

EFFECTIVENESS OF USING MEDIA COMMUNICATION IN ENVIRONMENTAL GOVERNANCE

Olena Mykhailovska

University of Future Transformation, Chernihiv, Ukraine

Corresponding author: m-olena@ukr.net

The article examines the effectiveness of media communications in enhancing environmental governance and influencing public behaviour toward sustainability. The research synthesises findings from various investigations to assess how different forms of media shape public perceptions, engage communities, and support environmental policy initiatives. By integrating empirical data and theoretical insights, the article explores the dynamic role of media in promoting environmental awareness and pro-environmental behaviours. It highlights the pivotal function of digital platforms in disseminating information rapidly and engaging a broad audience. The article discusses the impact of media credibility and the strategic framing of messages on enhancing public compliance with environmental policies. Key findings indicate that effective media communication can significantly boost public involvement in sustainability initiatives and influence individual behaviours. The research underscores the necessity for continuous monitoring and adapting media strategies to keep pace with public sentiments, ensuring that environmental messaging remains effective and relevant. The article offers evidence-based recommendations for policymakers, environmental activists, and corporations, aiming to optimise the use of media communications to foster a more informed and engaged public in support of Sustainable Development Goals. This comprehensive approach sheds light on the current state of media influence on environmental governance and provides a roadmap for future research and practical applications in the field.

Keywords: environmental governance, media communication, pro-environmental behavior, environmental consciousness, public engagement

DOI: 10.24263/EDSD-2024-6-14

Received 25.04.2024

Received in revised form 21.10.2024

Accepted 12.11.2024

Introduction

Achieving sustainable development largely depends on people's pro-environmental behaviour based on environmental consciousness (Han et al., 2017). It is known that pro-environmental behaviour is characterised by the actions of individuals or groups that aim to promote or achieve sustainable development through the responsible use of natural resources (Ramkissoon et al., 2013). Research over the past few decades also indicates a significant increase in environmental consciousness among consumers on a global scale due to various factors (Tapon & Leighton, 1991).

The transition from a general recognition of the importance of environmental awareness, consciousness and pro-environmental behaviour to understanding the mechanisms of their formation and support becomes the main challenge in achieving sustainable development (Hamann & Reese, 2020). In this context, communication plays a significant role in effective environmental governance. Media communication can become a powerful tool for those seeking to change the environmental attitudes and behaviour of the population (Yang et al., 2020). The development of digital technologies and increased access to information through the media provide unprecedented opportunities to engage the masses in environmental issues, turning passive consumers into active participants in environmental governance (Pilgrimienè et al., 2020). Thus, the information age creates challenges

for sustainable development and opens up new ways to ensure it through strengthening environmental awareness and promoting responsible behaviour.

In response to contemporary habitat changes, the relationship between media communication and environmental sustainability is highlighted as a subject of intense scientific research (Liang et al., 2020). Such a connection is due to media communication's impact on increasing environmental awareness and stimulating proactive behavior of individual citizens and society as a whole, which leads to increased efficiency of environmental governance.

Media and journalism are important in shaping public discourse around environmental sustainability, discussing theoretical perspectives, agenda-setting, and the impact of this communication on public knowledge and behaviour (Bonfadelli, 2010). At the same time frequent media use increases citizens' willingness to pay for environmental governance by enhancing their sense of environmental responsibility rather than just increasing their environmental knowledge (Wang & Zhang, 2023). How consumers interact with media, particularly their exposure and attention to sustainability communication, significantly affects their pro-environmental behaviours, with media credibility enhancing this relationship (Lee & Cho, 2020). Public communication, including mass media campaigns, is essential for enhancing compliance with environmental policies and promoting sustainable behaviours. Effective communication requires considering social and psychological processes influencing behaviour, such as cognitive biases and emotional responses (Vries, 2019).

Emotional responses and perceived knowledge from media use, both traditional and new, are positively associated with pro-environmental behaviour (Li, 2020). Social media has a more significant role than traditional media in moderating the relationship between norm perception and pro-environmental behaviour, with social media promoting pro-environmental behaviours by activating subjective norms (Han & Cheng, 2020). Meanwhile, European media's distant and outcome-focused framing of climate change, which often relies on scientific and political narratives, may contribute to social apathy and disengagement from environmental issues rather than promoting engagement (Tavares et al., 2020).

Therefore, we further used data from comparative and empirical studies in various contexts to reveal the complex impact of the media on increasing environmental awareness and stimulating pro-environmental behaviour in society.

The study aims to inform the strategic deployment of media communication as a lever for environmental sustainability in general and pro-environmental behaviour in particular, offering evidence-based recommendations for policymakers, environmental activists, and corporations seeking to use mass media for environmental advocacy and sustainability development initiatives.

Materials and Methods

The study used a comprehensive review of peer-reviewed articles from various scientific databases, including Sustainability (MDPI), Journal of Public Economics, International Journal of Environmental Research and Public Health, Journal of Sustainable Tourism, Politics and Governance, Frontiers in Ecology and Evolution, Science Communication, and Environmental Communication. The focus was on selecting literature that explores media communication, environmental governance, public behavior, and the promotion of sustainability. Articles were included if they met the following criteria: published between 2010 and 2023; focused on the role of media communication in influencing public behavior or governance related to sustainability; provided empirical data or case studies on the effectiveness of media strategies in environmental governance.

The research applied a mixed-methods approach, combining qualitative and quantitative analysis to assess the impact of media communication on public behavior and environmental governance. Quantitative data from empirical studies were analyzed to evaluate the relationship between media communication strategies and public engagement with sustainability initiatives. For qualitative data, a thematic analysis was employed to categorize key topics related to media's role in environmental governance. Themes such as public engagement, media framing, message credibility, and the use of social media platforms were explored.

Results and Discussion

Many important factors influencing environmental behaviour have been identified in natural resource management, ecology, environmental studies, and sociology. Scholars provide various socio-psychological variables influencing pro-environmental behaviour (Gifford & Nilsson, 2014). Among the factors that influence pro-environmental behaviour, scientists pay attention to an important social fact - the information environment in which people live which is constantly changing (Han & Xu, 2020).

Communication in formulating sustainable development policy involves disseminating information, engaging stakeholders, and promoting behavioural changes to achieve Sustainable Development Goals. Heightened media coverage of environmental issues can drive public engagement and influence policy responses, although the coherence and longevity of public pressure can vary (Bailey, 2022). Today, the importance of interactive communication tools such as websites developed jointly by stakeholders to engage citizens in sustainable governance has been confirmed (Salaj et al., 2020). Social media is a platform for disseminating sustainable prevention measures and effective messaging strategies to promote sustainable behaviour (Hauer & Sood, 2020).

Considering the psychological and social processes that affect public communication, scientists study communication with the public as an effective environmental policy tool. Environmental policy implementation often hinges on public support, which effective communication strategies can influence. This synthesis examines the role of communication in garnering public support for environmental policies. Communicating ecological benefits and framing them to prevent losses can significantly increase public support for environmental management, with ecological messages being more effective than economic ones (DeGolia et al., 2019). High-intensity communication and the delegation of decision-making power to participants in environmental governance can positively affect environmental outcomes, with stakeholder perspective convergence and capacity building serving as mediators (Jager et al., 2020). Institutional support for public involvement groups can facilitate effective engagement between the public, policymakers, and researchers, contributing to prioritising, disseminating, and implementing environmental health research (Maguire et al., 2019). Evidence of policy effectiveness can increase public support for government interventions, while evidence of ineffectiveness can decrease support, indicating that public attitudes are sensitive to perceived policy outcomes (Reynolds et al., 2020). In conclusion, communication with the public is a powerful tool for achieving environmental policy goals. Strategies that emphasise ecological benefits and loss prevention, are based on informed research, and involve structured communication with high participation can increase public support and cooperation. Additionally, demonstrating the effectiveness of policies can further enhance public support, while evidence of ineffectiveness can have the opposite effect. Therefore, carefully crafted communication strategies are essential for successfully implementing environmental policies.

Research also argues that communication can effectively motivate sustainable behaviour, provided attention is paid to cognitive biases, emotions, and expectations (Vries, 2019). It has also been found that, on the one hand, expectations can overcome barriers to acting environmentally (Allcott, 2011). On the other hand, some people do not believe in "climate change" at all (Gifford, 2011). Public relations firms also created and distributed a vision for responding to environmental issues – understanding how this was done is key to framing better environmental communication (Scarrow, 2019).

Today, we can say that social media is a transformative technology that affects various aspects of society, particularly environmental management strategies. The role of the media in enhancing public participation in environmental governance is supported by contemporary research in the following areas: 1) the role of social media platforms (especially Twitter) in climate change communication, focusing on public debates, topics and professional communication (Pearce et al., 2018); 2) the influence of user-generated content (UGC) in social networks. Such content is more trusted than official channels and activates pro-environmental norms, creates online communities and increases participation in pro-environmental activities, particularly in tourism (Han et al., 2018); 3)

the impact of social media on promoting proactive disclosure by regional authorities during environmental incidents through “top-down” intervention and “bottom-up” reputational mechanisms, thus increasing transparency and accountability (Gao et al., 2018); 4) how different types of information exposure, including social media, traditional media, and interpersonal communication influence pro-environmental behavior (Han, & Xu, 2020); 5) the presence of a positive relationship between the penetration of social media and the quality of natural resource management, which confirms the correlation of the level of social media with better management results (Kodila-Tedika, 2018); 6) participation in environmental management facilitated by social media leading to better environmental outcomes (Jager et al., 2020); 7) strengthening public participation in environmental management through social media, which influences environmental measures by local authorities and can directly deter polluting enterprises, thus contributing to environmental governance (Guo & Bai, 2019); 8) encouraging active public participation and exchange of ideas in the public sector through social media, which can lead to continuous improvement of public services and initiatives related to environmental governance (Ayanso & Moyers, 2020) etc.

In general, social media can be a powerful tool for governments, companies and the public to work together on environmental sustainability, which is confirmed by the findings of many modern studies. For instance, a study conducted in China highlights the limited influence of traditional media on pro-environmental behaviour in contrast to the significant influence of interpersonal communication. This conclusion is further supported by the fact that social media amplifies the impact of interpersonal exchanges and serves as a powerful catalyst for environmental activism (Han & Xu, 2020). Interesting is the fact that using humor in social media communications can stimulate greater public engagement and pro-environmental behavior compared to factual messages alone (Bonnici et al., 2023).

The analysis shows that British newspapers reporting on sustainability tend to “not confront existing power asymmetries and inequalities”. The portrayal of sustainability in the British press demonstrates that media framing not only shapes public discourse but also perceptions of sustainability, illustrating the role of the media in orienting public opinion on environmental issues. In the British context, action on sustainability is largely driven by business leadership and the lifestyles of private consumers rather than political intervention. Media framing can influence public discourse and perceptions of sustainable development (Diprose et al., 2018).

The role of public relations in environmental protection was examined through the lens of a public relations network called EnviroComm, which operated between 1989 and 1997. EnviroComm’s “sustainable communication” strategy aims to help companies create discussions around environmental regulations. This network, influential in the European Community, is also active in the United States and Mexico. The researchers combined sociological theories of “epistemic communities” with historical archives and interviews to assess the impact of EnviroComm on environmental governance. This approach helped spread a version of the environmental response less severe than that advocated by activists. Media coverage of environmental activists in Canada correlated with perceived influence in climate change policy networks. It is noted that communication with the public, including media campaigns, can significantly increase compliance with environmental policy if it is aimed at sustainable behaviour's social and psychological foundations. It emphasises the need for more effective environmental communication strategies that address pressing environmental issues (Scarrow, 2019).

The activation of pro-environmental norms and increased participation in pro-environmental activities is also facilitated by UGC on social media, indicating that social media channels can effectively encourage sustainable behaviour (Han et al., 2018).

There is a relationship between media coverage of environmental actors (including individual activists and environmental organisations) and their perceived influence within Canadian climate change policy networks. Environmental organisations showed a small but significant positive correlation between media coverage and perceived policy influence. Individual activists displayed a negative association, indicating that increased media attention might diminish their perceived

influence in policy discussions (Howe et al., 2020). The study contributes to the broader discourse on environmental governance by highlighting the complex interplay between media coverage and policy influence, urging a reevaluation of strategic media engagement for environmental actors.

Based on an analysis of six cognitive biases in the context of environmental behaviour change (discounting, control perceptions, denial, defensive avoidance, and reactance), it was found that public communication, including mass media campaigns, can improve environmental policy compliance if designed taking into account social and psychological processes that affect sustainable behaviour. At the same time, raising awareness about climate change without providing actionable steps can lead to negative reactions. The most effective environmental communication presents a single, clear message (Vries, 2019).

Collaboration is essential to creating functional environmental governance. The study showcases instances of networking modes and instruments that facilitate stakeholder involvement in environmental management. The article proposes the creation of a collaboration network among stakeholders. It argues that such networks are necessary for a functioning municipal environmental communication governance system that supports sustainable development (Biezina et al., 2019).

The studies analysed prove that improving public participation in environmental governance can be achieved through more active use of modern media communication. It is worth underscoring that the influence of public communication on a person's commitment to sustainable practices can occur due to the expected sustainable behaviour of others and compliance with social norms or intentions based on messages. Regarding the latter, the main sources of interest in communication are governance and government.

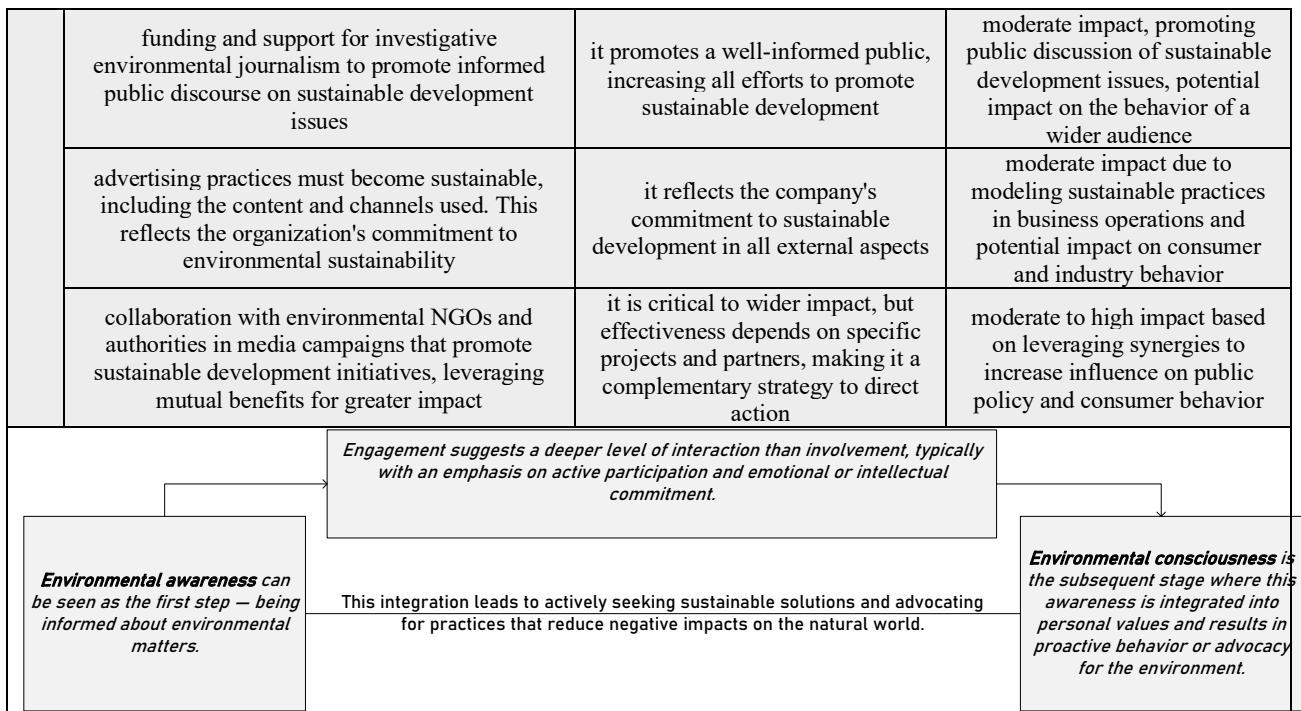
However, despite the scientifically proven influence of media communication on environmental behaviour, not all people adopt environmental practices due to several factors. For instance, some prejudices minimise the perceived relevance of environmental problems, which leads to inaction; the huge volume of available information, especially on the Internet, can lead to overload; the perceived inconvenience of environmentally friendly methods can deter people from using them; cultural values and social norms (some communities place more emphasis on environmental practices than others); prioritising personal or economic concerns over environmental sustainability; limited access to information, etc. Some of the problems are being solved already today. Thus, public science initiatives that incorporate participants' values and perspectives can significantly increase public engagement in environmental issues (MacLeod & Scott, 2020). Modern co-management approaches involving local governments and NGOs increase public participation and the effectiveness of responses to complex environmental problems (Arantes et al., 2020). It was determined that the effectiveness of participation in environmental management is influenced by socioeconomic, cultural and institutional contexts, power dynamics, participant values, spatial and temporal scales, etc. (Reed et al., 2018). Investigations also emphasise the importance of international communication strategies for raising public awareness of environmental governance (Legagneux et al., 2018). However, solving complex problems requires a multi-pronged approach, including education, policy changes and creating more accessible and attractive options for a wider audience.

Based on the presented material, it is advisable to provide recommendations for using media communication in the future efforts of policymakers, environmental activists, and corporations to change public behaviour to be more sustainable, as shown in Table 1.

By adopting the recommendations provided, policymakers, environmental activists, and corporations can more effectively use media communication to promote environmental sustainability and foster a more informed and engaged public. The presented recommendations reflect a strategic approach to prioritising actions that create a strong foundation (transparency, digital engagement) and expand impact through certain tactics (partnering with influential people, diversifying channels, supporting journalism). This structured approach aims to help stakeholders design and implement environmental initiatives towards sustainable development.

Table 1. Recommendations for increasing the effectiveness of media communication in environmental governance (for policymakers, public activists, and corporations)

	Direction	Prioritization	Qualitative assessment of the degree of impact on environmental governance
Policymakers	using social media and online platforms to disseminate environmental information, interact with the public and promote transparency of environmental policies and initiatives	given the widespread use of digital platforms - is critical for immediate impact on public awareness and engagement	high impact due to wide reach and interactive capabilities, enabling rapid dissemination and engagement
	collaboration with social media influencers and celebrities to amplify environmental messages, coverage a wider audience and more effectively engage the younger demographic	the basic strategy, which supports all other efforts, is to ensure that the public can discern reliable information	medium to high impact by enabling critical evaluation of environmental information that can lead to more sustainable behavior
	supporting educational programs that increase media literacy, focusing on critical thinking about environmental information and challenges to combat disinformation	able to quickly raise awareness and drive action using existing media channels	moderate impact through raising awareness and building public attitudes, but effectiveness depends on message structure and frequency
	funding and distribution of public service announcements about environmental sustainability through various media channels to raise awareness and encourage green practices	it is effective in converging a wide audience (especially the younger demographic) but depends on finding the right partners	high impact on reaching and engaging a specific demographic that can be motivated to change behavior based on social proof and endorsement
	encouraging and financially supporting community media initiatives that focus on local environmental issues, strengthening a sense of ownership and relevance among the local population	it is important for local involvement and solving specific environmental problems. May have more limited coverage	moderate impact by involving local communities and promoting mass action, although greater impact may be local
Environmental Activists	providing compelling case studies of environmental issues that resonate emotionally with audiences, making abstract issues more relatable and relevant	the case studies are central to engaging the public and making complex topics accessible	high impact because storytelling can emotionally connect people to environmental issues, making abstract concepts more accessible and motivating to action
	using data visualization tools to present complex environmental data in an accessible and understandable way, improving public understanding of the issues	it is necessary for the effective transfer of scientific data and improvement of the design of the report	medium to high impact. Complex data becomes available and understandable, support for decision-making and behavior change occurs
	using the media platform not only to broadcast messages, but also to facilitate dialogue with the public, encourage questions and provide clear answers, support feedback.	it fosters deeper understanding and engagement by building on case studies and clear data	high impact due to the development of a sense of community and common purpose, encouraging active participation and sustainable changes in behavior
	use of various forms of media; use to reach various audience segments	it is critical to ensuring and maintaining public trust	moderate influence, ensures accuracy of information, which is critical to maintaining trust and reliability
	monitoring of media channels for the presence of misinformation on environmental issues and quick response, correction of facts	it is important to reach a diverse population, but it should come after creating compelling content	moderate impact by reaching diverse audiences, but effectiveness depends on strategic integration of messages across channels
Corporations	maintaining transparency about our environmental impact and sustainability efforts. Using media to communicate progress and challenges to build consumer confidence	the transparency builds consumer and stakeholder trust, which is essential to any corporate sustainability effort	high impact due to strengthening trust and demonstrating commitment to sustainable development, influence on consumer choice and loyalty
	sustainability should become a core part of the brand identity, which is constantly communicated in all media channels, to align the corporate image with environmental care	it ensures that sustainability becomes a core, recognized value of the company	high impact due to alignment of brand identity with environmental values, influence on consumer perception and behavior



The figure presents the priorities by category and aims to balance immediate impact with creating a sustainable, long-term foundation for environmental advocacy and action. A qualitative assessment of proposals is based on analyzed sources and theoretical foundations of communication and behavior change. This assessment shows that strategies focused on direct engagement, transparency, and involvement of influential voices (digital platforms, influencers) are likely to have the highest potential to influence pro-environmental behaviour. However, the actual impact of such recommendations will be presented in further research through empirical validation through targeted research.

Of course, it can be argued that the processes described in this review are not the only relevant ones. However, although not comprehensive, this contribution can raise awareness among public communicators about possible ways of using media communication to change public behaviour towards a more sustainable future.

Conclusions

The comprehensive analysis presented in this article underscores the critical role of media communication in enhancing environmental governance and promoting sustainable behaviours. An extensive review of empirical studies shows that media play a pivotal role in raising awareness, shaping public perceptions, and influencing behaviours towards environmental sustainability. The article highlights the potential of collaborative communications to enhance stakeholder involvement in environmental governance, suggesting that a multifaceted approach involving various media forms can facilitate more comprehensive engagement. Media communication can mobilise public support for environmental policies and initiatives, influence consumer behaviour towards more sustainable choices, and hold corporations and governments accountable for their environmental impact. However, the effectiveness of media communication in promoting environmental sustainability can vary based on factors such as the accuracy of the information presented, the framing of environmental issues, and the audience's receptiveness to the message. The recommendations aim to guide policymakers, environmental activists, and corporations in effectively leveraging media to foster a more environmentally conscious and active public.

Conflict of interest

The authors state no conflict of interest.

References

- Allcott, H. (2011). Social norms and energy conservation. *Journal of Public Economics*, 95, 1082 - 1095.
- Arantes, V., Zou, C., & Che, Y. (2020). Coping with waste: A government-NGO collaborative governance approach in Shanghai.. *Journal of Environmental Management*, 259, 109653 . <https://doi.org/10.1016/j.jenvman.2019.109653>.
- Ayanso, A., & Moyers, D. (2020). Social Media Use in the Public Sector. *Open Government*. <https://doi.org/10.4018/978-1-4666-8430-0.CH004>.
- Bailey, I. (2022). Media coverage, attention cycles and the governance of plastics pollution. *Environmental Policy and Governance*. <https://doi.org/10.1002/eet.1977>.
- Biezina, L., Trukšāns, D., & Ernsteins, R. (2019). Municipal environmental communication development: collaboration communication model, networking nodes and instruments. *20th International Scientific Conference "Economic Science for Rural Development 2019". Integrated and sustainable regional development. Marketing and sustainable consumption..* <https://doi.org/10.22616/esrd.2019.056>.
- Bonfadelli, H. (2010). Environmental Sustainability as Challenge for Media and Journalism. , 257 - 278. https://doi.org/10.1007/978-90-481-8730-0_15.
- Bonnici, T., Briguglio, M., & Spiteri, G. (2023). Humor Helps: An Experimental Analysis of Pro-Environmental Social Media Communication. *Sustainability*. <https://doi.org/10.3390/su15065157>.
- Diprose, K., Fern, R., Vanderbeck, R., Chen, L., Valentine, G., Liu, C., & McQuaid, K. (2018). Corporations, Consumerism and Culpability: Sustainability in the British Press. *Environmental Communication*, pp. 12, 672–685. <https://doi.org/10.1080/17524032.2017.1400455>.
- Gao, S., Ling, S., & Liu, W. (2018). The Role of Social Media in Promoting Information Disclosure on Environmental Incidents: An Evolutionary Game Theory Perspective. *Sustainability*. <https://doi.org/10.20944/PREPRINTS201809.0350.V1>
- Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66, 290–302.
- Gifford, R.; Nilsson, A. Personal and social factors that influence pro-environmental concern and behaviour: A review. *Int. J. Psychol.* **2014**, 49, 141 - 157.
- Guo, J., & Bai, J. (2019). The Role of Public Participation in Environmental Governance: Empirical Evidence from China. *Sustainability*. <https://doi.org/10.3390/su11174696>.
- Hamann, K., & Reese, G. (2020). My Influence on the World (of Others): Goal Efficacy Beliefs and Efficacy Affect Predict Private, Public, and Activist Pro-environmental Behavior. *Journal of Social Issues*. <https://doi.org/10.1111/josi.12369>.
- Han, R., & Cheng, Y. (2020). The Influence of Norm Perception on Pro-Environmental Behavior: A Comparison between the Moderating Roles of Traditional Media and Social Media. *International Journal of Environmental Research and Public Health*, 17. <https://doi.org/10.3390/ijerph17197164>.
- Han, R., & Xu, J. (2020). A Comparative Study of the Role of Interpersonal Communication, Traditional Media and Social Media in Pro-Environmental Behavior: A China-Based Study. *International Journal of Environmental Research and Public Health*, p. 17. <https://doi.org/10.3390/ijerph17061883>
- Han, W., McCabe, S., Wang, Y., & Chong, A. (2018). Evaluating user-generated content in social media: an effective approach to encourage greater pro-environmental behaviour in

- tourism? *Journal of Sustainable Tourism*, 26, 600–614. <https://doi.org/10.1080/09669582.2017.1372442>
- Hauer, M., & Sood, S. (2020). Using Social Media to Communicate Sustainable Preventive Measures and Curtail Misinformation. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.568324>.
- DeGolia, A., Hiroyasu, E., & Anderson, S. (2019). Economic losses or environmental gains? Framing effects on public support for environmental management. *PLoS ONE*, 14. <https://doi.org/10.1371/journal.pone.0220320>.
- Howe, A., Stoddart, M., & Tindall, D. (2020). Media Coverage and Perceived Policy Influence of Environmental Actors: Good Strategy or Pyrrhic Victory?. *Politics and Governance*, 8, 298-310. <https://doi.org/10.17645/pag.v8i2.2595>.
- Jager, N., Newig, J., Challies, E., & Kochskämper, E. (2020). Pathways to Implementation: Evidence on How Participation in Environmental Governance Impacts on Environmental Outcomes. *Journal of Public Administration Research and Theory*, 30, 383-399. <https://doi.org/10.1093/jopart/muz034>.
- Kodila-Tedika, O. (2018). Natural resource governance: does social media matter?. *Mineral Economics*, 34, 127-140. <https://doi.org/10.1007/s13563-020-00234-3>
- Lee, J., & Cho, M. (2020). The Effects of Consumers' Media Exposure, Attention, and Credibility on Pro-environmental Behaviors. *Journal of Promotion Management*, 26, 434 - 455. <https://doi.org/10.1080/10496491.2019.1699629>.
- Legagneux, P., Casajus, N., Cazelles, K., Chevallier, C., Chevrinais, M., Guéry, L., Jacquet, C., Jaffré, M., Naud, M., Noisette, F., Ropars, P., Vissault, S., Archambault, P., Bêty, J., Berteaux, D., & Gravel, D. (2018). Our House Is Burning: Discrepancy in Climate Change vs. Biodiversity Coverage in the Media as Compared to Scientific Literature. *Frontiers in Ecology and Evolution*, 5. <https://doi.org/10.3389/fevo.2017.00175>
- Li, Z. (2020). Role of Affective Mediators in the Effects of Media Use on Proenvironmental Behavior. *Science Communication*, 43, 64 - 90. <https://doi.org/10.1177/1075547020971646>.
- Liang, X., Lu, Y., & Martin, J. (2020). A Review of the Role of Social Media for the Cultural Heritage Sustainability. *Sustainability*. <https://doi.org/10.20944/preprints202012.0618.v1>.
- MacLeod, C., & Scott, K. (2020). Mechanisms for enhancing public engagement with citizen science results. *People and Nature*. <https://doi.org/10.1002/pan3.10152>.
- Maguire, K., Garside, R., Poland, J., Fleming, L., Alcock, I., Taylor, T., Macintyre, H., Iacono, G., Green, A., & Wheeler, B. (2019). Public involvement in research about environmental change and health: A case study. *Health (London, England : 1997)*, 23, 215 - 233. <https://doi.org/10.1177/1363459318809405>.
- Pearce, W., Niederer, S., Özkula, S., & Querubín, N. (2018). The social media life of climate change: Platforms, publics, and future imaginaries. *Wiley Interdisciplinary Reviews: Climate Change*, 10. <https://doi.org/10.1002/wcc.569>
- Pilgrimienė, Ž., Žukauskaitė, A., Korzilius, H., Banytė, J., & Dovalienė, A. (2020). Internal and External Determinants of Consumer Engagement in Sustainable Consumption. *Sustainability*. <https://doi.org/10.3390/su12041349>.
- Ramkissoon, H., Smith, L. D. G., & Weiler, B. (2013). Relationships between place attachment, place satisfaction and pro-environmental behaviour in an Australian national park. *Journal of Sustainable Tourism*, 21(3), 434 - 457. <https://doi.org/10.1080/09669582.2012.708042>
- Reed, M., Vella, S., Challies, E., Vente, J., Frewer, L., Hohenwallner-Ries, D., Huber, T., Neumann, R., Oughton, E., Ceno, J., & Delden, H. (2018). A theory of participation: what makes stakeholder and public engagement in environmental management work?. *Restoration Ecology*, 26. <https://doi.org/10.1111/rec.12541>.
- Reynolds, J., Stautz, K., Pilling, M., Linden, S., & Marteau, T. (2020). Communicating the effectiveness and ineffectiveness of government policies and their impact on public support: a systematic review with meta-analysis. *Royal Society Open Science*, 7. <https://doi.org/10.1098/rsos.190522>.

- Salaj, A., Gohari, S., Senior, C., Xue, Y., & Lindkvist, C. (2020). An interactive tool for citizens' involvement in the sustainable regeneration. *Facilities*, 38, 859 - 870. <https://doi.org/10.1108/f-09-2019-0099>
- Scarrow, R. (2019). Managed environmentalism. *Nature Sustainability*, 2, 655 - 655. <https://doi.org/10.1038/s41893-019-0369-0>.
- Tapon, F., & Leighton, T. (1991). Green as strategy: Lessons from the chemical industry (No. 1991-17).
- Tavares, A., Areia, N., Mellett, S., James, J., Intrigliolo, D., Couldrick, L., & Berthoumieu, J. (2020). The European Media Portrayal of Climate Change: Implications for the Social Mobilization towards Climate Action. *Sustainability*, 12, 8300. <https://doi.org/10.3390/su12208300>.
- Vries, G. (2019). Public Communication as a Tool to Implement Environmental Policies. *Social Issues and Policy Review*. <https://doi.org/10.1111/sipr.12061>.
- Wang, Y., & Zhang, J. (2023). Corporate Governance, Media Coverage, and Corporate Environmental Protection Investment: Empirical Evidence from Listed Companies in China's High-Pollution Industries. *Sustainability*. <https://doi.org/10.3390/su15118643>.
- Yang, X., Chen, L., Wei, L., & Su, Q. (2020). Personal and Media Factors Related to Citizens' Pro-environmental Behavioral Intention against Haze in China: A Moderating Analysis of TPB. *International Journal of Environmental Research and Public Health*, 17. <https://doi.org/10.3390/ijerph17072314>.