

A Literature Review of Public Policies on Climate Change and the Environment during the 2019-2023 Period

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Abstract

Climate and environmental policies have been widely analyzed from various social, political, economic, institutional and judicial perspectives. Thus, nowadays, marked by critical environmental challenges, these policies have become one of the main research topics at national, regional and international levels. In this regard, several key factors influence the configuration of these policies, such as green governance, citizen participation, sustainable legal frameworks, accountability systems and climate commitment. In order to analyze the academic production in relation to this issue, a descriptive literature review was carried out, which covered 40 articles published between 2019 and June 2023 in journals indexed in Web of Science and Scopus. The results show that the most researched topic is linked to climate policy and governance, in addition to highlighting the need to establish a close interrelationship between climate and environmental policies with the implementation of strong measures at the political, legal, infrastructure and collaborative levels. In conclusion, transparent, participatory governance based on dialogue and action is required to address the urgent climate crisis and promote the transition to a greener, more resilient world.

Keywords: *Climate policies; Environmental policies; Green governance; Sustainable legal frame- works; sustainability.*

1. Introduction

The current century is characterized by a growing demand for environmental protection and sustainability. In response to this reality, climate and environmental policy studies are increasingly common at global, regional and national levels (MacNeil, 2021). These studies recognize that policies are a necessary tool to address environmental challenges and promote a sustainable future through the implementation an effective green governance (Hildingsson et al., 2019).

Consequently, it is vitally important to develop and implement effective measures to address the urgent environmental problems that impact both humanity and the planet. For this reason, there are a number of international treaties and conventions that focus on promoting climate resilience on a large scale, albeit with certain particular strengths and weaknesses.

In this regard, it is relevant to highlight the 2030 Agenda and its 17 Sustainable Development Goals (SDGs), whose main goal is to transform our world by addressing global challenges such as poverty, inequality, climate change, environmental degradation,

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prosperity, peace and justice (UN, 2018). As Bornemann and Christen (2021) point out, the 2030 Agenda introduces major conceptual changes in the way we think about sustainability, leading to new requirements for governance.

According to the 2022 Sustainable Development Report, global cooperation and commitment to the core principles of the SDGs, which include social inclusion, clean energy, responsible consumption, and universal access to public services, are required more than ever to address the most important challenges of our time, such as security crises, pandemics, and climate change (Wurzel et al., 2019). Despite current

challenges, the SDGs remain the fundamental roadmap for achieving sustainable development by 2030 and beyond. (“Global cooperation and commitment to the bedrock SDG principles of social inclusion, clean energy, responsible consumption, and universal access to public services are needed more than ever to respond to the major challenges of our times, including security crises, pandemics, and climate change. Despite these difficult times, the SDGs should remain the roadmap for achieving sustainable development by 2030 and beyond”) according to Figure 1.

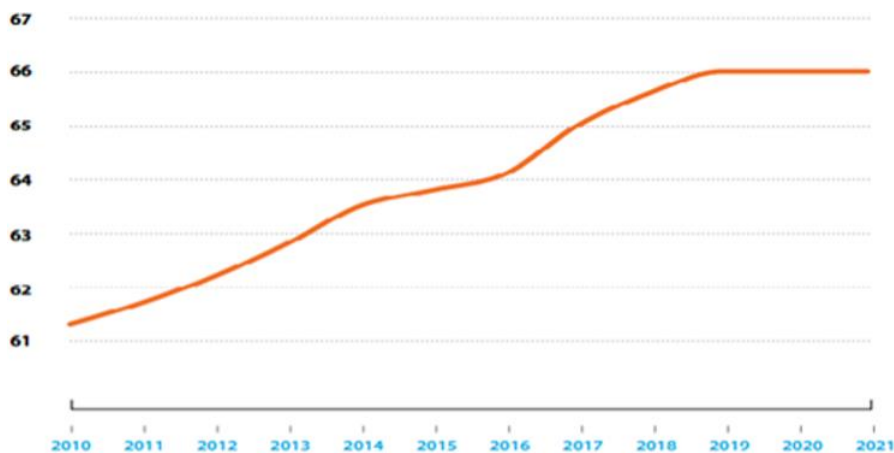


Figure 1: SDG Index Score over time, word average (2010-2021).

For the second year in a row, the world is not making progress on the Sustainable Development Goals (SDGs). The average SDG Index score declined slightly in 2021, due in part to slow or no recovery in poor and vulnerable countries. Multiple and overlapping health and security crises have led to a setback in SDG progress. Society therefore faces a daunting challenge that demands a concentration of effort based on genuine political climate commitment, effective international cooperation and inclusive governance backed by precise and equitable climate action (Villamayor-Tomas et al., 2019). According to the latest UN climate report, “timely action now can deliver fundamental transformational change to achieve a sustainable and equitable world” (UN, 2018).

It is undeniable that the adoption of climate and environmental policies focused on environmental protection and climate change mitigation is no longer just a viable option, but an imperative necessity for the required change. Therefore, according to research conducted by authors from various parts of the world, these policies encompass a wide range of actions (Ollier et al., 2022), measures and strategies aimed at reducing greenhouse gas emissions (Purdon et al., 2021); biodiversity conservation (Appleby and Harrison, 2019; Trouwborst, 2021), promoting the use of renewable energy (Olczak et al., 2022), promoting energy efficiency (Hildingsson et al., 2019), and adopting sustainable practices in all sectors (Petursdottir et al., 2020).

In this context, citizen mobilization and participation emerge as a tool to support the transition to a more sustainable future. This inevitably implies the integration of climate change into public planning and management. Likewise, it is important to highlight that, for the development and implementation of effective climate and environmental policies, it is crucial to have a solid scientific basis backed by research (Huber, 2020; Zhelyazkova and Thomann, 2022), as well as to promote collaboration between researchers, policy

experts, academics and key civil society actors (Wiedemann, 2022). This involves conducting research and studies that assess the impact of these policies, identify best practices and propose innovative solutions (Miao, 2019).

Based on the previously exposed vision and the recognition of the positive impact of climate and environmental policies, the purpose of this article is to examine the academic production related to this topic in journals indexed in Web of Science and Scopus. Specifically, we seek to analyze the most outstanding articles published between 2019 and 2023, in order to answer the following question: How can the green governance and the global collaboration promote effective climate and environmental policies in a world characterized by the urgency of climate change and sustainability?

Ultimately, it is of utmost importance to emphasize that this article aims to adopt a global and inclusive perspective in the study of climate and environmental policies. Its approach will not be limited to a particular view, but will embrace a wide range of perspectives in order to obtain an enriching and comprehensive understanding. Through the holistic approach presented, it seeks to explore the various issues and approaches investigated in the field of climate and environmental policy, avoiding restrictions to a single line of thought. In this way, an objective and balanced exploration of the subject matter is encouraged, allowing the analysis of a diversity of points of view.

2. Methodology

The present study was based on a descriptive literature review, using scientific articles as primary sources of information. The main objective of the review was to analyze the specialized literature on climate and environmental policies. To carry out this review, the renowned and widely used databases Web of Science and Scopus, known for their high quality and relevance in the academic and scientific field, were used. The selection of articles was made by applying two inclusion criteria: first, those that mentioned the keywords “environmental”, “policies” and “state” in the title, abstract or keywords; and second, only those published in the period between 2019 and June 2023.

The search performed on the basis of the previously established criteria yielded 154 articles that met the requirements. These articles can be retrieved using the following search formula, a formula that uses the logical operators “OR” and “AND” to combine keywords and corresponding date ranges.

i) TITLE-ABS-KEY (environmental) AND TITLE-ABS-KEY (policies) AND TITLE-ABS-KEY (state)) AND PUBYEAR > 2018 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (OA , "all")) AND (LIMIT-TO (SUBJAREA , "soci")) AND (LIMIT-TO (EXACTKEYWORD , "environmental policy") OR LIMIT-TO (EXACTKEYWORD , "policy making") OR LIMIT-TO (EXACTKEYWORD , "public policy") OR LIMIT-TO (EXACTKEYWORD , "environmental politics") OR LIMIT-TO (EXACTKEYWORD , "environmental legislation")) AND (LIMIT-TO (EXACTSRCTITLE , "environmental science and policy") OR LIMIT-TO (EXACTSRCTITLE , "environmental politics") OR LIMIT-TO (EXACTSRCTITLE , "environmental policy and governance") OR LIMIT-TO (EXACTSRCTITLE , "journal of environmental law") OR LIMIT-TO (EXACTSRCTITLE , "global environmental politics") OR LIMIT-TO (EXACTSRCTITLE , "policy sciences") OR LIMIT-TO (EXACTSRCTITLE , "journal of environmental studies and sciences") OR LIMIT-TO (EXACTSRCTITLE , "review of policy research")) and ii) the link provided to access the results obtained in the Web of Science database is as follows: <https://www.webofscience.com/wos/woscc/summary/dc37d582-107b-4f25-865b-2edb0f2fe877-879d75b4/relevance/1>

Following the procedure established by the Prism Diagram, of the 154 articles obtained from the databases, 9 were eliminated because they were found to be duplicates in both

databases, leaving a total of 145 articles. A review of the titles was then carried out to evaluate their relevance in relation to the study variable and the object of the research. As a result of this action, a total of 75 articles were excluded because they were mainly focused on analyzing the consequences of the implementation of local or national agreements; the incidence of environmental charges applied by the U.S. federal government; the impacts of in-kind mitigation rules in an ecosystem offset market; the significance of the 2020 elections in the climate field; and the implementation of robust monitoring technologies.

At this stage, with 70 articles remaining, a review of their abstracts was carried out to assess their direct relevance to the research. From this group, 30 articles were excluded due to various reasons, the main ones being: the methodological approach of the articles; the lack of access to the full version and the presence of redundancy and duplication of ideas. The whole process described above is illustrated in Figure 2.

Finally, a total of 40 articles that met the inclusion criteria were obtained and subjected to an exhaustive full-text review. For this process, an analysis matrix called Appendix A was used, developed specifically for the present study. This matrix was organized according to 3 categories: 1) authorship of the study and date of publication; 2) research topics addressed; and 3) main contributions and/or results related to climate and environmental policies. Once the analysis of the 40 articles was completed, which gave rise to Appendix A, we proceeded to classify the research topics, as well as the proposals and/or theoretical and empirical contributions present in each article.

It is worth mentioning that the research topics were classified using the Excel office automation tool. In this process, each topic was assigned to a corresponding category and then groupings were made. For example, the Olczak et al. (2022) study on “analysis of laws and policies for megafauna restoration” was categorized into “environmental regulation and normative framework”. Thus, any topic that was directly related to environmental regulation and normative framework was classified within this specific category. In total, 7 categories with 40 themes were identified.

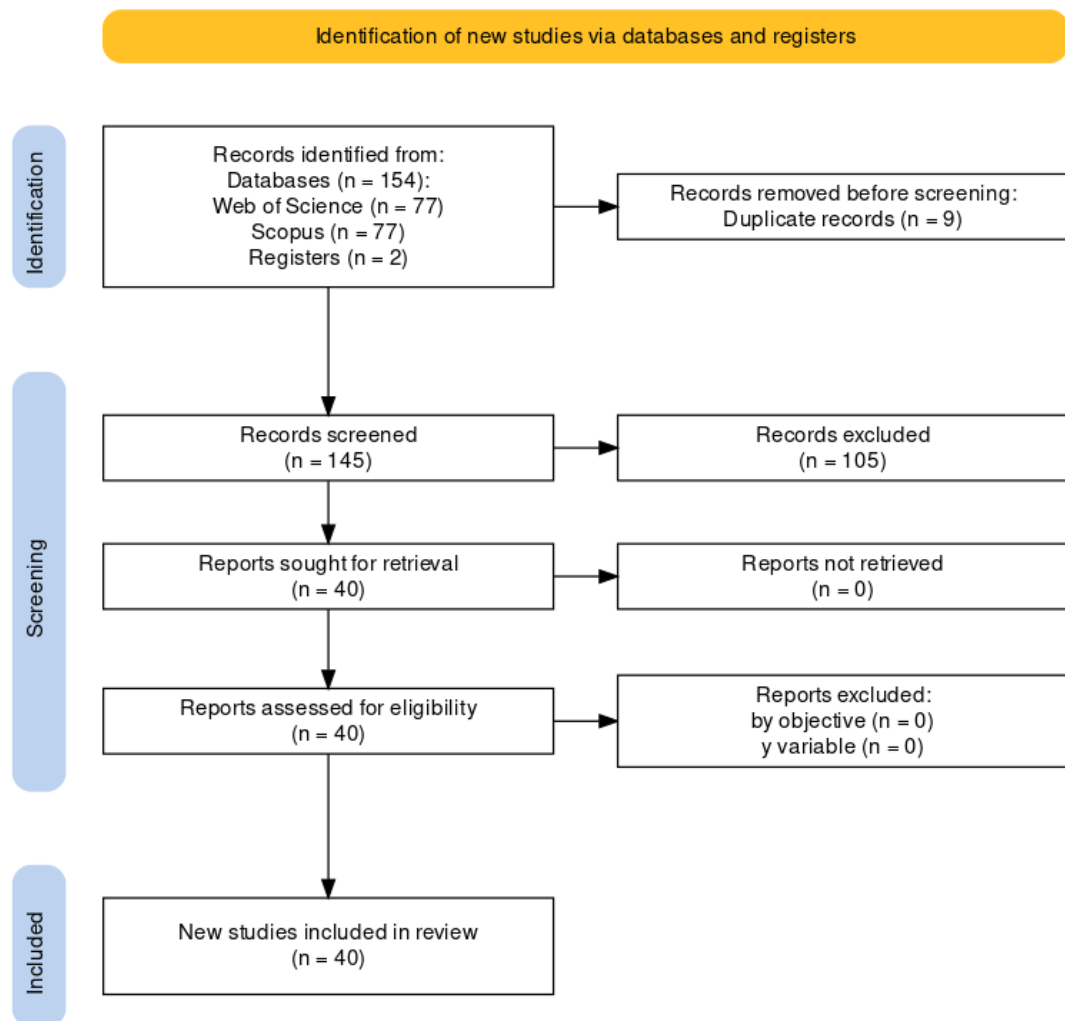


Figure 2: PRISMA Flow Diagram. It expresses the results of the search in the Scopus and Web of Science databases and the application of the temporality criterion.

On the other hand, the 81 proposals and/or contributions identified were also categorized and grouped. These proposals and/or contributions were organized according to their frequency of appearance in the articles analyzed. To select the proposals and/or contributions, all premises and affirmations that contributed to theoretical knowledge or to the improvement of practices related to climate and environmental policies were considered. For example, Badullovich (2023) points out that to promote widespread support for climate policies, it is necessary to use communicative approaches that go beyond strategic frameworks and focus on building relationships between actors, fostering productive debate and overcoming polarization. This idea put forward by the author was considered as a contribution to climate and environmental policy variables. Consequently, any topic directly related to communication and public awareness was classified within this category. In this sense, a total of 9 categories were identified that grouped the 81 proposals and/or contributions.

With the considerations set out in the two preceding paragraphs, the results obtained were organized in a clear and concise manner in two formats: 1) a bar chart illustrating the categorization of the topics identified and 2) a summary table presenting the frequency of the proposals and/or theoretical/empirical contributions made in the different articles. This provides an effective visualization of the data collected and facilitates their comprehension.

3. Results

As mentioned in the methodology, the results are presented on two main axes. First, a bar chart providing a categorization of the topics investigated and the number of articles associated with each category is shown. This graph provides an overview of the thematic distribution in the corpus of articles analyzed. Secondly, a summary table presenting the main proposals and/or contributions identified in the selected articles is presented. The table allows an easy comparison and analysis of the different proposals found in the scientific literature reviewed.

These two complementary approaches, using the information from Appendix A, offer a complete view of the results obtained in the study, allowing a deeper understanding of the thematic trends and the most relevant contributions in the field of the research analyzed.

3.1 Main research topics on climate and environmental policies.

As a result of the analysis of the 40 articles selected and documented in Appendix A, we obtained the research themes, which were grouped into 9 categories, grouping different numbers of articles in Figure 3

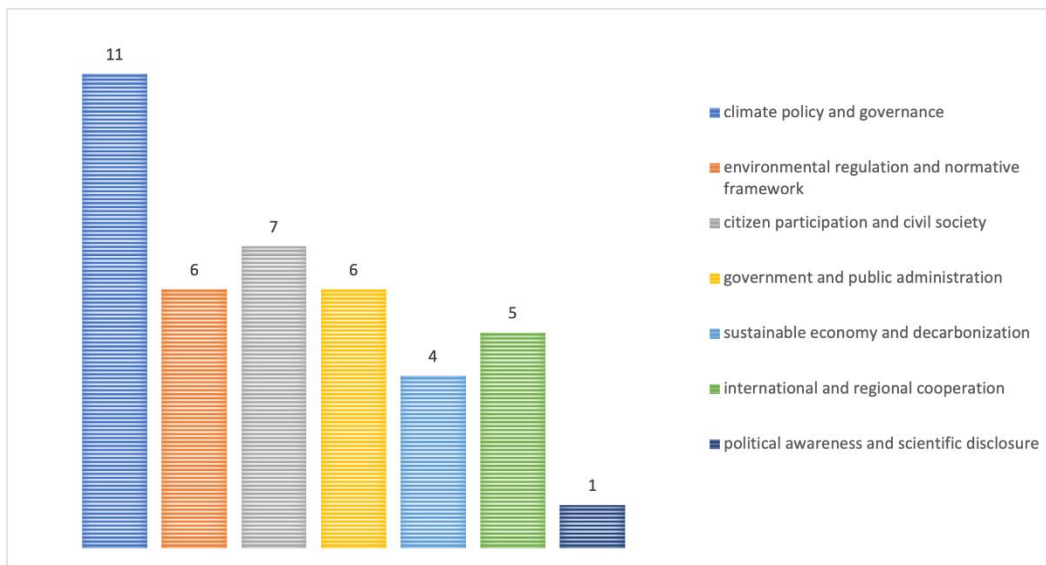


Figure 3: Categories obtained from the research topics on climate and environmental policies.

The interpretation of the results will be carried out using a strategy that prioritizes the categories with the lowest number of articles to those with the highest representation. It is important to note that the term “quantity” is used instead of “relevance” to avoid making a value judgment on the importance of the topics investigated and to present them in an order that facilitates their understanding.

The sequential presentation strategy adopted in this study aims to provide a comprehensive and balanced overview of the various topics addressed. This approach ensures that all categories are treated with due attention, preventing any category from being overlooked. To this end, starting with the least represented categories, they are given the relevance they deserve, and as one moves towards those with the largest number of articles, a more complete and detailed view of previous research is achieved. In this way, a coherent and rigorous presentation of the results obtained is promoted.

Consequently, adopting this approach fosters a better understanding of the thematic diversity and highlights the wide range of contributions present in the corpus of articles analyzed. This methodology of interpreting results reflects impartiality in the analysis and promotes an objective understanding of the research reviewed.

Therefore, figure 3 shows that there is 1 category called “political awareness and scientific disclosure”, which has been investigated exclusively in one article. This article aims to argue how resource nationalism influences the discussion of climate change in

Kazakhstan (Poberezhskaya and Danilova, 2022). Thus, it is observed that climate change is perceived as a “resource” controlled by the State.

Continuing, Figure 3 shows the category “sustainable economy and decarbonization”, which has been investigated in four articles. The first, concerning the role of the green state in industrial decarbonization (Hildingsson et al., 2019); the second, on the effectiveness and scope of current circular economy policies and their impact on real transformation in sustainable production and consumption (Fitch-Roy et al., 2020); the third, concerning the proposal of a conceptual framework to enable a comparative analysis of the Arctic economies (Larsen et al., 2019) and, the fourth, focused on the analysis of the policy changes undertaken by China in relation to ecological sustainability in the Belt and Road Initiative (BRI) (Sun and Yu, 2023). These findings support the need for further research and development of effective policies and strategies to achieve a transition to more sustainable and decarbonized economies.

Regarding the category “international and regional cooperation”, addressed in five articles, four global issues were observed related to: the potential of the Global Compact for the Environment (Kotz´e, 2019); victim assistance and environmental rehabilitation in the Treaty on the Prohibition of Nuclear Weapons (Duzer and Sanders-Zakre, 2021); the institutional design of a treaty for the conservation and sustainable use of marine biodiversity (Barirani, 2022); and the mechanisms by which green businesses influence international environmental negotiations (Hofmann, 2023). At the European level, one theme analyzed the work of EU agencies in energy policymaking (Jevnaker and Saerbeck, 2019). Regarding the latter, it is interesting how agencification contributes to the decision-making process and to strengthening the capacity of the European Commission in relation to energy and climate policies.

In the same way, Figure 3 shows two categories that have been investigated in six articles each. The first one refers to “environmental regulation and normative framework” and the second one to “government and public administration”.

Themes classified under the category “environmental regulation and policy framework” focused on: a) Comparing low-carbon regulations in transportation and their interaction with emissions trading systems in California and Quebec (Purdon et al., 2021); b) Analyzing European fisheries regulation and its relationship to nature conservation (Appleby and Harrison, 2019); c) Addressing the relationship between national and international laws and policies, and large mammal restoration efforts in global terrestrial ecosystems (Trouwborst, 2021); d) Identify barriers, needs for improvement and recommendations to strengthen regulation and promote methane emission reductions in the European Union (Olczak et al., 2022); e) Examine climate governance in Germany prior to the adoption of the 2019 Federal Climate Change Act and assess the potential of this regulation to transform it (Flachsland and Levi, 2021) and, f) Explore US state policy towards methane emissions in oil and gas production (Rabe et al., 2020).

For its part, in the “government and public administration” category, the topics covered were oriented in: a) Examining factors that lead U.S. state governments to develop comprehensive climate adaptation plans (Miao, 2019); b) Identifying aspects of the decision-making process that need to be strengthened to support a comprehensive pesticide policy in Uganda (Wiedemann, 2022); c) Presenting a diagnostic approach to the role and capacity of governments to facilitate local collective action and address environmental problems (Villamayor-Tomas et al., 2019); d) Examining and analyzing the impact of personalization on the implementation of European Union policies (Zhelyazkova and Thomann, 2022); e) Analyzing the influence of interfaces between project teams and organizations in environmental projects of the LIFE program and how adaptive strategies contribute to the production and application of knowledge in environmental management (Vihma and Wolf, 2023) and, f) Observing the potential of differentiated sustainability governance arrangements to address generational change associated with the implementation of the 2030 Agenda (Bornemann and Christen, 2021).

Figure 3 identifies the category “citizen participation and civil society”, which is addressed in 7 research articles. These articles explore various topics relevant to

understanding the role played by citizens and civil organizations in environmental governance. Within this category, two topics stand out that analyze factors that can influence citizen participation: “populism and climate skepticism” (Huber, 2020) and “the strategic manipulation of ignorance and time management” (Chailleux, 2020). Two other themes highlight the importance of participation in overcoming social divisions (Badullovich, 2023) and improving decision-making processes (Diver et al., 2019). Finally, three themes emphasize the relevance of collaboration between different social actors (Gronow et al., 2019; Harrison, 2020; Keller and Bornemann, 2021).

Finally, the category “climate policy and governance” is shown, analyzed in 11 articles. These topics, have been organized into three subcategories, which outline aspects on a) the integration of human rights in climate policies (Schapper, 2020); b) the implementation of climate policies in different countries and regions: ‘China and Russia’ (Wu and Martus, 2021), ‘Australia’ (MacNeil, 2021), ‘Iceland’ (Petursdottir et al., 2020), ‘Norway’ (C’etkovi’c and Skjærseth, 2019) and ‘European Union’ (Ollier et al., 2022; Wurzel et al., 2019) and c) environmental governance (Teng and Wang, 2021; Niedziałkowski and Putkowska-Smoter, 2021; Rai, 2020; Zhu, 2022).

In sum, it can be indicated that the most researched categories in relation to climate and environmental policies are: 1) “climate policy and governance” and 2) “citizen participation and civil society”. On the other hand, and in reference to the least studied categories, the following were identified: 1) “public awareness and scientific dissemination” and 2) “sustainable economy and decarbonization”.

3.2 Main Proposals and/or contributions on climate and environmental policies

Through the analysis of the 40 articles, multiple findings, conclusions, contributions and proposals related to climate and environmental policies have been identified. These findings have been classified and categorized according to their frequency of appearance, as detailed in Table 1. This table presents a wide range of theoretical and empirical contributions relevant to the development of climate and environmental policies. Some of these contributions have been mentioned in three articles, while others were highlighted in fourteen of them.

The most frequent category, “institutions and political obstacles,” was analyzed in a total of 14 articles, which revealed relevant findings. These studies revealed evidence that political hostility to climate policies has resulted in weak institutions that hinder the effectiveness of climate change actions. However, it was also demonstrated that, despite their fragility, these institutions can be useful tools in adverse political environments. In addition, challenges in the regulation and development of environmental policies were identified, highlighting the need to strengthen climate governance and overcome obstacles such as personalization and excluding coalitions. In conclusion, based on the different readings, it can be inferred the crucial importance of the institutional and political context to achieve significant progress in sustainability and the fight against climate change.

The “governance and participation” category, analyzed in 13 articles, highlights the need to invest in relevant actors and promote citizen participation to effectively address complex environmental problems. However, this investment must be made carefully and strategically. It also recognizes the urgency of structural change to address the climate crisis and promote sustainable governance. This implies implementing institutional reforms that strengthen coordination among the different actors and levels of government, as well as promoting vertical and horizontal integration. Consequently, it is essential to encourage citizen participation in decision making and facilitate collaboration between the public, private and civil society sectors.

In the same way, Table 1 presents two categories that have been the subject of research in twelve articles each. The first category refers to “environmental law and normative framework”, whereas the second focuses on “climate and environmental policies”.

In the category of “environmental law and regulatory/normative framework,” the articles analyzed highlight the importance of having coherent, sustainable and effective

regulations, as well as mandatory compliance with them by the corresponding states, bodies and institutions. Among the most important aspects are a) ensuring compliance with the marine conservation law; b) establishing a mandatory framework for the reduction of methane emissions; and c) promoting innovation in environmental regulation. It also emphasizes the need to improve: d) coordination in multisectoral climate governance; e) strengthen the ecological care approach in laws; and f) carry out large-scale reforms in International Environmental Law.

On the other hand, in the “climate and environmental policies” category, three main ideas stand out. First, the importance of learning and analysis in environmental and climate policies is recognized as fundamental tools for generating change and adopting mitigation measures. Second, the need to integrate objectives and policies across different sectors to effectively address climate change is highlighted, and finally, challenges in implementing policies to reduce greenhouse gas emissions are identified, such as technical feasibility and opposition from industry.

The “Regional and international cooperation” category, analyzed in 10 articles, encompasses several ideas that can be organized and analyzed as follows: a) cooperation and collaboration among neighboring states is crucial for adopting and implementing adaptation measures; b) changes in leaders’ positions on climate action can foster a more unified regional energy policy; and c) cooperation among governments, agencies, institutions and industry is needed to design and implement strategic projects aimed at sustainability.

In relation to the categories “actors, negotiations and climate diplomacy” and “governance, economy and decarbonization”, which were analyzed in 7 and 6 articles respectively, the following main ideas can be highlighted: In relation to the first category, the contributions and ideas analyzed highlight the urgency of cooperation and collaboration between different actors in the formulation of climate policies and negotiations. Therefore, there is a need to train climate negotiators to convince them of the need to integrate the protection of human rights in climate policies. In addition, the importance of inclusion and equitable access of NGOs and other stakeholders in decision-making processes related to climate policy is emphasized. It also highlights the impact of activism and resistance on decision-making and project viability.

Complementarily, in the category “governance, economy and decarbonization”, three interconnected ideas can be highlighted: a) the need for climate governance to address the asymmetry in emissions trading and promote the replication of low-carbon policies; b) green industrial governance should prioritize climate objectives and strengthen disruptive and supportive policies in the energy sector; and c) to achieve greater decarbonization and a complete transition to a low-carbon economy, it is essential to have the participation and active commitment of the green state. Therefore, it is crucial to have effective governance that implements a strategic approach and, at the same time, fosters collaboration among different actors, which will allow addressing challenges and taking advantage of opportunities towards a just and sustainable transition.

The category “communication and political awareness”, analyzed in 4 articles, highlights several very important issues related to access to information and communication. The main findings suggest that effective communication and the building of favorable social conditions are fundamental to gaining support for climate policies. In addition, there was evidence of the need to use communication approaches that go beyond strategic frameworks and at the same time focus on building relationships among different stakeholders in order to foster widespread support for climate and environmental policies.

Finally, there is the category with the lowest frequency, which has been investigated in 3 articles. In general terms, the main ideas suggest the need to: a) give greater prominence to megafauna restoration in ecological recovery agendas; b) recognize the legitimacy of the actors involved in this process; and c) promote policies focused on megafauna restoration as a mechanism for natural solutions to mitigate and adapt to climate change. It is therefore important to adopt climate and environmental policies committed to the

conservation of megafauna and biodiversity, as part of sustainable governance that prioritizes environmental protection and ecological balance.

Table 1: Frequency of proposals and/or contributions made in the articles.

CATEGORIES	FREQUENCY
Institutions and political obstacles	14
Governance and participation	13
Environmental law and normative framework	12
Climate and environmental policies	12
Regional and international cooperation	10
Actors, negotiations and climate diplomacy	7
Governance, economy and decarbonization	6
Communication and political awareness	4
Megafauna and biodiversity	3

3.3 Discussion

The design and implementation of climate and environmental policies has been widely studied and debated in recent years. However, the challenges that arise around the environment and humanity transcend academia, requiring concrete, effective and rapid actions for their mitigation. Therefore, the focus on green governance and environmental leadership is presented as medium and long-term impact strategies.

In this sense, Villamayor-Tomas et al. (2019) and Gronow et al. (2019) highlight the importance of governance and collective action in local resource management and environmental policies. Thus, while the former analyze the reformulation and/or adjustment of policy instruments according to the strategic nature of local resource management decisions; the latter argue, from a critical perspective, that inclusiveness and consensus in policy networks can lead to more ambitious climate policies. Therefore, both studies, from their perspectives, point to the need for integrated approaches and the use of multiple policy instruments to promote collective action and address environmental problems.

In this line of reasoning, to achieve the proposed objective, it is essential to overcome the political, institutional, attitudinal and administrative obstacles that limit, restrict and impede the effectiveness of climate and environmental policies. As Jevnaker and Saerbeck (2019) argue, the presence of bureaucracy is increasingly seen, which raises the need to implement organizational reforms in areas such as energy. In line with the idea put forward by the authors, it is imperative to deepen the analysis of the creation of EU agencies and assess to what extent their demands contribute to the formulation of more effective climate and environmental policies.

On the other hand, a normative framework is required that focuses not only on the national or regional level, but also on the achievement of an international environmental law. According to Kotz´e (2019), it is imperative to carry out regulatory reform and establish a Global Pact for the Environment, which would give rise to the aforementioned global framework, especially when it is envisioned that it could play a crucial role in resolving the global socio-ecological crisis of the Anthropocene. Related to this, according to Barirani (2022), a new treaty on the conservation and sustainable use of biodiversity could improve institutional harmonization and the integration of environmental policy into ocean governance through its institutional design. Finally, supporting this view, Zhu (2022), in examining climate governance in China, notes that despite the abundance of climate change policies at the global and national levels, there is a visible lack of legally binding laws that establish truly responsible systems.

Clearly, cooperation is and will be key to negotiation and networking. However, climate governance must transcend the institutional level and raise awareness throughout society. In this regard, the studies by Poberezhskaya and Danilova (2022) and Chailleux (2020)

on communication and discourse around climate change are interesting. While Poberezhskaya and Danilova (2022), focusing their analysis on Kazakhstan, raise an interesting discussion on how climate change is presented in the media and highlight the influence of resource nationalism on climate discourse. On the other hand, Chailleux (2020) highlights how communication and knowledge construction can influence political decision making.

Therefore, it is essential to have effective communication and access to evidence-based knowledge to inform decision making. According to Niedzialkowski and Putkowska-Smoter (2021), the new systemic approach requires intense communication involving a diversity of stakeholders, as both internal and external factors influence steering patterns. Moreover, as Vihma and Wolf (2023) state, the interfaces between project teams and permanent organizations, opportunities for technical and institutional change are structured. Consequently, building enabling social conditions for climate policy support is the most effective way to overcome existing divisions and foster productive debate, according to Badullovich (2023). Finally, it is considered crucial to study and discuss climate and environmental policies to address current environmental challenges. However, it is important that these discussions be translated into concrete and effective actions that promote responsible and equitable management of natural resources, ensuring a sustainable future for future generations.

4. Conclusions

Throughout the article, various ideas have been put forward that converge, albeit with nuances, on the need to implement climate and environmental policies aimed at achieving ecological sustainability and green governance.

In this sense, as the authors analyzed claim, the current challenges call for forceful measures. To achieve this, it is essential to have committed political will at the national, regional and international levels, to establish binding legal instruments that go beyond mere voluntariness in their application, to develop large-scale sustainable logistical and material infrastructures, to carry out exhaustive studies that provide a solid basis for political decisions, to promote collaboration between various economic, political and civil society actors, and to implement an effective system of monitoring and accountability to ensure compliance with the commitments and goals established. These joint actions and concrete measures will make it possible to address climate and environmental challenges, moving towards a more sustainable and resilient future.

Finally, it emphasizes the importance of continuing research in the field of climate and environmental policies, addressing key questions, which include the study of how sustainable or green governance impacts on climate and environmental policies; the identification of the causes that hinder their effectiveness; the search for a transparent and sustainable governance that values aspects beyond the economic; and the analysis of why citizen participation in the design of climate and environmental policies has been relegated. From this perspective, there is a need to propose solutions that urgently address the climate crisis and promote the transition to a greener and more resilient world. In short, transparent, participatory governance based on dialogue and action is imperative.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

Appendix A. Supplementary datay

Supplementary data to this article can be found online at the following link ([Click here](#))

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