lhachimi, S. K., ... & Nussbaumer-Streit, B. (2022). Searching two or more databases decreased the risk of missing relevant studies: a metaresearch study. *Journal of clinical epidemiology*, 149, 154-164.
- Hastuti, K. P., Arisanty, D., Muhaimin, M., Angriani, P., Alviawati, E., Aristin, N. F., & Rahman, A. M. (2024). Factors affecting pro-environmental behaviour of Indonesian university students. *Journal of Turkish Science Education*, 21(1), 102-117.
- Hamzah, S. M. H., Abd-Rahman, N., & Ashaari, M. F. (2025). Factors influencing environmental philanthropic behaviors: A systematic literature review. *Journal of Environmental Management*, 395, 127656.
- Helferich, M., Thøgersen, J., & Bergquist, M. (2023). Direct and mediated impacts of social norms on pro-environmental behavior. *Global Environmental Change*, 80, 102680.
- Handoyo, B., Astina, I. K., & Mkumbachi, R. L. (2021, March). Students' environmental awareness and pro-environmental behaviour: preliminary study of geography students at State University of Malang. In *IOP Conference Series: Earth and Environmental Science* (Vol. 683, No. 1, p. 012049). IOP Publishing.
- Haddaway, N. R., Macura, B., Whaley, P., & Pullin, A. S. (2018). ROSES RepOrting standards for Systematic Evidence Syntheses: pro forma, flow-diagram and descriptive summary of the plan and conduct of environmental systematic reviews and systematic maps. *Environmental Evidence*, 7(1), 7.
- Irawan., Elia, A., & Benius. (2022). Interactive effects of citizen trust and cultural values on pro-environmental behaviors: A time-lag study from Indonesia. *Heliyon*, 8(3).

- Kreeratratanalak, A., & Panyagometh, A. (2025). Translating Corporate Sustainability Policies into Employee Pro-Environmental Behaviors: Evidence from Thai Organizations. *Sustainability*, 17(16), 7393.
- Khuadthong, B., Imjai, N., Yordudom, T., Armandsiri, M., & Aujiapongpan, S. (2025). Shaping sustainable tourism behavior among elderly tourists: Roles of low carbon literacy and social-environmental awareness. *Sustainable Futures*, 101026.
- Kim, H., & Chae, S. (2025). Climate change health communication and its association with awareness and behaviors in South Korea. *The Journal of Climate Change and Health*, 26, 100583.
- Liu, X., & Kaida, N. (2024). Parent–child intergenerational associations of environmental attitudes, psychological barriers, and pro-environmental behaviors in Japan and China. *Sustainability*, 16(23), 10445.
- Lye, C. T., Ng, T. H., & Law, J. W. (2024). The role of general and specific pro-environmental education in household waste management in Malaysia: Evidence from quantile regression. *Environmental Challenges*, 15, 100933.
- Noor, N. H. M., Zaini, S. M., Pudir, S., & Sidek, M. S. J. (2024). Environmental Sustainability: Mediating Effect of Environmental Knowledge for Pro-Environmental Behaviour. *Indonesian Journal of Sustainability Accounting and Management*, 8(1), 230-248.
- Nagao, M., & Yagi, T. (2025). Verification of the determinants of pro-environmental behavior: Toward the spread of decentralized social Infrastructure. *Social Sciences & Humanities Open*, 11, 101348.
- Nguyen, T. T. G., & Nguyen, G. H. (2025). Extended theory of planned behavior and demographics in household food waste reduction: Evidence from Vietnam. *Cleaner Waste Systems*, 100349.
- Phuphisith, S., Kurisu, K., & Hanaki, K. (2020). A comparison of the practices and influential factors of pro-environmental behaviors in three Asian megacities: Bangkok, Tokyo, and Seoul. *Journal of Cleaner Production*, 253, 119882.
- Pratama, S. H., Ristanto, R. H., Handayani, T., Sigit, D. V., & Komala, R. (2024). Factors Influencing Students' Pro-Environmental Behavior: A Systematic Literature Review. *Biosfer: Jurnal Tadris Biologi*, 15(1), 135-151.
- Pulido-Chadid, K., Virtanen, E., & Geldmann, J. (2023). How effective are protected areas for reducing threats to biodiversity? A systematic review protocol. *Environmental Evidence*, 12(1), 18.
- Paul, J., & Barari, M. (2022). Meta-analysis and traditional systematic literature reviews—What, why, when, where, and how?. *Psychology & Marketing*, 39(6), 1099-1115.
- Rahmania, T. (2024). Exploring school environmental psychology in children and adolescents: The influence of environmental and psychosocial factors on sustainable behavior in Indonesia. *Heliyon*, 10(18).
- Ramadhanti, F., Suryandaru, R., & Amelia, N. (2024). Green purchase behavior in circular packaging: The case of young consumers in Indonesia. *Cleaner and Responsible Consumption*, 14, 100208.
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of business research*, 104, 333-339.
- Tan, X. Y., Chong, C. W., & Chong, C. Y. (2025). Green volunteerism among higher education institution students in Malaysia: Insights from the Volunteer Functions Inventory and the Norm Activation Model. *Social Sciences & Humanities Open*, 12, 101879.
- Tian, H., & Liu, X. (2022). Pro-environmental behavior research: Theoretical progress and future directions. *International journal of environmental research and public health*, 19(11), 6721.

- van Valkengoed, A. M., Abrahamse, W., & Steg, L. (2022). To select effective interventions for pro-environmental behaviour change, we need to consider determinants of behaviour. *Nature human behaviour*, 6(11), 1482-1492.
- Xie, J., & Lu, C. (2022). Relations among pro-environmental behavior, environmental knowledge, environmental perception, and post-materialistic values in China. *International Journal of Environmental Research and Public Health*, 19(1), 537.
- Yusliza, M. Y., Amirudin, A., Rahadi, R. A., Nik Sarah Athirah, N. A., Ramayah, T., Muhammad, Z., ... & Mokhlis, S. (2020). An investigation of pro-environmental behaviour and sustainable development in Malaysia. *Sustainability*, 12(17), 7083.
- Yusop, H. M., Adam, A. A., Munusami, C., & Hussin, S. A. (2023). Exploratory factor analysis for pro-environmental behaviour among employees of development financial institutions in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, 13(8), 1049-1065.
- Zhang, S., Tan, R., Shen, Y., & Wu, D. (2025). The Impact of Ecological Public Art on Public Pro-Environmental Behavior: Evidence from a Serial Multiple Mediation Model. *Sustainability*, 17(22), 10125.
- Zhang, D., & Tu, Y. (2021). Green building, pro-environmental behavior and well-being: Evidence from Singapore. *Cities*, 108, 102980.