

Science and politics in the coproduction of knowledge in the *policy cycle*: epistemological challenges and evidence- informed dialogue in the multilateral governance of the COP 30 agenda

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Abstract

This article examines the growing gap between science and politics, their respective *ethos* and *modus operandi*, in public policymaking, within the *policy cycle*, and among decision-makers, especially in Brazil, where these dimensions interact problematically. Drawing on the specificities of the political and scientific fields, it is found that, although science is vital and objective in its pursuit of facts, decision-making in the political field is also influenced by diverse factors, revealing challenges in the application of scientific knowledge due to the epistemological differences between these two spheres of action and their institutions. Based on a structuralist approach and successive approaches to the issue, the need for innovative approaches that view science, policies, and society as "co-produced" is proposed. In this network of interfaces between actors, starting from a critique of the "Evidence-Based Policy" (EBP) approach, which has been superseded by "Evidence-Informed Policy" (EIP), the importance of dialogue between scientists, society, and decision-makers in the *policy cycle* is *highlighted*. In the particular case of COP 30 (Conference of the Parties to the United Nations Framework Convention on Climate Change), held in Belém, Pará, Brazil, in November 2025, incremental advances in better governance are proposed in these forums for complex global issues involving ethical values, legislation, negotiation, government strategies, multilateral agreements, and other policy commitments *informed* by scientific evidences.

Keywords: Policy Co-production; Climate Governance-COP 30; Evidence-Informed Policy (EIP); Epistemological Challenges; Policy Cycle.

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Resumo

Este artigo examina a distância crescente entre os discursos da ciência e da política, em seus respectivos *ethos* e *modus operandi*, na formulação de políticas públicas, no âmbito do *policy cycle*, junto aos tomadores de decisão, especialmente no Brasil, onde essas dimensões interagem de forma problemática. Partindo das especificidades do campo político e do campo científico, constata-se que, embora a ciência seja vital e objetiva em sua busca pelos fatos, a tomada de decisão no campo político também é influenciada por fatores diversos, revelando desafios na aplicação do conhecimento científico em função das diferenças epistemológicas entre essas duas esferas de atuação e suas instituições. Num percurso de base estruturalista e por aproximações sucessivas à questão, propõe-se a necessidade de novas abordagens que vejam a ciência, as políticas e a sociedade como "coproduzidas". Nessa rede de interfaces entre atores, partindo da crítica à abordagem da "Política Baseada em Evidências" (EBP), superada pela "Política Informada por Evidências" (IBP), destaca-se a importância do diálogo entre cientistas, sociedade e gestores tomadores de decisão no *policy cycle*. No caso particular da COP 30 (Conferência das Partes da Convenção-Quadro das Nações Unidas sobre Mudança do Clima), realizada em Belém (PA) Brasil, em novembro de 2025, são propostos avanços incrementais em melhor governança nesses fóruns para questões mundiais complexas, que envolvem valores éticos, legislação, negociação, estratégias de governo, para acordos multilaterais e demais compromissos em políticas (*policies*) informadas por evidências científicas.

Palavras-chave: Coprodução de políticas; Governança climática-COP 30; Política informada por evidências (PIE); Desafios epistemológicos; Ciclo de políticas.

I. Introduction

The literature presents the complex relationship between the field of science and that of public policy (PP) decision-makers. The separation of languages, discourses, temporalities, and the dynamics of their respective *ethos* and *modus operandi* suggests possible paths for reconciling these spheres of action, in an attempt to answer a central question: "How can we reconcile these two planes or spheres: that of science, in its paradigms, and that of politics and decision-makers?"

According to Carneiro *et al.* (2014, p. 2), "contemporary thinkers, such as Hannah Arendt, already drew attention to the 'progressively dug gap between the languages of science and politics'". According to the authors:

[...] This distancing becomes particularly sensitive when seeking to support public policies with evidence from academic research, aiming to expand the range of choices for managers. The origin of this divorce dates back to the 17th century, with the institutionalization of modern science, which, in its search for legitimacy through reason and mathematization, specialized its language,

moving away from the "common discourse, through which we still make—or should make—politics today." Science, in its "Holy Alliance with technology and industry" (Japiassu, 1977, p. 13), came to be seen as a production of knowledge that "only concerns the scientific community, possessing no moral or political significance" (Japiassu, 1977, p. 13). (Carneiro *et al.*, 2014, p. 3)

This mismatch persists and manifests itself in several ways, whether in the overemphasis on technical-economic factors in policy or in arbitrary decisions that disregard or relativize evidence from scientific research. According to Carneiro, M. J. et al. (2014), the more reflective aspect of science, especially when it conflicts with developmental interests, tends to be left aside, largely due to the "inability to produce consensus and/or to translate into language that is timely appropriate to the temporality of political decisions" (Carneiro *et al.*, 2014, p. 4).

From the outset, therefore, we add two important categories to our analysis: the differences in temporality for the spheres of science and politics, and the conflicts of interest between both spheres, which will become part of our approach to this issue and will be addressed later.

Still pointing out some dichotomies between these two dimensions, according to Carneiro and Rosa (2018), in Brazil, "the absence of institutionalized mechanisms to facilitate the interface between science and the State reveals a lack of understanding of the importance of scientific knowledge in the development of public policies" (Carneiro; Rosa, 2018, p. 332). According to the authors, in contrast to other countries where this bridge is more structured, here the use of knowledge occurs in a "casuistic manner, without following any systematic", often through "personal initiatives of direct consultation with a recognized expert" or based on bibliographic material limited to what "is at hand". This practice can lead to "total randomness" in the choice of consultants and objective evidence (Carneiro *et al.*, 2014, p. 7).

Thus, at this Science-Politics interface, some authors point to a series of obstacles that perpetuate this divorce, as there are major differences:

- a. Temporal: Science requires a long time for careful research, while "politics needs urgency and certainty" (Carneiro; Rosa, 2018, p. 335). Managers seek immediate answers, and the *timing* of each field is uncoordinated;
- b. Epistemological, linguistic, and discourse-related: Science is guided by "doubts and uncertainties", while politics "demands more direct answers and assertions" (Carneiro *et al.*, 2014, p. 10). Managers often complain that "scientists talk to themselves,

making their texts incomprehensible outside academic circles" (Carneiro *et al.*, 2014, p. 11). Furthermore, there is a preference for quantitative data and "statistical information", seen as more objective, to the detriment of qualitative data, considered difficult to appropriate and/or understand;

- c. In the logic of the decision-making process, political decision-making does not obey only scientific rationality. Factors such as the need to build political agreements, the influence of "lobbies, opinion crystallizations, pure arbitrariness", and the interference of hegemonic interests often override the objective evidence of science (Carneiro *et al.*, 2014, p. 11; Sousa Aguiar; Delgrossi and Fornazier, 2024, p. 31). Brazilian politics itself, due to its specificity, "does not easily accept that science presents itself *a priori* as a legitimate instrument in decision-making processes" (Carneiro *et al.*, 2014, p. 24).

As paths for a possible equation or reconciliation of the dichotomies of these two spheres, firstly, proposals for PP "based" on evidence emerge, and then, after long debates and criticisms, PP "informed" by evidence (Carneiro *et al.*, 2014, p. 4), in the hope of reconciling these two dimensions.

In short, Evidence-Based Policy (EBP) argues that the effectiveness of policy can increase if it is based on sound scientific evidence. However, this methodology has been criticized for presupposing a technocratic vision and a "submission of policy to the instrumental rationality of science" (Carneiro; Rosa, 2018, p. 43), ignoring other forms of knowledge, experiences, and expertise of other actors, and the complexity of the political process itself.

In response to these criticisms, *Evidence-Informed Policy* (EIP) emerged, making the method more flexible, treating scientific knowledge as one of several factors to be considered, along with the practical experience of managers and the values of their respective beneficiaries. Science would not guide decisions but would participate "as an important factor in constructing a balance, together with a set of other factors and considerations" (Carneiro *et al.*, 2014, p. 15), as summarized in Table 1 below:

Feature	Evidence-Based Policy (EBP)	Evidence-Informed Policy (EIP)
Core Philosophy	Seeks to base policy decisions directly on rigorous scientific evidence, aiming for maximum effectiveness.	Suggests that policy practices should be "informed" by evidence, which is one important factor among others.
Origin/ Prominence	More technocratic and inflexible approach.	A less technocratic, more flexible approach.
Relationship between Science & Policy	Assumes a linear, direct relationship where scientific knowledge dictates policy choice. Attempts to institutionalize the science-policy bridge.	Recognizes that scientific knowledge is just <i>one</i> field to be accessed in policy formulation.
Nature of Evidence Role	Guiding/Deterministic: Evidence should <i>guide</i> or <i>determine</i> decisions, with a focus on scientific rationality.	Informative/Contributory: Evidence participates as a key factor but should not guide practical decisions in absolute terms; values the co-production of knowledge.
Other Factors Considered	Often less explicit consideration of non-scientific factors (e.g., values, politics).	Explicitly acknowledges other fields/factors: scientific knowledge, practitioners' experience and expertise, and beneficiaries' values.
Assumptions about Science	Assumes neutrality and instrumental rationality of science.	Recognizes the limits of science and the political nature of decision-making and policy choices.
Critique/ Limitation	Criticized for assuming linearity between knowledge production and political decision-making, the technocratic vision.	Acknowledges the messy reality of policymaking, potentially risking insufficient weight given to robust evidence.
Practical Implication	Focus on producing and using the <i>best available evidence</i> (often randomized controlled trials or systematic reviews) to optimize policy design.	Focus on creating interfaces where policymakers consider scientific evidence alongside practical and ethical considerations for balanced decision-making.

TABLE 1 – Comparative Chart: Evidence-Based Policy (EBP) vs. Evidence-Informed Policy (EIP). Source: the author.

Thus, the effective reconciliation of these two dimensions, however, seems to require a deeper and more comprehensive transformation than the simple adoption of different methodologies. Highlighting the importance of rethinking the dualistic relationship between science and politics, some authors indicate the need to:

- a. Recognizing the importance of co-production: authors such as Sheila Jasanoff (Carneiro; Rosa, 2018, p. 335) argue that science and society are co-produced, that is, they cannot be understood as separate entities, as they influence each other in a constant process. From this perspective, science is not immune to political disputes, and the very way of thinking about policies is already impregnated by a culture that values scientific rationality (Carneiro; Rosa, 2018, p. 335);
- b. Building bridges and mediation: the role of a "translator" or mediator is essential to adapt scientific statements to policy demands. This role can be performed by managers with academic training, study centers within the government, or by scientists willing to direct their research toward public issues (Carneiro *et al.*, 2014, p. 11; Carneiro; Rosa, 2018, p. 334);
- c. Expanding dialogue and participation: the consolidation of an "extended peer community", as proposed by Funtowicz and Ravetz (Carneiro *et al.*, 2014, p. 18), where new actors, in addition to scientists, participate in the debates, is a way to incorporate uncertainties and different knowledge into the decision-making processes. The implementation of forums, seminars, and management councils, where "conversations between different actors occur, in a productive tension between the parties" (Carneiro *et al.*, 2014, p. 22), can constitute the embryos of this new way of doing science and politics;
- d. Institutionalize evaluation and monitoring: The evaluation of public policies, conducted systematically and institutionally, is a privileged opportunity for mobilizing experts and fostering dialogue between different spheres. *Ex-post evaluation*, for example, is a "fundamental tool for guiding decision-making" and gathering "evidence on policy performance" (See BRASIL, 2018; IPEA, 2018, p. 2; Lassance, 2022). The Policy Cycle must *incorporate* evaluation as a step that feeds back into the formulation of new policies.

Ultimately, we realized that reconciling science and politics would not require a single solution, but rather a set of strategies that operate on different fronts. It would require, on the one hand, that institutionalized science become more accessible and willing to engage with the social demands of different actors, other forms of knowledge, and expertise. On the other hand, the political sphere institutionalizes channels and procedures for qualified access to knowledge, recognizing its value without submitting to

a merely technocratic vision. The challenge would lie in making conflicts of interest transparent and allowing the political response to be "the result of a tense negotiation between systematic knowledge, other forms of knowledge, and the different actors involved" (Carneiro *et al.*, 2014, p. 23).

II. The advisory-executive role of Science and Technology Institutions (STIs)

Amidst the tension between these two dimensions and their respective languages, discourses, temporalities, dynamisms, *ethos*, and *modus operandi*, lie the public Science and Technology Institutions (STIs). They have demonstrated their alignment with Brazil's efforts toward scientific and technological development, as promoters of scientific research and innovation nationally and internationally, pioneering technological frontiers with significant advances in knowledge and technology for gains in innovation and productivity. They are constantly challenged and even demanded in a variety of ways by the goals proposed by the government's incisive science, technology, and innovation (ST&I) agenda.

In this context, STIs become central actors in a critical analysis of their role as advisory-executive bodies for government public policies, in their attempt to align, support, and/or inform decision-making related to ST&I, the supposed basis and pathway for achieving broad national socioeconomic development. Their specificities and impacts will be felt in different and particular ways in the public sphere and management (Hello, 2024), challenging the understanding of how these public policies are created, produced, instructed, and evaluated pre- and post-evaluated for their impacts throughout the *policy cycle*.

The publication of the New Legal Framework for Science, Technology, and Innovation (NLFST&I) in 2018 introduces a series of structural innovations, fostering technological advancement based essentially on innovations arising from public scientific research. Anchored in robust previous legislation² that was developed as a legal framework for the national innovation process, and aiming to provide legal certainty for a series of new mechanisms proposed for national innovation and technological advancements, it more consistently supports the advisory-executive role of STIs in public

² See Law 10,973 (2004), Constitutional Amendment No. 85 (2015), Law 13,243 (2016), "National Strategy for Science, Technology and Innovation 2016-2022" (2016).

policies, enabling them to access the new benefits, advantages, instruments, and support, and/or induction, and/or incentive mechanisms now made available by the rules of the new Decree.

In this line, the current challenge refers to a strategic effort to understand and properly articulate the complex decision-making process involved within the scope of this broad *policy cycle*, in the planning and execution of structuring work related to the demands of innovation, the impacts of its discourse in the public sphere, and the design, implementation, dissemination and management related to the different PP (Hello, 2023; 2024).

In anticipation of this legislative structuring effort to disseminate and effectively implement innovative culture in the public sphere, the NLFST&I highlights public STIs in a way that is more aligned with its consultative-executive vocation in the area of knowledge production and productivity in ST&I, in the hope of going beyond a simple market, financial and competitiveness gain (Hello, 2024), seeking greater articulation with governments and decision-makers.

On the other hand, there is a strong expectation from production chains and society in general to create environments that promote what has been conventionally called "transformative" or "disruptive" innovation (See Schot; Steinmueller, 2018) in socio-productive inclusion and insertion, via social technologies, networks, environments, and more integrated innovation ecosystems, especially when it comes to international multilateral agreements involving the preservation of the planet and its diversity, and the urgent confrontation of climate change, as we will see later, in the context of COP 30.

To achieve this, there would be a need for innovation in scientific knowledge, processes, technologies, and innovative social artifacts developed, among other actors, especially by public STIs that, at the same time, can be evidenced in the future in their social reports as *outputs* and *outcomes* of the innovative effort in the public sphere; and the development of a new researcher profile that better dialogues through new narratives and interfaces with managers and decision-makers, for effectively transformative and more consistent results in production and productivity in ST&I aimed at society and the generation of innovative PP informed by scientific evidence.

To this end, it would be necessary to better understand the impacts produced by the cycle of formulation and implementation of these policies in the different spheres,

public and private, and the role played by the discourse of innovation in public research, as a privileged path towards broad socioeconomic development (Hello, 2024).

However, it is important to note, as indicated by Rouen (2017) that, based on a system of objective scientific evidence, efforts to build a list of policies that encourage innovation in a broad sense, essential to obtaining better results in production and productivity indicators in ST&I, and socioeconomic development, although necessary, are not sufficient in themselves:

Despite these efforts, the results of the most recent evaluation research have shown that the outcome indicators and impacts of these efforts have not improved at the same rate.

Considering the current economic dynamics, which place a significant burden on technical change for productivity increases in a given economy, this low level of Brazilian innovation efforts contributes to hindering productivity gains essential for the international integration of Brazilian companies and the much-needed increase in the country's per capita income. In this sense, **technology and innovation policy itself need to be more innovative and bolder**. It also needs to be **bold in its objectives and, through intelligent government action, use all available tools — even those not readily apparent — to stimulate the development, introduction, and diffusion of innovation in the national economy**. (ROUEN, 2017, p. 11, our emphasis)

Among these tools, we list a systematic and permanent consultative process of feeding and informing through objective scientific evidence, which will subsidize, advise and innovate decision-makers in this cycle of formulation and implementation of different PP, more effectively connecting the findings of research in ST&I to the design of adopted strategic government lines, composing more consistent premises and guidelines aligned both with the scientific discourse and with the different government policies of broad development.

III. The specificity of decision-making processes in their interfaces

However, although this systematic feeding and information through objective evidence is necessary for better decision-making, what we perceive is a problematic distance between the knowledge constructed through scientific research institutionalized in and by STIs and the specificities of the political-decision-making process which, generally, will meet other requirements and particularities that, at times, are paradoxically and mutually strange and/or, even, opposed or conflicting.

This makes us perceive the world of scientific research, in its mission, vision, and values, as belonging to another sphere quite distant from public governmental and organizational decision-making systems and processes, where other variables are more relevant, which leads us to question the problematic articulation between their respective *ethos* and *modus operandi*.

This dichotomy is especially and paradoxically reflected in the organizational structure of STIs, whose mission as public institutions is, essentially, the production and advancement of scientific knowledge for technological innovation.

This fact is pointed out by Lopes (2018) about a possible reform in the structure of the state and its organizations, especially those of ST&I:

It is, therefore, imperative that we seek to consolidate a transversal State model, with more distributed public management, focused on the search for and retention of talent with sufficient preparation and vision to minimize conflicts and confrontations and build agendas that span multiple organizations, **with shared goals and objectives and indicators that allow for monitoring and maximizing the delivery of results and impacts for society. An excellent example of the essentiality of such a model is in the field of innovation, which impacts almost everything that sustains developed nations.**

Virtually all developed countries have **cross-cutting structures to stimulate innovation**, linked to the leadership of the executive branch, which recognizes that the issue is important enough and cross-cutting enough to deserve unified and pragmatic treatment by multiple **ministries, funding agencies, research organizations, universities, and companies**. (Lopes, 2018, our emphasis)

Thus, we problematize our underlying question that permeates the *ethos* and *modus operandi* of *policy cycles* for innovation projects and their respective impacts on the public sphere and research in this current context: why is scientific evidence produced by STIs generally underutilized, both in policymaking cycles themselves and, in parallel, in the decision-making processes that establish them? Would it be used in other formats or modalities, for example, via tacit knowledge? Are there other channels of scientific information that feed the *policy cycle* for decision-making and the formulation of government strategies?

Although we do not have a clear answer to these questions, we are moving forward with successive approaches to our subject of study, knowing that, today, science is immersed in society and is an important part of our daily lives. We also know that it is a tool for national and international development and that there is even a need for science for and about the political and decision-making process itself, given the explosion of

knowledge and the frenetic pace of innovation as both opportunities and challenges for society and governments. In this context, it would be worth investigating the reasons for the difficulties of providing systematic and permanent scientific advice in forums with a diversity of stakeholders, both for instruction and for synthesis in supporting decision-making in the public sphere in general, and even within STIs in particular, as advisory-executive entities par excellence, in the development and formulation of PPs. As Packer *et al.* (2021) point out:

Understanding the role of science in public policymaking is both thought-provoking and challenging, encompassing the interplay between knowledge and political action in an intricate process. To achieve this understanding, it is important to understand the role of scientists in the context of public policy without, however, falling into the temptation of technocratic thinking, which allows scientists to dominate the decision-making process, or of politicizing science, where political interest groups introduce biases into scientists' work (Miguel, 2014). From either perspective, science is not neutral, and the choice of one decision or another always involves diverse interests. Studies show that the participation of scientists in political decisions involves a process of intertwining experts and political actors, marked by disputes of diverse interests, in which the discourse of politicians is sometimes supported by scientific arguments (Jasanoff, 1990; Nowotny, 2000; Rifkin; Martin, 2005; Weingart, 2005; Wynne, 2003). (Packer *et al.*, 2021, p. 8)

We thus perceive the need to translate science to inform policy, and vice versa, accurately, in operational syntheses of scientific evidence, if possible, without bias, providing valuable information for decision-makers in governance positions, without incurring the risk of "politicizing" the process, whether through biased *advocacy* or partisan *lobbying* by certain interest groups.

Given these challenges, therefore, at the governance level, there is a need to create a systematic and permanent advisory ecosystem, composed of well-trained scientists, or even a team of scientific advisors, a body of professionals and scientific societies, a robust university system, strengthened regulatory agencies, and a wide range of diverse and participatory advisory committees, which will perform the functions of modulating the political debate, influencing technical and political recommendations, informing strategies in resource allocation, and providing tacit and explicit knowledge as objective scientific evidence, both in the formulation and implementation phases of policies and their respective regulations, within the *policy cycle*.

Thus, given the central importance of innovation as a privileged route for broad national socioeconomic development, the proposal would be to move towards an

innovation that is also transformative in socio-productive inclusion, for social insertion and inclusion and, in parallel, the consolidation of a transversal State model, with public management that is more distributed and informed by objective scientific evidence in evaluation to support the cycle of formulation, implementation and evaluation of impacts of PPs, to maximize the delivery of results (*outputs* and *outcomes*) for society (See Lassance Jr., 2004).

IV. A mutually possible advisory-executive ecosystem

To uncover the best system for the functioning of this mutually consultative-executive ecosystem for the PP construction system, which may, in the future, be extrapolated to more complex environments in other spheres of government, it is important to list some aspects to be studied or considered, according to Cairney *et al.* (2018):

- a. The supply side *versus* the demand side of information or evidence: it is clear that there is a need to correctly decipher how the system of constructing a PP works with the participation of articulating political agents, experts and decision-making managers; what are the margins and limited flexibilities for maneuver; the possible short circuits and *by-passes* in the process; the incompleteness and ambiguity characteristic of science in its instruction to the process; the realization that *policy makers* are different from scientific arbitrators or influencers, acting in a specific and differentiated way in their context (Cairney *et al.*, 2018);
- b. Furthermore, other relevant aspects involved in the political cycle: being able to identify who makes political decisions; being able to work with the expectation of informing policy, without "making" politics; bearing in mind that some relevant objective evidence will be ignored or misinterpreted; acting as a "promoter," not a "defender," of a given idea; the importance of maintaining scientific credibility with both politicians and scientists and experts; taking into account the difficulties in resolving value conflicts based solely on facts; keeping in mind the pressing need to work with interdisciplinary and transdisciplinary expertise; bearing in mind the fact that *policymakers* see scientific evidence as just another *input factor*. (Cairney *et al.*, 2018);

- c. In this process, therefore, we must articulate categories such as: “policies” *versus* “evidence”; reactivity *versus* proactivity; the different views on what constitutes “good” evidence; the limitations of bounded rationality and heuristics in the process (Cairney *et al.*, 2018).
- d. The importance of clearly identifying who controls and leads the political process as an agent (Cairney *et al.*, 2018).

In summary, the great challenge, therefore, is how to effectively, efficiently, and effectively instruct the decision-making process, through objective evidence arising from the advancement of scientific research and knowledge in ST&I, throughout the cycle of elaboration and management of PPs, to obtain more expressive, consistent, and sustainable results in "transformative innovation" and fewer mistakes in public management; bringing greater returns in social balances to public investments made in innovation in the sector, as well as benefits to society and the productive sector, generating a virtuous circle, overcoming the search for innovation guided only by competitiveness and financial and market gain, an objective foreign to the real vocation of the public sphere (Hello, 2024).

It is a fact that a large part of the success of intervention projects in the PP cycle and the effectiveness of their results ends up being a function of infinite political-administrative and pragmatic situations that, once favorable, allow for the synergistic reconciliation, over time, of the different agendas, expectations and tacit and explicit knowledge, both of the organizations and of the actors and other interest groups or institutions involved (Dutra, 2001).

Thus, with political intentionality and transformative potential, through successive approaches, we seek to perfect auxiliary tools for the *policy cycle* that enable a more collegial and participatory construction (Becker, 1992). As it develops responsibilities and commitments to activities and their results, it redefines and minimizes the need for extensive bureaucratic controls, once agreed upon, appropriated, and, accordingly, assimilated. In turn, this also favors the emergence of a new *ethos* and *modus operandi*, where *praxis* and discourses become more harmonious and consonant, creating a virtuous incremental circle in the management and continuous improvement of the *policy cycle* and its practical and concrete results (Hello, 2009). As ideas cannot be transformed into practice without the existence of, on the one hand, structuring

movements and, on the other, structures that enable this practice, an essential point related to the instruction of the entire system by objective scientific evidence, including the process itself.

In this sense, the relevance of the structuralist discourse analysis function (Gregolin, 2001; Hello, 2009; 2022; 2023; 2024; Lemaire, 1979; Nogueira *et al.*, 2004; Orlandi, 2009) emerges as a fundamental multidimensional and multifunctional tool in the organization, as well as for rectifying and redefining the possibilities of instructing the political cycle of formulating PPs through new narratives based on their information by objective scientific evidence for decision-makers. It makes it possible to articulate the technical dimension with the political dimension of the processes, for the transformative construction of the common good represented, in this case, by the more effective, efficient and efficient management of public affairs, in the face of the new demands brought by the impacts of the innovation discourse in this sphere (Frey, 2009; Hello, 2009; 2024; Jobert; Muller, 1987; Lima Jr.; Santos, 1976; Santos, 1998; Nonaka, 1997; Trevisan; Van Bellen, 2008).

Or as Capella (2006) indicates, referring to “governments”, but which could be perfectly applied to the guidelines and premises of management in the public sphere, which we aim to be “transformative”, and to technological advancement:

In *Agendas, Alternatives, and Public Policies*, Kingdon seeks to answer the following question: why do some issues become important to a government? How does an idea fit into the set of concerns of policymakers, becoming a public policy? Kingdon considers public policy as a set of four processes: the establishment of a public policy agenda; the consideration of alternatives for public policy formulation, from which choices will be made; the dominant choice among the set of available alternatives; and, finally, the implementation of the decision. (Kingdon, 1984 *apud* Capella, 2006, p. 25)

Our expectation, therefore, is to build new possibilities capable of instructing and informing, in a transformative, systematic and permanent way, informed by objective scientific evidence, the decision-making processes of managers in the formulation of PPs in the *policy cycle*, based on a new philosophy of political governance that is capable of taking into account, benefiting from and systematically feeding on the findings and discoveries of ST&I.

V. The Field of COPs (Conference of the Parties to the United Nations Framework Convention on Climate Change)

In the particular case of the COPs, this conflict between the *ethos* and *modus operandi* of science with its objective evidence, that of politics and policy, and that of decision-makers in government bodies is evident.

The central principles that guide COP 30, held in Belém (PA) in November 2025, as well as all other COPs already held, were established by the “United Nations Framework Convention on Climate Change” (UNFCCC) and reinforced by the Paris Agreement, in general terms they deal with “common but differentiated responsibilities (CBDR)” and “maintaining global temperature” (Lee *et al.*, 2023; Brasil, 2025a; b; c; d; e).

The CBDR is the most important principle, recognizing that all nations have an obligation to combat climate change, but the level of action and commitments differ depending on national circumstances, capabilities, and respective historical roles in emissions. In this sense, more developed countries should take the lead, providing financial, technological, and capacity-building support to developing countries.

As for “global temperature control,” broadly speaking, efforts should be aimed at keeping the increase in global average temperature well below pre-industrial levels, and at limiting the increase to 1.5°C.

The major challenge of COP 30, therefore, will be to present a new round of "Nationally Determined Contributions" (NDCs), which are each nation's climate action plans, and which are more ambitious than the 1.5°C target. To this end, it is essential to strengthen cooperation between governments, the private sector, civil society, and traditional peoples for a unified and accelerated global response to the climate crisis, promoting the energy transition from fossil fuels to renewable sources and low-carbon technologies.

Furthermore, another COP 30 guideline relates to increasing the capacity of the most vulnerable countries and communities to adapt to the inevitable impacts of climate change, ensuring that adaptation and mitigation plans consider equity and social justice, benefiting Indigenous peoples, traditional communities, and other vulnerable populations. This will certainly require intensified efforts to ensure that developed countries fulfill their commitments to climate finance and the provision of technology and capacity building to other developing countries.

COP 30 will also review and evaluate previous agreements, verifying and validating the compatibility of ongoing actions with the current state of the environment and climate goals, reinforcing the transparency regime so that each country's actions and progress in relation to its NDCs are clearly monitored.

Also being held in the Amazon, it will highlight the role of nature and forests in global climate solutions, placing biomes and traditional communities at the center of the debate.

To be achieved, all these somewhat ambitious goals and expectations articulate the conflict between the *ethos* and *modus operandi* of science, with its objective evidence, and the politics and policy of decision-makers at the negotiating table. The interface between the production of objective scientific knowledge and political decision-making in global governance, particularly in the context of COPs, constitutes an intrinsically complex field of tension that is fundamental to the effectiveness of consensual responses to the climate crisis.

The *ethos* of science and its *modus operandi*, characterized by the pursuit of robust evidence, quantified uncertainty, and an iterative, interactive, and cumulative process aimed at describing and predicting reality, aims to produce objective and politically neutral assessments of risks and response options, focusing on empirical validity and theoretical coherence, using a language of probabilities and confidence intervals. On the one hand, climate science, for example, deals with timescales spanning decades or centuries, in very long-term preventive actions. On the other hand, the implementation of scientific evidence almost always clashes with the allocation of scarce resources, where the costs of mitigation and adaptation compete with other social and economic priorities.

In contrast, politics and decision-making, as seen previously, are governed by a distinct logic, focused on pragmatic action and the maintenance of stability, in this case, within a system of sovereignty and state and government strategies. Their *modus operandi* is more characterized by short cycles involving electoral cycles, whose temporal discontinuity ultimately favors and pressures short-term solutions. Their decisions are also filtered primarily by national interests and the maintenance of sovereignty, to the detriment of broader global imperatives. Commitments are much more guided by economic capacity and "diplomatic" concessions, losses, and gains than by the evidence and facts of the problem at hand. Decision-makers often demand "certainties" from their

advisors, or simplify complex scientific messages, replete with uncertainties and probabilities, to create political narratives that justify the option of inaction, or more gradual action, or even the prioritization of certain economic sectors, according to the objective and certainly very well-calculated strategy.

The conflict between these two distinct dimensions arises at the moment of transition from the domain of evidence to the domain of values, and even between moral and ethical counter-values of action, such as respect for human dignity, solidarity, cooperation or competition, merit or favoritism; autocracy or participation, among many others. Thus, when science presents objective evidence, most of the time, through its actors, it is making a "descriptive" statement, based on or informed by evidence.

However, the decision to implement a given action or not is a "prescriptive" statement that cannot be resolved by science alone, requiring a political value judgment regarding ethical values, equity, shared responsibilities, economic viability, acceptable social impacts of the transition, conflicts of interest, among many others. They present themselves, therefore, as opposed "discourses" in an arena where statements (what is spoken) and enunciations (the act of speaking what is spoken) (Gregolin, 2001; Hello, 2024; Lemaire, 1979; Orlandi, 2009; Vallejo; Magalhães, 1981) they alternate dynamically according to the mutual and relative movements of each of the other actors, in collegial decision-making, especially in these forums.

Furthermore, residual scientific uncertainty, an integral part of the scientific method, is often exploited, or even subverted or manipulated, as a strategic or advantageous political uncertainty, serving as a justification for this or that position in collegial democratic decisions. The *ethos* of "organized" political skepticism thus clashes with the *modus operandi* of a political movement that prioritizes maintaining the *status quo* or, conversely, the consensual adoption of incremental actions, or even inaction. Thus, we could say that science establishes a kind of "biophysical limit to action," and politics defines the social and economic limits of "possible action".

Overcoming this dichotomy would therefore require not only more effective scientific communication and discourse in these forums, but the development of more advanced mechanisms of global governance that would understand the long-term imperatives of science within the framework of short-, medium-, and long-term arrangements, incentives, negotiations, and strategies of global politics.

VI. Final considerations

By exploring successive structuralist approaches to our questions, we highlight the fact that science and politics *operate* in distinct and, at times, opposed and contradictory dimensions. These findings renew demands for new research on the specificities and dynamics characteristic of these two spheres of action, in their respective discourses, often with opposed frameworks, in the hope of conciliation, mutual benefit, and synergy.

This conflict largely demands a better analysis and understanding of these discourses, their statements, and enunciations in defense of their positions, structurally related to the negotiating table, in dynamic movements of interaction and/or iteration. International forums such as COP 30 emblematically highlight the clashes between these two distinct discourses, where statements and enunciations will decide different relative strategies and positions, taking into account values and counter-values, interests, trade-offs, and costs/benefits of each option, in the construction of short-, medium-, and long-term agreements and consensus.

The expectation is that this better understanding of these two reference points of speech, that of science and that of politics, will certainly result in better decision-making, better informed and qualified, even if sometimes tending to one side or the other in relation to the objective evidence in question.

It is a fact that decision-makers operate under different pressures in the dynamism of political times, both from public STIs and from national and even international government frameworks.

To advance our understanding of these processes, critical discourse analysis can help us establish a permanent consultative-executive system among these actors, aligning discourses, needs, demands, and desires.

In the field of ST&I, STIs position themselves as privileged executive-advisory actors in the production and communication of scientific evidence, which, in turn, will inform various decision-makers, provided there is room for a systematic practice of both supply and demand for information, knowledge, and evidence. And for this to happen, the political dimension will necessarily have to consider the specificities and rites of the scientific dimension, mutually respecting their respective *ethos* and *modus operandi*, benefiting from the best of each field.

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