Policy Brief CIRGoM 03

March 2026

AI and Climate Change: COP30 and Recommendations for Future COPs

By Rebecca Soland

Abstract

As AI technologies are increasingly integrated into environmental protection and governance, effective regulation is needed to ensure that AI advances rather than hinders climate goals. This policy brief examines how AI was discussed at the 2025 UN climate change conference in Belém, Brazil (COP30), and offers recommendations for future COPs. First, this policy brief encourages future COPs to increase the participation of critical actors, such as independent experts, NGOs and research centers, to ensure that AI governance properly accounts for environmental harm and aligns with climate goals. Second, it warns about the risks of the techno-optimist discourse and recommends transparency frameworks for both countries and AI firms concerning GHG emissions, as well as water, mineral and energy consumption.

Despite AI being addressed at past UN climate change conferences (COPs), the 2025 COP30 in Belém, Brazil, marks a significant milestone, as AI was explicitly discussed as one of the key themes from the first two days of the conference. This policy brief examines how AI was discussed in the 2025 UN climate change conference in Belém, Brazil (COP30), and how it should be addressed in the future.

Overall, AI technologies were regarded as innovative tools for climate and agricultural innovation. However, there is a growing body of literature that warns about the environmental and social harms of AI (Okoi 2025; Robbins and van Wynsberghe 2022). While AI technologies are not inherently positive or negative for the environment, and what determines their mitigation and adaptation potential is the way they are utilized and regulated across the world, research shows that underestimating and understating the environmental harms of these technologies can hinder climate goals (Okoi 2025; Galaz et al. 2021).

This policy brief outlines the limitations of the techno-optimist discourse, which tends to obscure the socioeconomic drivers of climate change and disproportionately promotes technological climate solutions, widely recognized as insufficient on their own (Marcos 2025). Techno-optimism posits that technological innovation can effectively address climate change (Marcos 2025). Furthermore, this policy brief suggests greater involvement of independent experts, research centers and NGOs for effective AI governance that properly accounts for environmental harm and aligns with climate goals.

COP30 and AI's role in addressing climate change

Following the Action Agenda Program, the summary of each discussion on AI was examined (Showcase of Highlighted Results & Solutions "AI for Agriculture", Showcase of Highlighted Results &

Solutions "Unlocking the Power of AI and DPI for Climate Action", and Showcase of Highlighted Results & Solutions "AI for investment: the opportunity for scaling resilient agriculture"), as well as the official *COP30 Evening Summary – November 10 (COP30 Action Agenda)*, and the *Outcomes Report: Global Climate Action Agenda at COP 30 (COP30 Outcomes Report)*, to analyze how AI technologies were discussed, and to offer insights on how regulation should be addressed in future COPs.

Throughout COP30, AI was generally presented in a positive light. The *AI for Climate Action Award* was created, and the *AI for Climate Institute* was launched, as well as the *Green Digital Action Hub*, all of which promote tackling climate change with the aid of AI technologies. These initiatives do address social and environmental concerns of AI, notably uneven access to technology and its benefits between the Global South and the Global North. Consequently, they promote the development of AI technologies in the Global South and highlight the importance of calculating the environmental impact of AI tools.

"Experts have argued for greater transparency and accountability of AI's environmental impact."

However, in the *COP30 Outcomes Report*, an important motivation behind limiting the environmental impact of AI was to maximize the utilization of technologies for sustainability purposes. While technologies can be effective tools for sustainability, a discourse that promotes technological climate solutions without critically questioning the risks of overestimating technology's role in addressing climate change risks promoting short-term solutions while overshadowing more systemic causes (Galaz et al. 2021). Researchers illustrated that the promotion of AI technologies and the techno-optimist discourse can divert attention from the root cause of environmental issues, positioning technological solutions as sufficient on their own (Marcos 2025). For example, the World Bank and the UN Food and Agriculture Organization (FAO) are increasingly interested in "digital agriculture" when it comes to tackling food insecurity, a phenomenon exacerbated by climate change. "Digital agriculture" refers to the utilization of technologies in agricultural practices to enhance and optimize food production (Lajoie-O'Malley et al. 2020). Although an increase in efficiency is not intrinsically negative, the emphasis on "digital agriculture" can promote the idea that the best way to address food insecurity is with more efficient practices, using AI technologies, which can undermine the sociopolitical causes of food insecurity (Galaz et al. 2021; Lajoie-O'Malley et al. 2020). Therefore, policymakers are encouraged to balance efficiency and technological solutions with other approaches that tackle structural causes.

Moreover, in the short summaries titled *Showcase of Highlighted Results & Solutions*, AI was discussed regarding agriculture, climate action, and investment. In all three documents, the harms of AI were not addressed. AI was put forth as an innovative tool with the potential to transform agriculture and propel climate action, notably by disseminating knowledge, helping with data-driven policymaking and increasing food security. Civil society criticized the prevailing narrative on AI during COP30, arguing that the potential dangers and inequalities of these technologies were insufficiently discussed. For example, the *COP30 Declaration: Artificial Intelligence jeopardizes climate mitigation and the energy transition (COP30 Declaration)* signed by multiple civil society organizations (The Latin American Institute for Terraforming, Law and Technology Research Institute of Recife, Coding Rights, Laboratory of Public Policy and Internet (LAPIN), Brazilian Institute for Consumer Protection, and the Heinrich Böll Foundation), put forth multiple criticisms towards *the COP30 Action Agenda* that align with the growing literature on AI's environmental harm.

AI technologies and data centers are extremely energy-intensive and impact global energy demand, as well as water consumption, mineral extraction, and GHG emissions (Okoi 2025). Experts have argued for greater transparency and accountability of AI's environmental impact (Okoi 2025; Galaz et al. 2021), as well as civil society organizations. Notably, the *COP30 Declaration* argues that the digital footprint of countries should be included in the Nationally Determined Contribution (NDC), which communicates the

commitment of each country concerning their emission-reduction goals, to achieve the objectives of the Paris Agreement. Accordingly, this policy brief highlights the need for transparency, in line with recommendations from civil society and academic research.

Recommendations and Conclusion

In recent years, there has been a growing literature on the mitigation and adaptation potential of AI technologies, particularly in the sector of agriculture (Galaz et al. 2021). However, in parallel, a growing number of experts have published on the potential harms of AI technologies, notably about the perpetuation of climate change and resource consumption (Okoi 2025). Noting concerns about the growing dependence on technologies to solve human-caused issues and the techno-optimist discourse, this policy brief suggests that future COPs give greater emphasis on the environmental and social harm of AI technologies. Accordingly, two recommendations are made.

"While COP30 promoted AI-based tracking tools to monitor the environmental impact of AI technologies, global regulation is necessary to mandate the implementation of these monitoring systems."

First, future COPs are encouraged to engage in the promotion of technological climate solutions with discernment to ensure that the techno-optimist discourse does not usurp the need for mitigation and adaptation policies by distracting from the social, political and economic causes of climate change. While technologies, such as AI, can provide useful tools in the fight against climate change, scholars warn about the overstated optimism regarding the capacity of technologies to respond to the climate crisis, notably because it can lead to undervaluing the importance of systemic changes of the current socioeconomic system, and deliberately or not, maintaining existing socioeconomic structures (Marcos 2025; Galaz et al. 2021). Returning to the example of food insecurity, technological solutions that increase efficiency do not answer structural issues, such as poverty and social inequalities, and are insufficient on their own (Galaz et al. 2021). Consequently, this policy brief recommends greater involvement of actors with a critical perspective of AI in the COPs' main events. Looking at the *COP30 Action Agenda*, the featured events promoted AI technologies, and civil society organizations and experts had limited space to discuss social and environmental concerns.

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Moreover, the participation of critical actors is needed to make sure that the social and environmental consequences of AI are properly considered. As AI technologies have the potential to worsen climate change, their utilization needs to be put into perspective (Okoi 2025). Perspective not only implies limiting AI utilization to appropriate use, but also challenging the argument that environmental harms of AI technologies can be solved by running AI infrastructure on renewable energies. While sustainable AI infrastructures are necessary, this argument can undermine the need for broader regulation frameworks. Since AI infrastructures are resource-intensive (water, minerals and energy), regulations solely focused on carbon emissions fail to account for these other significant environmental impacts (Robbins and van Wynsberghe 2022). Critical actors are more likely to identify underlying challenges to climate solutions and propose alternatives that align with long-term climate goals.

Second, future COPs are encouraged to discuss regulatory frameworks that impose transparency and accountability of the environmental impacts of AI

technologies on countries and industry. Countries could be called on to submit annual reports on energy and water consumption of AI infrastructure, such as data centers. These reports would detail the environmental impacts of the entire life cycle of AI technologies, which include the training of algorithms and associated mining activities. AI firms could also be required to report on their GHG emissions, water and energy consumption, and all other environmental impacts, considering the current lack of transparency obligations for AI companies (Okoi 2025). While COP30 promoted AI-based tracking tools to monitor the environmental impact of AI technologies, global regulation is necessary to mandate the implementation of these monitoring systems. Hence, this policy brief suggests the promotion of regulations requiring a form of self-reporting by countries and AI firms at future COPs.

In conclusion, this policy brief outlines how AI technologies were discussed at COP30. Generally, AI was addressed in a positive light. While AI technologies can be effective tools for addressing climate change, experts and NGOs insist on the importance of properly accounting for the environmental impacts of these technologies. This policy brief recommends greater involvement of actors who are critical of AI technologies to ensure that the direct and indirect consequences of AI are considered during future COPs. More specifically, it warns about the techno-optimist discourse and urges future COPs to discuss regulatory frameworks that require transparency and accountability of energy, water consumption, and mineral extraction, as well as GHG emissions of AI technologies in countries and firms.

References

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