



# The Communication Strategy in Environmental Policy for Sustainable Development: A Review and Bibliometric Analysis

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Received: April 02, 2026

Revised: May 24, 2026

Accepted: June 25, 2026

Published: June 30, 2026

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DOI: [10.29303/jppipa.v12i6.15086](https://doi.org/10.29303/jppipa.v12i6.15086)

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**Abstract:** Environmental issues and the increasing urgency to achieve sustainable development goals have highlighted the importance of effective communication strategies in environmental policy implementation. However, public resistance, low stakeholder participation, and ineffective policy dissemination remain major challenges in many countries. This study aims to conduct a systematic literature review related to the implementation of communication strategy in the field of environmental studies. This study uses a hybrid systematic literature review (SLR) and bibliometric analysis to investigate the role and communication strategy in environmental policy. VOSviewer and the PRISMA framework were used to evaluate 22 articles from the Scopus database (2017–2026). The results show that research in this field is still limited, indicating opportunities for further investigation. Communication strategies have been shown to significantly increase public acceptance of environmental policies, strengthen stakeholder participation, and encourage sustainable behavior change through digital platforms, value-based framing, and participatory approaches. The main driving factors of effective communication include collaborative practices, adequate funding, and fair policy framing, while barriers include weak institutional structures, lack of community-based approaches, and negative public perception. The identified research gaps include the scarcity of longitudinal studies, limited research in developing countries, and inadequate interdisciplinary integration between environmental psychology and policy communication. These findings provide an evidence-based foundation for policymakers and researchers to enhance the effectiveness of environmental policy communication.

**Keywords:** Bibliometric analysis; Communication strategy; Environmental policy; PRISMA; Systematic literature review

## Introduction

Communication strategies in environmental policy are becoming increasingly important as global environmental challenges, including climate change, pollution, biodiversity loss, ecosystem degradation, and low public participation in supporting the implementation of environmental policies. While governments have introduced numerous environmental regulations to address these challenges, the effectiveness of such policies depends not only on regulatory design but also on how policy objectives, risks, and expected

behavioral changes are communicated to diverse stakeholders. Effective communication enhances public understanding, strengthens institutional trust, promotes pro-environmental behavior, facilitates conflict resolution, and supports collaborative governance among governments, private sectors, civil society organizations, and local communities (Fuoco et al., 2023). Consequently, communication is now recognized as a strategic component of environmental governance rather than merely a tool for disseminating information.

The growing importance of environmental communication has been accompanied by a rapid

### How to Cite:

Safela, R. A., Sary, A. N., Wardi, Y., & Evanita, S. (2026). The Communication Strategy in Environmental Policy for Sustainable Development: A Review and Bibliometric Analysis. *Jurnal Penelitian Pendidikan IPA*, 12(6), 92–99. <https://doi.org/10.29303/jppipa.v12i6.15086>

expansion of empirical studies investigating communication strategies across various environmental policy domains, including climate adaptation, waste management, biodiversity conservation, disaster risk reduction, renewable energy, and sustainable resource management (Jamil et al., 2026). These studies employ diverse theoretical perspectives, communication models, stakeholder contexts, and methodological approaches, reflecting the interdisciplinary nature of environmental policy research (Bhardwaj et al., 2025). However, the existing body of literature remains highly fragmented. Evidence is scattered across different policy sectors and geographical contexts, making it difficult to identify overarching communication patterns, determine which strategies consistently improve policy implementation, or understand the contextual factors that influence communication effectiveness.

Although several literature reviews have examined specific aspects of environmental communication, most focus on particular environmental issues, individual communication platforms, or limited stakeholder groups. Existing reviews rarely provide an integrated synthesis that simultaneously examines (1) the evolution of research trends, (2) the implementation of communication strategies across different environmental policy contexts, and (3) the institutional, social, technological, and governance factors that facilitate or hinder successful communication. Furthermore, rapid developments in digital communication technologies, social media, artificial intelligence, misinformation, and participatory governance have fundamentally transformed environmental communication practices over the past decade, yet these developments have not been comprehensively synthesized within a single systematic review. This fragmentation creates an important knowledge gap that limits both theoretical development and evidence-based policymaking.

This study addresses these gaps by conducting a comprehensive Systematic Literature Review (SLR) of communication strategies in environmental policy using the PRISMA framework. The review systematically identifies dominant research themes, communication approaches, stakeholder engagement mechanisms, implementation outcomes, and the principal drivers and barriers influencing communication effectiveness (Selvakumar et al., 2026). In addition, the study maps emerging research directions associated with digital transformation, participatory governance, and technological innovation, thereby providing an updated perspective on the evolution of environmental policy communication (Bao et al., 2025). Methodologically, SLR often employs structured frameworks such as the PRISMA protocol to ensure transparency and

reproducibility, combining quantitative and qualitative analyzes to evaluate trends, effectiveness, and contextual factors in communication strategies (de Vries, 2020). Communication strategies play a critical role in building trust and stakeholder participation, especially when these strategies integrate collaboration, contextual messaging, and feedback mechanisms (Barbosa, 2026). These strategies also shape public perception due to the use of visual and interactive elements.

The following are the study's research questions: RQ1: What is the relationship between environmental policy communication strategy and research allocation? RQ2: What is the role of implementing communication strategy in environmental policy? RQ3: What are the driving and inhibiting factors of communication strategy in environmental policy?

This research aims to conduct a systematic literature review related to the implementation of communication strategy in the field of environmental studies, as well as to review the diversity of results found in empirical research and synthesize the findings to identify research gaps for future studies. This study contributes to the development of future environmental communication research while providing practical guidance for designing more effective, inclusive, and evidence-based environmental policies.

## Method

This systematic literature review uses a bibliometric approach to conduct a quantitative assessment of the literature to identify trends, patterns, and key research entities within a discipline. This method guarantees a thorough and repeatable literature review by employing frameworks like PRISMA, giving a straightforward and understandable summary of the studied subject (Chotisarn & Phuthong, 2025). Bibliometric analysis is conducted using VOSViewer, which visualizes bibliographic data to analyze citation networks and frequently co-occurring keywords, thereby revealing the intellectual structure and dynamics of the research field (Pratiwi & Ikhsan, 2024). The combination of bibliometric analysis and systematic literature review helps researchers synthesize empirical findings and map the landscape of research activities, including identifying key contributors and emerging trends. The analysis was conducted on April 20, 2026, on the website scopus.com. The terms utilized are environmental policy and communication strategy, which are based on the PICO framework. These are the foundational terms that will be developed throughout the search for relevant material.

**Table 1.** Framework of PICO

| PICO Tool    |                                                 |                                                                                                                                                                                                           |
|--------------|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Population   | Environmental and development studies           |                                                                                                                                                                                                           |
| Intervention | communication strategy and environmental policy |                                                                                                                                                                                                           |
| Comparison   | -                                               |                                                                                                                                                                                                           |
| Outcome      | 1.                                              | Potential application of communication strategy in environmental policy Potential application of communication strategy in environmental policy                                                           |
|              | 2.                                              | Factors driving and hindering the implementation of communication strategy in environmental policy Driving and inhibiting factors in the implementation of communication strategy in environmental policy |
|              | 3.                                              | The impact of implementing a communication strategy on environmental policy The impact of implementing a communication strategy on environmental policy                                                   |

Source: Article analysis

This study used secondary data. These data are study findings that have been published online in journals. Data search was conducted thru Scopus. The terms "communication strategy" and "environmental policy," which were retrieved with the use of boolean

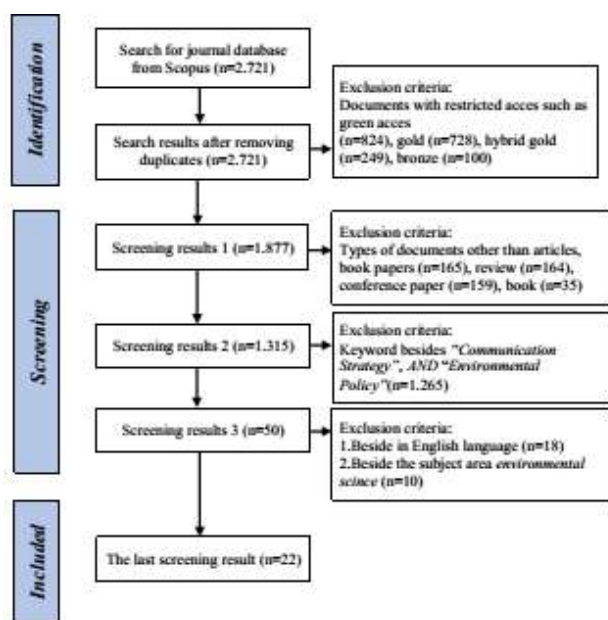
operators (AND), were combined to do article searches. The criteria for this study are modified in accordance with the previously established PICO framework with the following additions. The literature criteria comprise inclusion and exclusion criteria.

**Table 2.** Inclusion and Exclusion Criteria

| Criteria         | Inclusion                                             | Exclusion                                                   |
|------------------|-------------------------------------------------------|-------------------------------------------------------------|
| Open Access      | Documents that only publish open access (open access) | Documents with restricted access such as: Green Access      |
| Duration         | Publication within the range of 2018-2023             | Publication before 2018                                     |
| Type of document | Article                                               | Except from article                                         |
| Keywords         | "communication strategy", AND "environmental policy"  | Beside "communication strategy", AND "environmental policy" |
| Language         | English                                               | Besides English                                             |
| Area of subject  | Environmental science                                 | Besides environmental science                               |

Source: Article analysis

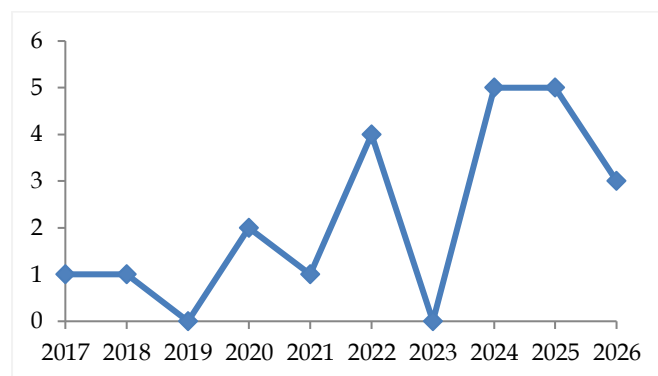
After collecting data through Scopus, the researchers used the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta Analyzes) method, which consists of three stages.

**Figure 1.** PRISMA flow diagram

## Result and Discussion

*RQ1: What is the Relationship between Environmental Policy Communication Strategy and Research Allocation?*

Since 2017, the literature on communication strategies in environmental policy still developing and not yet reaching saturation point. This research opportunities are open because of the dynamics of new digital platforms that were not widely explored before 2017. This can facilitate a deeper understanding of practical and sustainable communication strategies in environmental policy across various sectors.

**Figure 2.** Trend graph based on research year



**Table 4.** The role of communication strategy in Environmental Policy

| The role of communication strategi in environmental policy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Reference                                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Communication strategies play a role in environmental policy, including the optimization of digital platforms, websites, and bulletins to enhance public participation in environmental policy advocacy. This includes an emphasis on personal narratives and policy critiques to encourage broader engagement and results that can be implemented on the ground. The studies that have been conducted emphasize that effective communication is crucial to encourage the implementation of environmental management practices and to enhance the competitive advantage of vineyards in terms of sustainability. | Efianingrum (2025), Sun et al. (2025), López-Santiago et al. (2024), Tam et al. (2022) |
| Communication strategies emphasize the importance of aligning communication strategies among various organizations. Effective strategies should focus on behavior in the public domain, such as participating in citizenship processes and discussions on climate change.                                                                                                                                                                                                                                                                                                                                        | Waters et al. (2024), Bragg et al. (2021)                                              |
| Communication strategies regarding environmental policies play a role in the strategic delivery of information to influence public perception and support, emphasizing justice, effectiveness, and benefits for disadvantaged groups.                                                                                                                                                                                                                                                                                                                                                                            | Hoyle et al. (2025), Oluwadipe et al. (2022)                                           |
| Communication strategies include communication that uses simple language tailored to address the concerns of specific audiences to increase public support for initiatives such as carbon pricing, emphasizing targeting, message adjustment, and highlighting the importance of integrating traditional and digital platforms, encouraging intergenerational dialog, and underscoring personal relevance to motivate audience participation.                                                                                                                                                                    | Schwarz et al. (2026), Ni et al. (2025), Greeves et al. (2026)                         |
| A good communication strategy serves as a framing technique to influence public opinion by emphasizing certain aspects of environmental policies, such as the economic or health benefits of climate change mitigation.                                                                                                                                                                                                                                                                                                                                                                                          | Id et al. (2024)                                                                       |
| A good communication strategy can build trust and awareness thru a structured approach among parties regarding long-term benefits, as well as address public concerns related to economic impacts in policy formulation.                                                                                                                                                                                                                                                                                                                                                                                         | Azhar et al. (2024)                                                                    |

### RQ3: Factors that motivate and restrain Communication Strategy in Environmental Policy



**Figure 5.** Driving and inhibiting factors of communication strategy in environmental policy

Based on the literature review, the implementation of communication strategy in environmental policy is driven by several factors, including good collaboration in communication aspects thru advancements in digital technology, the use of social media platforms, and active audience participation, which enables faster and wider dissemination of information to the public (Primasari et

al., 2023). In addition, factors such as resources and incentives also play a role, including adequate funding and financial incentives obtained from decisions that support environmental policies (Yulia et al., 2025). Then, good policy framing and communication, as well as assurance of social justice regarding environmental policies, also become determining factors for the success of environmental policy communication (Kasim et al., 2025). Furthermore, factors that hinder communication strategies in environmental policy include institutional issues, community participation, costs, and the perspective of shared information, as can be seen in Figure 5.

### Analysis and Synthesis of Findings

The synthesis of 22 analyzed articles shows several main patterns in the relationship between communication strategy and environmental policy. First, the effectiveness of communication strategies highly depends on the local context, cultural values, and audience characteristics. The one-size-fits-all approach has proven ineffective; on the contrary, strategies tailored to specific audience segments, such as in the context of carbon pricing policies, show much better results (Schwarz & Sommer, 2026). Second, there is a paradox between increased awareness and actual behavioral change. Although many communication strategies have successfully raised public awareness, not all of them have succeeded in driving sustainable

behavioral change. This highlights the importance of designing communication strategies that are not only informative but also encourage real action through appropriate motivational mechanisms (Müller, 2025). Third, the integration between traditional and digital media becomes the key to the success of inclusive environmental communication (Gozali & Teguh, 2025). As shown by Ni et al. (2025), the elderly group requires an approach that integrates both platforms, while the younger group is more responsive to interactive digital content. Fourth, the role of local stakeholders such as community leaders, traditional leaders, and civil organizations is crucial as trust mediators between policymakers and the general public (Bragg et al., 2021). Based on the analysis, several research gaps have been identified for future studies: the lack of longitudinal studies measuring the long-term impact of communication strategies on environmental policy changes, the limited research exploring the effectiveness of communication strategies in developing countries, particularly Southeast Asia, the scarcity of studies integrating environmental psychology perspectives with policy communication approaches (Situmorang et al., 2025). The need for research evaluating the impact of digital misinformation on the effectiveness of environmental policy communication (Muthia et al., 2025).

## Conclusion

The implementation of a communication strategy in environmental policy has great potential to change the way society understands, accepts, and responds to environmental policies. By utilizing contextual, participatory, and evidence-based approaches, communication strategies can enhance public acceptance, encourage behavioral change, and strengthen the overall legitimacy of environmental policies. The driving factors for the effective implementation of a communication strategy include good communication collaboration, financial resources and incentives, framing, and principles of justice. Political commitment" as a key motivating factor in implementing a communication strategy. The positive impact of implementing the right communication strategy is evident in the increased acceptance of policies, strengthened community participation, behavior changes that support sustainability, and improved transparency in environmental governance. The analysis also shows that communication strategies that integrate cultural, emotional, two-way interactive, and participatory approaches are proven to be more effective compared to purely informative approaches. That emotional approaches are used to reach affection (concern), while evidence-based approaches are used to

build credibility (trust). That participatory approaches are more effective for long-term acceptance and behavior change, while informative approaches remain crucial for technical and emergency aspects. It can be suggested to develop an interdisciplinary framework that combines cognitive psychology (for behavior) and political ecology. In developing countries, the main problem is not just hoaxes, but the digital divide (indigenous/rural communities lacking access to government digital communication channels). Additionally, policymakers are advised to invest resources in the development of adaptive and inclusive communication to support the transition toward sustainable development. It can be add accessibility and inclusion aspects of traditional communication channels to the research recommendation.

## Acknowledgments

This research and publication were made possible with the support of various parties. Therefore, we would like to express our gratitude to: First, The principal, teachers who were willing to participate in this research; Second, The journal editor and anonymous reviewers who were willing to professionally process this article for publication in this journal.

## Author Contributions

Conceptualization, R.A.S., Y.W., S.E., A.N.S.; methodology, R.A.S., Y.W.; software, R.A.S.; validation, Y.W.; formal analysis, R.A.S., Y.W.; investigation, R.A.S.; resources, R.A.S., A.N.S., Y.W.; data curation, R.A.S.; writing—original draft preparation, R.A.S.; writing—review and editing, R.A.S., A.N.S., Y.W., S.E.; visualization, R.A.S.; A.N.S.; supervision, Y.W.; Project administration, R.A.S., A.N.S., Y.W.

## Funding

There is no external funding.

## Conflicts of Interest

The authors declare no conflict of interest.

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