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ARTICLE

Facing the climate emergency requires investments in high-quality environmental education

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Article.
Biasoli, S. and Brianezi, T. Facing the climate emergency requires investments in high-quality environmental education.
Brasília. The Sovereignty and Climate Center.

20p.

Keywords:
1. Environmental education; 2. The climate emergency; 3. Public policies; 4. Financing

Abstract

This article deals with the emergence of environmental education in the climate field, in both senses of the term: regarding the visibility that climate environmental education has achieved and in relation to the severity of the impacts felt resulting from climate change. The objective is to contribute to expanding and enhancing the quality of climate environmental education practices in Brazil. The reflections presented here are based on literature reviews, participant observation, focus groups, and interviews. The results indicate a shift in the national and international historical trend of environmental education's lack of visibility in public policies addressing the climate emergency and highlight the need to enhance these practices through guidelines based on critical environmental education and community philanthropy financing.

KEYWORDS
environmental education; climate emergency; public policies; financing.

Facing the climate emergency requires investments in high-quality environmental education

Semíramis Biasoli[1] **and Thaís Brianezi**[2]

1. Introduction

In Brazil, there is a certain historical distance between environmental education and climate sciences (Jacobi *et al.*, 2015; Dalla Nora, Manfrinate, and Sato, 2018; Mello Silva and Guimarães, 2018; Marchezini and Londe, 2020; Grandisoli *et al.*, 2021). This means that the existing so-called climate education practices are insufficient in quantity and coverage. Also, these actions usually involve "a content-based reading, as a transfer of meanings of the techno-scientific potential, with a list of behavioral, simplistic, reductionist, and decontextualized tips and practical suggestions" (Tamaio, 2010, p. 46).

This challenge is also highlighted by the international literature, which points out that environmental education campaigns related to climate change often treat the public as automaton decipherers or as simple means to achieve a certain end (Brulle, 2010; Lessøe *et al.*, 2009; Nerlich, Kotekyo, and Brown, 2010; Leiserowitz *et al.*, 2022).

On the other hand — and perhaps even for this reason — there is a growing international and Brazilian mobilization to recognize the importance of environmental education to face the climate emergency, seeking to make this valuation effective in public policies and financing civil society projects and programs. One of the indications of this mobilization is the young Brazilian Coalition for Climate Education[3], created in June 2023, which had reached 80 civil society organizations and social movements as members by July 2024. Two recent achievements of this Coalition were the inclusion of education in the Nationally Determined Contribution presented by the Brazilian government at COP-28 and the creation of the Technical Chamber for Climate Environmental Education at the Brazilian Forum on Climate Change, an advisory body of the federal government[4].

In this sense, the Coalition joins the international movement driven by UNESCO since COP-27, called the Greening Education Partnership, which has the ambitious goal of including climate

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3. For more information about the Coalition, visit: https://www.climaterealityproject.org.br/post/coaliz%C3%A3o-brasileira-de-educa%C3%A7%C3%A3o-clim%C3%A1tica

4. The Brazilian Forum on Climate Change was established by Decree No. 9082, of June 26, 2017.

education in the national curricula of 90% of the world's countries. On the other hand, the Coalition emphasizes the need for this "greening" of curricula to take place through the lens of climate justice, which overcomes the technical and prescriptive approach that often marks the so-called education for sustainability.

This article addresses the historical invisibility of environmental education in climate negotiations and the signs, both international and national, that this scenario is finally beginning to change. We know that environmental education is not enough to face the climate emergency, a complex phenomenon that requires intersectoral responses. However, managers and funders must acknowledge, through concrete measures, the importance of enhancing adaptive capacities, fostering transformative resilience, and ensuring the success of mitigation actions, all from the perspective of climate justice and the strengthening of democracy. Environmental education is not a spontaneous process; it necessitates intentionality, integration into public policies, and funding that effectively reaches the territories.

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2. Climate environmental education gains visibility in the international arena

The term education appears timidly in Article 6 of the Framework Convention on Climate Change, one of the key documents resulting from the United Nations Conference on Environment and Development, held in 1992 in Brazil (known as Rio-92 or Eco-92)[5]. It was only in the Paris Agreement, signed at the 21st Conference of the Parties to the Framework Convention on Climate Change (COP-21), held in France in 2015, that education to face the climate emergency was once again remembered in the international arena as a commitment of the signatory countries. But this happened in a very vague way as far as Article 12, which deals[6] with the subject, besides being one of the shortest in the agreement, it is also imprecise (Amigón, Abad, and Benavides, 2023).

This relative historical invisibility of environmental education in climate negotiations is beginning to change. In 2022, during COP-27 in Egypt, the United Nations (UN), via its Education, Science, and Culture (UNESCO) agency, initiated the Greening Education Partnership (GEP), an international partnership that focuses on climate education. The following year, at COP-28, held in the United Arab Emirates, there was a significant milestone: GEP organized its first annual meeting, with the participation of 85 countries and a total of 1,200 organizations involved.

One of the results of this articulation was the launch of the "Climate-Education Declaration at COP-28"[7], which by April 2024 had been signed by 45 countries, including Brazil. The Declaration proposes six major goals, divided into three areas: adaptation, mitigation, and investment. Despite insisting on the term education for sustainable development, which in Latin

5. Article 6 of the United Nations Framework Convention on Climate Change: Education, Training and Public Awareness. In fulfilling their obligations under Article 4, paragraph 1, subparagraph (i), the Parties shall: a) Promote and facilitate, at national and, as the case may be, subregional and regional levels, in accordance with their national laws and regulations and according to their respective capacities: I) the elaboration and execution of educational and public awareness programs on climate change and its effects; II) public access to information on climate change and its effects; III) public participation in the treatment of climate change and its effects and in the design of appropriate response measures; and IV) the training of scientific, technical and management personnel. b) Cooperate, at the international level and, as the case may be, through existing bodies, in the following activities, and promote them: I) the elaboration and exchange of educational and public awareness materials on climate change and its effects; and II) the elaboration and execution of educational and training programs, including the strengthening of national institutions and the exchange or recruitment of personnel to train specialists in this area, in particular for developing countries. Available at :https://www.planalto.gov.br/ccivil_03/decreto/d2652.htm. Accessed: July 17, 2024.

6. Article 12 of the Paris Agreement: The Parties shall cooperate in taking measures, as appropriate, to improve education, training, public awareness, public participation, and public access to climate change information, recognizing the importance of these measures regarding strengthening actions under this Agreement. Available at :https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/sirene/publicacoes/acordo-de-paris-e-ndc/arquivos/pdf/acordo_paris.pdf. Accessed: July 17, 2024.

7. Available at: https://www.unesco.org/en/articles/declaration-common-agenda-education-and-climate-change-cop28. Accessed: April 12, 2024.

America is affiliated with a more content-based and prescriptive perspective, the document means an advance for:

- Recognizing that the climate crisis disproportionately impacts children and, especially, women and other vulnerable groups, affecting even their right to education;
- Emphasizing that education for sustainable development is an essential part of quality education (Sustainable Development Goal 4 of the 2030 Agenda) and necessary for the construction of more sustainable, equitable, just and climate resilient societies;
- Pointing out the funding gap for climate education and seeking ways to overcome it through international cooperation (UNESCO, 2023).

The Greening Education Partnership has four pillars of action: 1) school infrastructure (sustainable educator space), 2) curriculum; 3) training of educators and management skills of educational systems (participatory management and strengthening of public policies), and 4) communities (perspective of integral education, which goes beyond the school's walls).

For each of these four pillars, there is a Working Group that held its first joint meeting in March 2024, presenting ambitious goals, including: achieving the national curricula of 90% of the world's countries, 50% of schools with sustainable and resilient infrastructure (which includes buildings, green spaces, and more responsible use of water and energy) and cities and communities throughout the world working on climate change in their permanent lifelong learning processes by 2030 (this goal still has no definition of quantity).

These four pillars of action of the GEP dialogue with the concept of sustainable and resilient work schools in Brazil by the National Center for Monitoring and Alert of Natural Disasters, through its Cemaden Education Program.

In 2023, Alfredo Pena-Vega launched in Brazil his book "Os sete saberes necessários à educação sobre as mudanças climáticas" ("The seven knowledges necessary for climate change education", translated into English), which "is based on the seven 'fundamental' knowledges proposed by Edgar Morin in the work Seven complex lessons in education for the future (2000), applying them to climate change education" (Pena-Vega, 2023, p. 26). In the work, it is evident how much the visibility and the articulations resulting from the climate COPs are strategic for the strengthening of environmental education in coping with the climate emergency. Pena-Vega reports that its action and research project on the perception of young people in relation to climate change started in 2015, with the participation of young people from 10 countries, driven by the holding of COP-21 in France. The initiative managed to expand to 30 countries after the UN published it on the portal of the United Nations Framework Convention on Climate Change in an article entitled "Bright examples of youth actions in the fight against climate change" (Pena-Vega, 2023).

3. Environmental climate education gains strength in Brazil

If international articulation is important, it also requires a critical view of the asymmetric power relations between the Global North and South, as well as intense negotiation from a decolonial perspective. This is shown by the example of the arrival of the Plant-for-the-Planet organization in Brazil in 2017, analyzed in the master's thesis of Evelyn Araripe, a Brazilian environmental educator hired to start the organization's work in Latin America. Of German origin, Plant-for-the-Planet's methodology has been validated by the United Nations Environment Programme (UNEP), which has helped the organization to be present in 64 countries. This methodology came from Felix Finkbeiner, a German boy who, when he was 9 years old, did school research on the work of Kenyan Wangari Maathai and started some acts of planting

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for children. This is how the organization, which aims to plant a trillion trees worldwide, came into existence, recognizing the significant role of children and youth. Despite the noble cause and the necessary intercontinental collaboration, there is a tendency to replicate methodologies and content globally without adapting them to local contexts, which often align only with the realities of the Global North. As a result, they can seem artificial, distant, and fail to engage Brazilian children and youth meaningfully. Fortunately, this imposition faces resistance from national and local teams:

> Without the approval of the German headquarters, the team in Brazil (composed of this author and a project coordinator) authorized the adolescents and young people to change the presentation. The changes were significant, but without missing the message. The presentation suggested by them continues to this day to be used in activities throughout Brazil. The German headquarters knows but has never disclosed the presentation used in its materials available for download on its website (it continues to suggest the old model) (Araripe, 2020, p. 36).

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Buen Vivir is plural: *"buenos víveres"*. Based on the existence of (and resistance to) colonialist universalism, the concept of *buen vivir* defends the pluriverse (Acosta, 2016) and is guided by the value of all forms of life and their interconnection. Here, the pluriverse category acknowledges the existence of various human societies and their understanding, emphasizing that we should not normalize any of them to the detriment of others. It is the right to difference that marks the concept of *buen vivir*, which in turn can be translated by principles such as knowing how to eat, to drink, to dance, to sleep, to work, to meditate, to think, to love and be loved, knowing how to listen, to speak, to dream, to walk, to give and receive, inspired by the experiences of Andean peoples such as the Aymara in Bolivia and the Kíchwa in Ecuador (Mamani, 2010).

Another banner that has been gaining strength in Brazil in the socio-environmental field — and that dialogues with the decolonial perspective of *buen vivir* — is the fight against environmental racism. As the Peregum Black Reference Institute reminds us, environmental racism arrived in our country with the caravels[9], and it organizes our society:

> There is an urgent need to recognize that there is no climate justice without racial justice. Without including the debate of traditional peoples, quilombolas communities, and the racial debate, we will proceed to a model of neocolonialism, a model that prioritizes the exploitation of the planet and bodies (Belmont, 2023, p. 16).

This struggle is coupled with the effort to recognize that applied Social Sciences, such as education and communication (and connected to the field of educommunication), are fundamental to facing the climate crisis, in an arena historically dominated by the so-called hard sciences (biological and exact sciences). In Brazil, an emblematic example of the promising results of the inclusion of the perspective and work of the Human Sciences comes from the aforementioned Cemaden Education, created in 2014, just three years after the creation of Cemaden itself. The expansion of perspective is evident even in the name: while Cemaden is the

8. *Buen vivir* is often translated into English as "good living" or "well living," though such translations fail to fully capture the depth of its meaning. The term, rooted in the indigenous cosmovisions of the Andean peoples, transcends Western notions of individual wellbeing or welfare. *Buen vivir* emphasizes the collective well-being of individuals in relation to their community and the natural world, reflecting a holistic and interconnected way of life that resists reduction to mere economic or personal welfare. For this reason, the original term is retained to honor its cultural and philosophical specificity.

9. A small Spanish or Portuguese sailing vessel of the Middle Ages and later, usually lateen-rigged on two or three masts.

National Center for Monitoring and Alerting Natural Disasters, Cemaden Education spreads in the monitored territories the perspective that they are socio-environmental disasters. The program supports the communities of the monitored territories, through partnership with civil defenses, schools, and community associations, helping them to face risks and disasters not as fatalities, but as fruits of inequalities that need to be combated:

> Thus, the transformation of the understanding that rain is a natural phenomenon, but landslides are socially constructed processes by a network of generating factors that contribute to the maintenance of unsustainable scenarios is more than important, it is fundamental and urgent. Denaturalizing Brazilian disasters is a conditioning aspect for any educational process (Matsuo, 2023, p. 23).

It is in this context of tension and articulation, in an attempt to focus on international strategies still heavily influenced by hegemonic logics and the construction of territorialized national tactics, guided by climate justice, that the Brazilian Coalition for Climate Education (CBEC, for its acronym in Portuguese) emerges. The Brazilian Fund for Environmental Education (FunBEA, for its acronym in Portuguese) has participated in this Coalition since its birth, in June 2023. The initiative to create CBEC came from *Climate Reality Brazil*, formerly Brazil Climate Center (CBC, for its acronym in Portuguese), which in 2016 became the national representative of *The Climate Reality Project,* an international project created in 2006 in the United States by the influential Al Gore (who in 2007 won the Nobel Peace Prize for his mobilization against climate change).

In 2020, when the Covid-19 pandemic began and Alfredo Sirkis, the founder and director of the CBC, passed away, *Climate Reality Brazil,* led by manager Renata Moraes, initiated the Journeys for the Climate program. This online training and mobilization process was recognized as a social technology by the Banco do Brasil Foundation and, by August 2022, it had already held 29 classes, certifying 626 people (Brianezi and Viana, 2023). The Journeys consist of five meetings where participants engage in exchanges and fulfill individual and collective missions. Among the resulting "microprojects" is the Youth for Climate Education Manifesto[10], which garnered 3,653 signatures and was delivered by young Brazilians to global leaders at COP-26 in 2021 in Scotland.

Less than 6 months after its launch, in December 2023, the CBEC already boasted 71 participating organizations. And it celebrated the fact that education entered the Nationally Determined Contribution presented by the Brazilian government at COP-28, through the commitment to review the National Policy on Climate Change. The proposal is to develop a new Climate Change Plan, with five cross-cutting objectives (including one called "education, research, development and innovation").

The number of CBEC members increased to 80 organizations at the meeting in April 2024. The announcement of the creation of the Technical Chamber of Climate Environmental Education at the Brazilian Forum on Climate Change, an advisory body of the federal government, marked a significant victory. Despite the CBEC's use of "climate education" in its name, the Technical Chamber adopts the name Climate Environmental Education. This update came from the recognition of the contribution that the critical perspective of environmental education brings to coping with the climate emergency — and the need to value and implement the public policies that Brazil already has in the area, such as the National Policy for Environmental Education (PNEA, for its acronym in Portuguese, Law 9795/1999). The term "climate environmental education" was vehemently defended by the Brazilian Network for Environmental Education (REBEA, for its acronym in Portuguese), finding support among members of the CBEC itself, such as FunBEA, and the coordinator of the aforementioned Technical Chamber, researcher Irene Carniatto, professor at the State University of Western Paraná (UNIOESTE, for its acronym in Portuguese) and coordinator of the International Climate Resilience Research Network (RIPERC, for its acronym in Portuguese).

10. Available at: https://www.climaterealityproject.org.br/manifesto-pela-educacao-climatica. Accessed: April 12, 2024.

Environmental education, however, as we have seen so far, is not an agenda that easily finds support — or even understanding — in broader arenas, beyond those who already advocate it. Therefore, CBEC is currently investing in the strategy of aligning with the international agenda known as Action for Climate Empowerment (ACE)[11], which encompasses six axes: 1) Education; 2) Training; 3) Public awareness; 4) Transparency and access to information; 5) Public participation and democracy; and 6) International cooperation.

The Brazilian government has committed to the ACE pillars but has made little progress so far on concrete measures. Therefore, CBEC members are collaboratively writing a motion for resolution to be presented by the Alana Institute, a CBEC member, to the National Council for the Environment (Conama, for its acronym in Portuguese). It will bring indications of concrete government measures to implement the ACE — and, therefore, climate environmental education from the perspective of climate justice — in Brazil.

3.1. Environmental climate education in school education in Brazil

The Ministry of Education (MEC, for its acronym in Portuguese) and the Ministry of Environment and Climate Change (MMA, for its acronym in Portuguese) run the Management Body of the National Policy for Environmental Education (PNEA), established by Law 9.795/1999 and regulated by Decree 4.281/2002 (Law 9.795/1999). This policy was dismantled during the government of former President Jair Messias Bolsonaro, being the subject of a public hearing in the Federal Senate in December 2021 (Rosa, Sorrentino, and Raymundo, 2022). The restructuring and strengthening of this governance of Environmental Education is currently in the process, which also includes an Advisory Committee (composed of 13 representatives of civil society and federal, state, and municipal institutions) and, at the state level, the Interinstitutional State Commissions on Environmental Education (CIEAs, for its acronym in Portuguese).

This challenge of resumption, continuity, and innovation in public policies for environmental education is coupled with the need to face the climate emergency. Not by coincidence, the Ministry of the Environment changed its name to the Ministry of the Environment and Climate Change from 2023 onwards, and the theme of climate change is present in a transversal way, either directly or indirectly, in the organization chart of 28 of the 37 ministries (Brasil, 2023).

Understanding what is in fact the contribution of environmental education to respond to climate change and its impacts on territories and to build the indicators to measure and evaluate these results together with the CIEAs is the objective of the ongoing project "Adaptive capacity in a polycentric perspective: monitoring, evaluation, and synergistic impacts of Public Environmental Education Policies to face Climate Change, at multiple scales", funded by CNPq and coordinated by Evandro Albiach Branco, from the National Institute for Space Research (INPE, for its acronym in Portuguese). The initial results of the study, which is in its second year of execution (out of a total of five), point to the increase in the adaptive capacities of people and communities participating in environmental education actions, projects, and programs (Jesus *et al.*, 2024).

In June this year, the Environment and Education committees in the Federal Senate held a public hearing to celebrate PNEA's 25th anniversary. One of the invited guests, Luiz Marcelo Carvalho, pre-released the collection "State of the art of research in environmental education in Brazil (1981-2020): meta-analyses and narratives of a complex and plural field" (Carvalho and Neto, 2024). The work is linked to the EArte research, which gathered and systematized 6,128 dissertations and theses on environmental education defended in Brazil between 1981 and 2020. Most of them deal with the scope of what PNEA calls "Environmental Education in Formal Education" in its Section II, (Brasil, 1999):

11. In literal translation, it would be Action for Climate Empowerment. But CBEC members considered that the term does not carry the commitment to climate justice and are inclined to adopt in Brazil the term Action for Climate Engagement.

> (…) we found a significant increase in works related to the Educational Context, especially in the period from 2011 to 2020, pointing out an increase in academic production related to Environmental Education, in the Brazilian context, in the last ten years. In fact, of a total of 6,128 studies analyzed, 3,693 (60.3%) relate to the school context. It is worth noting that, regarding the total number of studies within this context, according to the criteria and classification carried out by the group of researchers that make up the EArte Project, 3,330 (90.2%) of the studies explore aspects related exclusively to the school educational context. The other 363 (9.8%) studies deal with the two contexts, school and non-school (Silveira *et al.*, 2004, p. 361).

"Although the initiatives present growth and greater distribution in terms of the territories in which educational institutions are located and in terms of the disciplinary content worked, research in environmental education in the school context has shown that there tends to be a predominance of an instrumental approach in environmental education practices in Brazilian schools, marked by objectives such as 'raising awareness' and 'sensitizing'."

Although the initiatives present growth and greater distribution in terms of the territories in which educational institutions are located and in terms of the disciplinary content worked, research in environmental education in the school context has shown that there tends to be a predominance of an instrumental approach in environmental education practices in Brazilian schools, marked by objectives such as "raising awareness" and "sensitizing" (Loureiro and Cossío, 2007; Fracalanza *et al.*, 2013). And part of this more restrictive approach, usually marked by conservationist content, is reflected in the minimal and superficial presence of environmental education in the National Common Curriculum Base (BNCC, for its acronym in Portuguese), implemented in 2017. This disagrees with the critical perspective advocated by the National Curriculum Guidelines for Environmental Education (DCNEA, for its acronym in Portuguese), approved in 2012 (Behrend, Cousin, and Galiazzi, 2018).

On the other hand, Brazil's legal-institutional framework reflects a history of approximation between the fields of educommunication and environmental education. In 2005, for example, the Ministry of the Environment (MMA) launched the Socio-environmental Educommunication Program, institutionalizing the use of the term. In 2011, it approved the National Strategy for Communication and Environmental Education in Conservation Units (ENCEA, for its acronym in Portuguese), in which educommunication is a central guideline for public policies, programs, and projects in protected areas (Menezes, 2015). Moreover, educommunication is present in the National Environmental Education Program (ProNEA, for its acronym in Portuguese), through "methodologies of participatory construction of products and communication actions for Environmental Education and sustainability developed by the communities themselves and contextualized within their realities" (Moreira and Santos, 2020, p. 39). At the state level, the term educommunication was already present in 2020 in the legal text of the environmental education policies of six states: Alagoas, Bahia, Espírito Santo, Paraná, São Paulo, and Sergipe (Alves and Viana, 2020).

Believing that educommunication practices, grounded in dialogue, can help school communities critically and creatively appropriate knowledge about the climate emergency, generating local action, the Communication and Education Center of the School of Communications and Arts at the University of São Paulo (NCE/ECA/USP, for is acronym in Portuguese) is developing the research project "How can educommunication expand and enhance climate education practices in Basic Education in Brazil?" This project, funded by FAPESP, is being carried out through a Technical Cooperation Agreement with the MMA and the Municipal Department of Education of São Paulo.

In this context, in the first half of 2025, the course "We need to talk about climate emergency — how educommunication can expand and qualify the approach to climate change in schools" will be held in 65 schools of the Municipal Education Network of São Paulo (RME-SP, for its acronym in Portuguese), five in each of the 13 Regional Directorates of Education (DREs, for its acronym in Portuguese). The course developments will be monitored and evaluated in the following months based on the indicators of the Brazilian System of Monitoring and Evaluation of Projects and Public Policies of Environmental Education (MonitoraEA), recognized by ProNEA.

4. The Climate Environmental Education Guidelines

"It is increasingly evident how important climate environmental education is in order to face the climate emergency, whether to strengthen the adaptive capacities of peoples and communities or to act in the radical transformation of the ways of being, producing, and consuming of the hegemonic society, which are the root causes of this crisis."

It is increasingly evident how important climate environmental education is in order to face the climate emergency, whether to strengthen the adaptive capacities of peoples and communities or to act in the radical transformation of the ways of being, producing, and consuming of the hegemonic society, which are the root causes of this crisis. But, as we have seen, it is not trivial to understand which educational and world perspectives should underpin climate education actions so that they reach their full potential.

Therefore, FunBEA, in partnership with Cemaden Education and the Institute for Climate and Society (iCS), conducted a participatory process to elaborate common premises and strategies for action, which culminated in the development of 10 Guidelines for Climate Environmental Education. These guidelines have had the perspective of collective and evidence-based action since their birth, starting with bibliographic research on environmental education, climate education, and climate change practices in Brazil, from 2016 to 2022. This stage, developed by researchers Rachel Trajber, Patrícia Mie Matsuo, Heloisa Martins, Luiza Chara, and Claudio Marques, initially selected 416 works through searches on *Google Scholar* and *Google Open* search engines. Such selection was made from the keywords "climate education", "practices", and "environmental education". From this corpus, the abstracts of each of these works were read in order to select those that actually had climate environmental education practices as scope, which resulted in the identification and analysis of 99 documents. These texts were then read in full and separated into five categories: Educational Practices, Perception Surveys, Other Research, Reference Documents, and International Practices.

In order to improve the online survey and identify educational experiences that had not appeared in the initial search, a focus group was formed involving 25 experts in climate environmental education from universities, the third sector, and the government sector. From the creation of this collaborative, dialogical, and participatory space, ten initial guidelines for Climate Environmental Education were then built. The text was enabled for public consultation between June 12 and July 23, 2023, through an online form, and was attended by 236 people.

Respondents were able to comment on the guidelines built from three questions available on the form. The first two, mandatory, provided an overview of the document, while the third, optional, consisted of specific contributions to each guideline. Of the 236 participants, 51.3% chose to answer the consultation in full, with impressions about the details of at least one guideline.

Regarding the profile of respondents, it is noteworthy that the majority fell within the age group of 30 to 60 years old. Despite active efforts to collect respondents with ethnic-racial diversity, over 60% were white, and in terms of gender identity, over 60% identified as cis women. Still in the field of challenges, there is a positive presence of respondents from 23 Brazilian states; however, most of the contributions came from people from the South and Southeast of the country, with São Paulo, Rio de Janeiro and Santa Catarina being the states with the highest concentration of respondents. It is also important to point out that regarding the field of action of the respondents, there was a numerical emphasis on universities, civil society organizations, and networks.

The 10 Climate Environmental Education Guidelines were publicly released at an online event in September 2023, via live streaming on FunBEA's YouTube channel. The audience that participated in the live event was expressive: 175 people, representing multiple sectors. The launch featured guests who read the document in advance and brought highlights and comments about it from multiple perspectives. As an example, we cite here the Ministry of Environment and Climate Change (MMA), the Ministry of Education (MEC), the corporate sustainability program United Nations Global Compact, the Amazon Fund and, also, Climate Reality Brazil. Of the total number of participants, people from four regions of Brazil were present:

Northeast, Midwest, South and Southeast, most of them from the state of São Paulo. From a quick profile survey of these people, it was found that most of them were active in the area of climate education and participated in the public consultation to build the guidelines.

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It is important to highlight that the guidelines, organized in conceptual blocks, do not maintain a hierarchical or linear structure of importance, and, therefore, it is up to the interlocutor who interacts with them to define which ones are more or better adherent to the context, audience, and moment of their implementation. In this approach, we will start by reversing the numerical order, starting with Guideline 10, emphasizing the importance of climate finance for socio-environmental movements and collectives that are in the base territories and that work for climate justice.

Guideline 10: Environmental education in the context of the climate emergency must be based on listening to the instituting movement, from the perspective of everyday micropolitics.
Recognizing the action of local collectives and organizations that institute peoples and communities in their territories involves supporting with financial (seed capital) and training resources the local collectives and resistance movements aligned with the themes of interest to groups in the territories, with a focus on arts, culture, sport, among other everyday collective practices.

It must also maintain the systematic dissemination of knowledge that allows people and communities to make decisions and demonstrations of citizenship about events in daily life, relating them to the current climate emergency, and reminding scientists of their main purpose: to create knowledge for the common good of society, territories, and the planet.

Guideline 09: Climate Justice recognizes that addressing the climate crisis requires not only environmental solutions, but also social and economic ones.
Marginalized and peripheral communities suffer disproportionate impacts from the climate emergency and need equitable solutions that recognize diversity by listening to their voices and perspectives. It is crucial to include these communities in decision-making processes, as they are the ones that contribute least to climate change and the ones that suffer (and will suffer) the most from its effects. It is also necessary to differentiate and highlight the responsibility of economic groups in countries and regions that concentrate power and income (industry, agribusiness, multinational companies), which historically contribute most to the climate crisis.

Guideline 08: Sustainability is essential to mitigate the effects of climate change.
Sustainability is achieved by promoting alternative forms of energy, such as wind and solar, encouraging conservation, questioning and refusing consumerism (disposability, predation, ostentation), reducing waste, and defending sustainable transport, with an emphasis on collective transport, as well as guiding towards solutions such as agroecology, permaculture, and Nature-based Solutions (NbS). The NbS have the potential to mitigate the impacts of climate change, increase biodiversity, and improve the quality of environmental services. They also seek to balance the environment with economic activities and social well-being, involving, in particular, an admiration for life and the natural world, promoting a sense of responsibility for environmental management.

Guideline 07: Creation and maintenance of formal and non-formal spaces built with educational intention of sustainability and resilience.
Invest in the constitution of sustainable and resilient schools, integrating transdisciplinary curriculum, democratic management, and building as dynamic references for their communities, protecting their territory of life. Also invest in the partnership with the Universities, from the creation of Environmental Education Centers on Climate Change, providing the necessary resources (financial, material, and human) so that the programs of these centers can develop training projects for managers, teachers, and the community for municipalities according to the hydrographic basins in their territories.

Guideline 06: Climate environmental education is citizenship, responsible, critical, and participatory education, capable of making transformative decisions from the natural or built environment.

Train the population to face the climate emergency, especially in areas susceptible to disasters, located in peripheral territories where there is greater ethnic-racial vulnerability (black, brown, and indigenous people), age (children and elderly people), gender (women), and people with disabilities (visual, deaf, wheelchair users). Moreover, deconstruct the vision that separates nature and society and value the knowledge and practices of traditional peoples and communities in perceiving and coping with the climate crisis, especially in historical strategies for building adaptive capacities. In other words, climate environmental education must be intrinsically anti-racist, committed to denouncing the negative impacts of the climate emergency that most affect those who contributed least to its causes and to announcing the major role of black, brown, and indigenous people in adaptation and mitigation actions in the territories, based on community logics and practices, not mercantilism.

Guideline 05: Education becomes vital for the production of knowledge and collective actions for the common good.

Emphasize the urgency of taking advantage of every minute of our days to act in a paradigmatic transition. Shared knowledge about Climate Justice contributes to substantiating public policies from a transformative and multicentric perspective.

Ensure that the diffusion of concepts about the severity of the situation in the "Anthropocene"[12] and "Ocean Capital"[13], which explain the scientific, sociocultural, and political causes of multiple interconnected crises, does not cause panic or paralyze people because they feel powerless in the face of the magnitude of the problem. The term Anthropocene raises the hypothesis of a possible new geological era, which would have replaced the Holocene and is marked by transformations arising from human action. It was recently refuted by a working group of geologists who 15 years ago discussed the topic at the quadrennial editions of the International Geological Congress. Although the concept of Anthropocene is still widely used in the Social Sciences, it also faces criticism for generalizing the responsibility for socio-environmental crises and attributing it to all individuals of the human species. Therefore, there are those who prefer the term Capitalocene, which emphasizes the capitalist mode of production and consumption and the inequalities inherent in this system (Latour, 2020).

Encouraging participation in organizations, activism, youth movements, climate strikes, and struggles for decolonization, among others, is fundamental. These participations make it possible to systematically correlate the spheres of consumption and production in the prevailing capitalist model, identifying their different agents and highlighting the diverse capacities to make individual choices. In addition, to emphasize the imperative need to generate, dialogically, choices for collective actions.

Structurally problematize the current model, especially from the production field, with a view to a transition process to overcome social and environmental exploitation related to the human activity prevalent on the planet — in articulated actions of social movements, the state, the business sector, and public policies.

Guideline 04: Understand the science of the complex climate change process.

The scientific vision, when systematically integrated with multiple contemporary crises, can encourage people to draw existing relationships, to think of ways to reduce the negative impacts of the climate emergency, and to assume prevention responsibilities. To this end, the causes and dynamics of global warming can be explained, so that each one can understand both the planetary dimension of the crisis and its impacts, as well as the melting of the polar ice caps and the increase in sea level. Also, it is possible to grasp the impacts at

12. The term Anthropocene refers to the hypothesis that we would be in a new geological era, which would have replaced the Holocene, and would have as its main characteristic the anthropic changes initiated in the 18th century, from the Industrial Revolution (Latour, 2020).

13. The term Capitalocene emerged in the Social Sciences as a critique of the Anthropocene. It seeks to emphasize that anthropic changes were not carried out by all humanity in an undifferentiated way but are a result of capitalist modes of production and consumption and the inequalities inherent to them (Latour, 2020).

the micro-local level, in each territory, such as the lack of drinking water, water and energy crises, soil aridity, loss of biodiversity, loss of agricultural crops, and consequent decrease in food supply, desertification, and forest fires. It is also important to address the impacts of the current anthropogenic alteration of the greenhouse effect and, therefore, of the climate, from an ecological point of view, considering the implications on the different environmental indicators of the planet and also the interactions between them, which, by affecting each other, potentiate the widespread environmental crisis now evolving, approaching a point of no return with serious implications.

Guideline 03: Promotion of methodologies, practices, and technologies aligned with educational processes that engage multiple social actors.
To deal with sustainability, risk management, vulnerability reduction, community protection, adaptive capacity, and resilience, it is essential to be cautious with scientific "skepticism" that is based on uncertainties about the causes and possible consequences of the climate phenomenon. Critical attention is also needed to "denialism", a neoconservative and neo-capitalist view. We use the term neo-capitalist from Manuel Castells's (2007) and Byung-Chul's (2018) works: informational capitalism, marked by financialization. Therefore, it is important that environmental education helps people to maintain vigilance and critical thinking, in addition to questioning, seeking evidence, and evaluating the credibility of information sources, including media, politicians, activist groups, and, especially, social networks and other platforms, especially those that operate from algorithms and Artificial Intelligence (AI).

Conduct socio-educational interventions, with participatory practices, interactive activities, local research, case studies, educommunication, public debates, and the creation of pedagogical materials (printed, videos, online simulations, virtual field trips and other digital resources), creating opportunities for their construction in each territory of life and for their interconnections.

Guideline 02: Climate environmental education is a powerful process that brings political and ethical sense to face the civilizing crisis and the climate emergency, going beyond and breaking with the transmission of a hegemonic thought of development, creating dialogical processes to develop formal and non-formal decentralized processes, with a view to taking care of the territories of life, including animal rights, from the understanding of the complex interconnection of all living beings.

And finally, but not least, the importance of instruments that qualify the implementation of public policies.

Guideline 01: Structuring a National Environmental Education Program in Climate Emergency.
Such a program will contribute to scale, continuity, synergy and quality to the transformative processes of climate environmental education. Your institution must consider the necessary allocation of resources (financial, material and human), as well as monitoring and evaluation actions guided by the indicators of the Brazilian System of Monitoring and Evaluation of Public Policies for Environmental Education (MonitoraEA), thus strengthening the implementation of the National Policy for Environmental Education (PNEA) and the National Environmental Education Program (ProNEA).

5. Why and how do climate environmental education and community philanthropy need space in climate finance?

During the public consultation, the relevance of climate environmental education guidelines for addressing the climate emergency was highlighted by 97% of respondents, as it corroborates the importance and need for educational actions in the defense of climate justice. The analysis of the 163 comments on the set of guidelines, using statistical metrics, revealed the

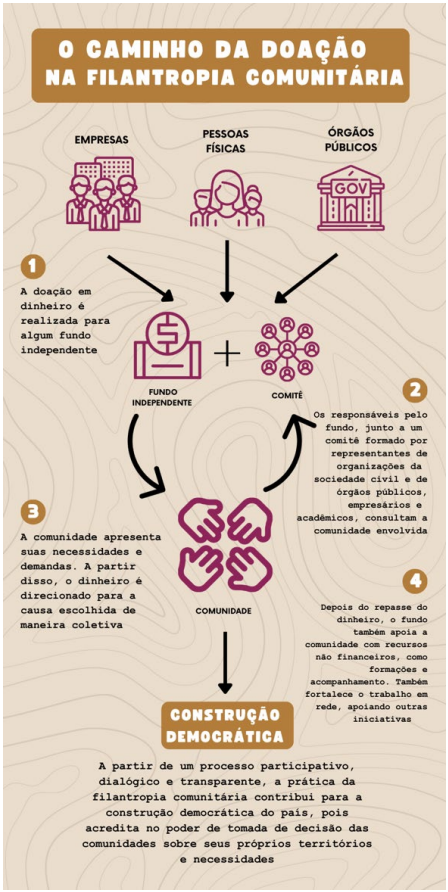
recurrence of the words “investment”, “education” and “coping”. This repetition reflects the historical lack of investments in climate environmental education since at least 1992, when the United Nations Framework Convention on the Climate Emergency was launched, manifested in the scarcity of courses, training, teachers, and research. This context highlights the urgent need for robust financing in the area to address these deficiencies and strengthen climate environmental education.

“To put it more directly: for environmental confrontation to happen under the logic of climate justice, investment is necessary.”

To put it more directly: for environmental confrontation to happen under the logic of climate justice, investment is necessary. This is the sense in which FunBEA was created 13 years ago by leading experts in environmental education in Brazil, based on the diagnosis that the resources for environmental education in the country, in addition to being insufficient, were difficult to be accessed by those who need it most. Since then, FunBEA has been working to mobilize resources for environmental education, so that they reach the territories efficiently. It is the first and only Latin American environmental education fund whose mission is to mobilize financial and non-financial resources for environmental protection and social and climate justice.

FunBEA provides financial and training support to strengthen collectives, socio-environmental movements, and civil society organizations in an accessible and widespread manner. As an independent fund that is part of the Comuá Network (philanthropy that transforms), and with its work carried out from the perspective of community philanthropy, FunBEA constitutes a bridge between those who have resources and the communities. This way of acting allows the funding to reach the base, that is, those who are on the front lines, building a fairer and more sustainable society.

In the context of community philanthropy, a fund is an independent mechanism, connected to the cause of social or socio-environmental justice. This independence means that it is a fund that does not have direct support from a company, a family foundation, or the government, which allows different types of support and greater concern with meeting the needs of communities and grassroots groups, rather than prioritizing the demand of funders. The path of donation in community philanthropy can be seen in the following scheme (Biasoli, 2023, p. 1):



Within this perspective aimed at strengthening the autonomous role of territorial organizations and their capacities, more than simply the generation of benefits and social services, the initiatives promoted by FunBEA are based on 4 programs connected to the major global challenges, among them, its Climate Program. More than funding, FunBEA's commitment is to do *with* communities, not *for* communities, establishing relationships of trust through active listening, joint planning, respect for their dreams, needs and appreciation of ancestral and popular knowledge and practices, thus focusing on power asymmetries between the Global North and South. It seeks, therefore, to enhance the autonomy, decision-making power, collective action, and capacity to act of local organizations, major players in socio-environmental regeneration and in coping with the climate emergency.

In accordance with its mission, FunBEA has advocated in international and national arenas that education and climate finance should go together. Within the climate agenda, climate finance is an area that since Rio-92 has been taking shape and space in world discussions, but still in a timid way. Recently at COP-28, the theme was debated, but it was not at the center of the discussions.

But what exactly is climate finance, and what is it for? Although there is no consensus on its definition, which can vary from country to country, the UN describes climate finance as the financial resources allocated to actions to mitigate and adapt to climate change. While mitigation encompasses measures that help countries reduce their greenhouse gas emissions, adaptation refers to actions that prepare collectives and territories to live with the consequences of the crisis, creating resilient communities that do not suffer so tragically from extreme weather events, increasingly strong and recurrent, as those recently experienced by the population of Rio Grande do Sul, in May and June 2024.

Thus, to comply with international agreements, particularly the Paris Agreement, it is necessary not only to allocate resources for climate compensation, mitigation, and adaptation actions, but mainly to ensure that they actually reach the Global South and are decentralized in its multiple territories. This is where the Climate Environmental Education Guidelines stand as effective contributions, serving as parameters for financing climate environmental education actions, projects, and programs that help strengthen the institutional and adaptive capacities of socio-environmental movements and civil society organizations. In this sense, investing in the field of mitigation, as in a technology for the generation of clean energy, is essential; but it is equally crucial to finance adaptation measures based on educational processes.

"Thus, to comply with international agreements, particularly the Paris Agreement, it is necessary not only to allocate resources for climate compensation, mitigation, and adaptation actions, but mainly to ensure that they actually reach the Global South and are decentralized in its multiple territories. This is where the Climate Environmental Education Guidelines stand as effective contributions, serving as parameters for financing climate environmental education actions, projects, and programs that help strengthen the institutional and adaptive capacities of socio-environmental movements and civil society organizations."

However, although not a recent topic, climate finance does not occupy a central position on the climate agenda. Although discussions began at Eco-92 and gained visibility with the Paris Agreement, in 2015, financing for the areas of climate mitigation and adaptation continued in a timid way, not having even raised the recurring levels announced at each Conference of the Parties. A change in this scenario is expected from decisions taken at COP 28, such as the global balance sheet of the Paris Agreement, the global adaptation target, and the loss and damage fund. There is a strong bet of new advances at COP-29, which, not by chance, is being named as the "COP of climate finance".

Meanwhile, the current scenario remains challenging, and another gap in climate finance is the current directing of investments to certain sectors and to short-term projects and lower risks, to the detriment of others, connected to climate justice and involving more vulnerable communities, whose practices protect forests. According to a study by the Getúlio Vargas Foundation (FGV, for its acronym in Portuguese), the energy and transport sectors received 46% of total climate financing, leaving only 17% of this amount to sectors such as sanitation and agriculture, forestry, and fishing (Pinto *et al.*, 2023). Such data show the asymmetry of power in the allocation of climate financing, of which climate environmental education is one of the victims.

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In addition to this reality, global investments in the areas that cause the climate crisis continue to grow. In other words, although the severity of the climate crisis is increasingly evident, sectors that strongly contribute to climate change, such as fossil fuels and industrial agriculture, continue to thrive and even expand. The report "How finance flows: the banks that are fueling the climate crisis," (ActionAid, 2023) tracked banks' financial flows to fossil fuels and

industrial agriculture in the 134 countries of the Global South. The report concluded that despite global banks publicly declaring that they are addressing climate change, the most significant portion of their ongoing financing is focused on fossil fuels and industrial agriculture.

"Regrettably, of the 2% of global philanthropy resources devoted to climate-related initiatives, virtually nil goes toward social justice philanthropy serving communities, according to a study by the Climate Foundation."

Regrettably, of the 2% of global philanthropy resources devoted to climate-related initiatives, virtually nil goes toward social justice philanthropy serving communities, according to a study by the Climate Foundation (CWF, 2022).

It's crucial to emphasize that the extensive bureaucracy involved in accessing large funds often prevents their use. Therefore, those who are most in need of these resources are also the ones who are least likely to have access to them.

In addition to reducing bureaucracy, it is essential to understand that the field of financing and philanthropy is not homogeneous, and that its relationship with the fight against climate inequalities and injustices is not direct. On the contrary, there are power dynamics that need to be recognized and faced, under the penalty of perpetuating the structural failures that have created and maintained inequalities.

That said, although funding to tackle climate change has been increasing (at a slow pace), given the growing urgency of the climate crisis, it is still necessary to step up its ambition and transfer more funds, quickly, to the places that need them most. It must be recognized that the way this funding is done can contribute to widening inequality within and between countries.

Thus, so-called community philanthropy, with which FunBEA aligns itself, emerges as a way of recognizing the existence of new philanthropic practices, actors, and voices, positioning itself in relation to traditional philanthropy from a bottom-up perspective (Doan, 2019). It is closer to the territories and works for the institutional strengthening of movements and collectives.

6. Final remarks

Environmental climate education in Brazil faces a significant challenge. Climate Action Against Disinformation conducted a survey in six countries and found that 40% of Brazilians believe fossil fuels are clean energy, while 44% believe human activity is not the cause of climate change (Sobrinho, 2022). Another recent international study in which Brazil participated, carried out by the Climate Change Communication Program at Yale University, showed that 90% of Brazilians believe that the average world temperature has been increasing over the last 150 years, but only 53% of them attribute the problem to the action of human beings (Leiserowitz *et al.*, 2022). This skepticism about the human causes of the climate emergency seems to be linked more to psychological factors than to socio-political ones, that is, to the worldviews of each person, according to recent research carried out by Mathias Spektor, Guilherme Fasolin, and Juliana Camargo (2023).

The size of the challenge, therefore, grows in proportion to the need: the more difficult it is to carry out, the more necessary climate environmental education is. As Ailton Krenak instructs us, this action must begin with a thorough understanding of the relevant territories:

> The ancients said that when we put a mast on the ground to do our rites, it marked the center of the world. It's magical that the center can be in so many places, but what world are we talking about? For when we say world, we immediately think of this one, in an incessant dispute established by a management that has metastasized: that of capitalism — which some already call the capitalocene (Krenak, 2022, p. 31-32).

For us to be able to recreate other possible and necessary worlds, other futures that are not guided by the linear arrow of progress, but value circularity and ancestry intrinsic to lives,

we increasingly need environmental education to face the climate emergency — and public policies and financing that strengthen it.

Acknowledgments:
This publication is part of the activities linked to the thematic project "How can educommunication expand and qualify climate education practices in Basic Education in Brazil?" (FAPESP 2023/08836-2 PPPP).

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