

HOW HIGH-LEVEL CAREER CIVIL SERVANTS FRAME SUSTAINABLE DEVELOPMENT AND THE SUSTAINABLE DEVELOPMENT GOALS^{1,2}

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Sustainable development (SD) and the United Nations' Sustainable Development Goals (SDGs) were designed to inform public policy and drive sustainable practices. However, it is relatively unknown how high-level civil servants frame SD and the SDGs, consequently defining their scope in public policies. Frames are cognitive shortcuts derived from paradigms that guide decision-making. This study maps the relevant paradigms underlying the debate on sustainable development and their corresponding cognitive cues. Two principal axes organize these paradigms: strong versus weak sustainability and human-centric versus ecocentric. An online survey assessed how Brazilian high-level career civil servants evaluated the cognitive cues of the paradigm. Two main clusters of SD and SDG framing were identified. The first cluster (N = 51) aligns more closely with the ecological modernization paradigm, characterized by a pro-market stance and skepticism toward collective approaches and eco-ethics. The second cluster (N = 41) is more supportive of SD and the SDGs, sharing cognitive cues of societal responsibility and eco-ethics, but also strongly agreeing with frames of scarcity, the overpopulation crisis, and limits to growth. Results are discussed in consideration of the challenges of implementing Sustainable Development (SD) and the Sustainable Development Goals (SDGs) within public policies.

Keywords: sustainable development; sustainable development goals; SDG; frame; government; civil servants.

COMO FUNCIONÁRIOS PÚBLICOS DE CARREIRA ESTRATÉGICA MOLDAM (FRAME) O DESENVOLVIMENTO SUSTENTÁVEL E OS OBJETIVOS DE DESENVOLVIMENTO SUSTENTÁVEL

O desenvolvimento sustentável (DS) e os Objetivos de Desenvolvimento Sustentável (ODS) das Nações Unidas foram concebidos para orientar as políticas públicas. No entanto, ainda é relativamente desconhecido como os altos funcionários públicos enquadram o DS e os ODS, definindo, assim, o seu escopo nas políticas públicas. Frames são atalhos cognitivos derivados de paradigmas que orientam o processo de tomada de decisão. Este estudo mapeia os paradigmas relevantes subjacentes ao debate sobre desenvolvimento sustentável e seus respectivos indícios cognitivos. Dois eixos principais organizam esses paradigmas: sustentabilidade forte versus fraca e abordagem humanocêntrica versus ecocêntrica. Uma pesquisa online avaliou como altos funcionários públicos de carreira no Brasil julgam os indícios cognitivos dos paradigmas. Foram identificados dois agrupamentos principais de enquadramento do DS e dos ODS. O primeiro grupo (N = 51) está mais alinhado ao paradigma da modernização ecológica, caracterizado por uma postura pró-mercado e ceticismo em relação a abordagens coletivas e à ética ecológica. O segundo grupo (N = 41) é mais favorável ao DS e aos ODS, compartilhando indícios cognitivos

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de responsabilidade social e ética ecológica, mas também demonstrando forte concordância com frames de escassez, crise de superpopulação e limites ao crescimento. Os resultados são discutidos à luz dos desafios para a implementação do DS e dos ODS nas políticas públicas.

Palavras-chave: desenvolvimento sustentável; Objetivos de Desenvolvimento Sustentável; ODS; frame; governo; burocracia.

CÓMO LOS FUNCIONARIOS DE CARRERA DE ALTO NIVEL ENMARCAN (FRAME) EL DESARROLLO SOSTENIBLE Y LOS OBJETIVOS DE DESARROLLO SOSTENIBLE

El desarrollo sostenible (DS) y los Objetivos de Desarrollo Sostenible (ODS) de las Naciones Unidas fueron concebidos para orientar las políticas públicas. Sin embargo, se sabe relativamente poco sobre cómo los altos funcionarios públicos enmarcan el DS y los ODS, definiendo así su alcance en las políticas públicas. Los marcos (frames) son atajos cognitivos derivados de paradigmas que guían la toma de decisiones. Este estudio mapea los paradigmas relevantes que subyacen al debate sobre el desarrollo sostenible y sus correspondientes indicios cognitivos. Dos ejes principales organizan estos paradigmas: sostenibilidad fuerte versus débil y enfoque antropocéntrico versus ecocéntrico. Se realizó una encuesta en línea para evaluar cómo los altos funcionarios de carrera en Brasil valoran los indicios cognitivos asociados a los paradigmas. Se identificaron dos grupos principales de enmarcamiento del DS y los ODS. El primer grupo (N = 51) se alinea más estrechamente con el paradigma de modernización ecológica, caracterizado por una postura pro-mercado y escepticismo hacia los enfoques colectivos y la ética ecológica. El segundo grupo (N = 41) apoya con mayor fuerza el DS y los ODS, comparte indicios cognitivos de responsabilidad social y ética ecológica, pero también muestra una fuerte concordancia con marcos de escasez, crisis de sobrepoblación y límites al crecimiento. Los resultados se discuten considerando los desafíos de implementar el Desarrollo Sostenible (DS) y los Objetivos de Desarrollo Sostenible (ODS) en el ámbito de las políticas públicas.

Palabras clave: desarrollo sostenible; objetivos de desarrollo sostenible; ODS; marco; gobierno; funcionarios públicos.

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1 INTRODUCTION

Recurrent environmental and social crises pressure governments to find solutions. International agendas such as the Sustainable Development Goals are a call for action, providing a blueprint for public policies. In this quest, bureaucrats are political actors with their own interests who influence the State's decision-making process in the administrative state (Moe, 1990; Waldo, 1952). Therefore, how bureaucrats perceive sustainable development and the SDGs is of great importance for the design and implementation of public policy.

This paper makes an empirical contribution by unveiling the understanding (Haas, 2016) or framing (Peterson and Knopf, 2016) shared by high-level civil servants regarding sustainable development (SD) and the Sustainable Development Goals (SDGs). Frames are metaphors, symbolic representations, and cognitive cues used to assess a social condition and suggest alternative modes

of action (Taylor, 2000). Frames translate paradigms in the everyday decision-making process (Haas, 2016). High-level bureaucracy plays a strategic role in seeking solutions and choosing policy paths aligned with suitable ideas driven by the paradigms (Haas, 2016). Paradigms are a combination of logic, expectations, truth, and disposition that animates our lives (Peterson and Knopf, 2016).

Sustainable development is a disputed and contradictory concept (Ruggerio, 2021; Eldon, 2017; Lélé, 1991). Diversity emerges from the clash of paradigms and conceptual ambiguity. This study maps 15 paradigms and their corresponding authors through an unsystematic literature review of the fields of environmental economics and politics. For the sake of simplicity, paradigms are classified within a matrix of strong versus weak sustainability (Ruggerio, 2021) and human-centric versus ecocentric perspectives. Furthermore, a survey was administered to high-level career civil servants, who evaluated cognitive cues extracted from the paradigm.

To date, no studies have developed measurement scales assessing how civil servants frame sustainable development. Prior research has explored competencies, attitudes, and beliefs related to sustainable development education, particularly among children and teenagers (Biasutti and Frate, 2017; Bogner and Wiseman, 2006). Other studies measure the public's perception of environmental problems by identifying groups with a pro-ecological orientation or "seeing the world ecologically" (Dunlap et al., 2000, p. 428). Those scales were built with recognition of the paradigms in which they were inserted and with a normative gradient or explicit purposes, such as expanding sustainable development education or environmental awareness. This study innovates by not departing from a single paradigm, recognizing that SD and SDG framing can be influenced even by contradictory paradigms.

As environmental and socio-economic crises become more frequent, transformational policy responses are increasingly necessary. Such transformations depend on policymakers' paradigmatic orientations and willingness to break from "business as usual" (Carter, 2018).

2 SUSTAINABLE DEVELOPMENT, 17 SDGS, AND PARADIGMS

The report "*Our Common Future*," published in 1987, helped to establish the concept of sustainable development. It refers to meeting "the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). The concept definition emerged amid tension between those who defended the rights of developing countries and the economic growth of recently independent countries, aiming to end poverty, and the environmentalist movement (Robèrt et al., 1997). Such a struggle is simplified in the dichotomy of development versus environmental conservation. By emphasizing the need to overcome poverty, the report "Our Common Future" claimed that a new era of

economic growth had begun, in which environmental conservation was argued to be a means of assisting development (Robèrt et al., 1997). Although it is acknowledged that the economy is a crucial axis of development, the term “sustainable development” remains ambiguous. The multiplicity of meanings, such as “sustained development or economic growth” or “development that is sustainable or limited by the regenerative capacities of the biosphere,” encompasses several frames of prevailing paradigms.

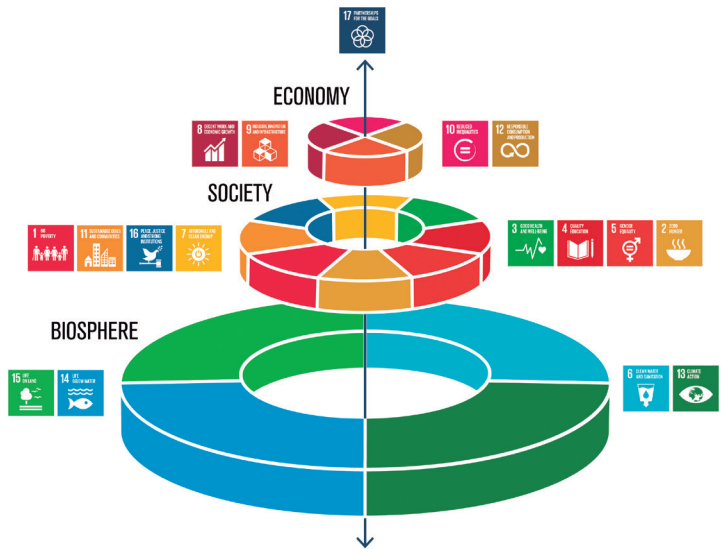
The failure of the Millennium Development Goals led to a pragmatic agenda for the SDGs, which were approved in 2015 as 17 Sustainable Development Goals (SDGs). The SDGs aimed to establish a common framework for countries to pursue a developmental process that was also sustainable in social and environmental aspects. The SDGs serve as a compass that aims to bring 17 complex challenges to the forefront of the political agenda. Their goal is to guide action at international and national levels from governments, private, and non-governmental sectors.⁴

However, the logic of the SDGs is contested for being restricted to the “ecological modernization” paradigm, which prioritizes economic growth over pushing for a radical change toward recognizing the Earth’s limits and supporting a steady state (Weber and Weber, 2020). Notwithstanding, figure 1 illustrates how the SDG can also be built from an “ecocentric” viewpoint. The image demonstrates the SD process, where the biosphere, represented by the larger circle, encompasses society, which in turn includes the economy.

Nonetheless, Barbier and Burgess (2017) contend that the SDG goals are subsets of economic, social, or environmental systems, with the achievement of one resulting in trade-offs with the others. The system’s view of SD is well-established and popularized in terms such as the triple bottom line (Elkington, 2004). Therefore, SDG ambiguities allow for multiple framings by strategic actors along their formulation and implementation process.

4. Available at: <https://sdgs.un.org/goals>. Accessed on: Nov. 4, 2023.

FIGURE 1
Sustainable Development Goals: Stockholm Resilience Center



Source: Stockholm Resilience Centre. Available at: <https://www.stockholmresilience.org/research/research-news/2017-02-28-contributions-to-agenda-2030.html>.
Obs.: Figure whose layout and texts could not be formatted due to the technical characteristics of the original files (Publisher's note).

Diverse paradigms are increasingly reshaping the perception of the State's role in conducting the SD agenda. The emphasis on government varies across paradigms. In ecological modernization, governments are expected to enable innovation and efficiency, often through public-private partnerships. This has led to concepts such as “collaborative governance” and the “collaborative state,” reflecting the complexity of managing sustainability in interconnected systems (Karambelkar and Gerlak, 2020; Ansell and Gash, 2008; Bulkeley and Mol, 2003). From a more state-driven view, Mazzucato (2023) proposes the idea of an “entrepreneurial state,” where governments take a proactive role in driving innovation and shaping markets for sustainability.

Notwithstanding, other paradigms support an increased role in SD for other societal sectors. Communitarian paradigms such as Buen Vivir (Acosta, 2016) argue for a society-based approach to sustainable development. In their view, governments carry an extractivist and colonialist DNA that limits a genuinely transformational process. In contrast, the recent ESG agenda, a landmark in the report “*Who Cares Wins*,” promotes a leading role for the business and financial sectors (Global Compact, 2004).

Despite the proliferation of paradigms, Andrade and Oliveira (2015) argue that the world remains increasingly unsustainable due to institutional failures in translating global concepts into local policies. This translation relies

on formal mechanisms, such as laws, organizations, and conventions. It also occurs through the informal diffusion of ideas within epistemic communities (Haas, 2016), where public servants operate, whether consciously or not.

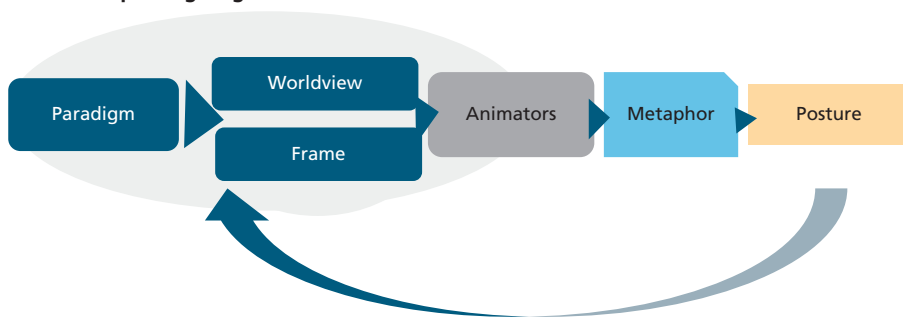
Understanding how high-level civil servants frame sustainable development, therefore, provides insights into the dominant logics operating within the state. It opens the “black box” of government, revealing the boundaries within which policy problems and solutions are defined. The following section explores how framing processes intersect with the paradigms identified through an unsystematic literature review.

3 FRAMING SUSTAINABLE DEVELOPMENT

Sustainable development framing, informed by paradigms, guides practice. Given this context, it is pertinent to investigate how civil servants frame sustainable development, since it shapes public policies. Civil servants have a significant influence on the definition of governmental action and law, as well as regulatory and fiscal policy (Jennings, 2010).

Frames are assessed by investigating animators, metaphors, and postures. The animators bring to consciousness what lies in our minds and souls as worldviews, frames, and paradigms. The metaphors originate from cognitive processes influenced by the animators or structures of wisdom and values (Lakoff and Johnson, 2003; Peterson and Knopf, 2016). Peterson and Knopf (2016) explored sustainable development metaphors through an exploratory review of websites from NGOs and governments. They concluded that the concept of sustainable development, in its conception and dynamics, undervalues diversity and openness to alternative solutions, consequently leading to the imposition of a single path. Figure 2 illustrates the instances that translate paradigms into postures, which supported Peterson and Knopf's findings (2016).

FIGURE 2
How paradigms guide action

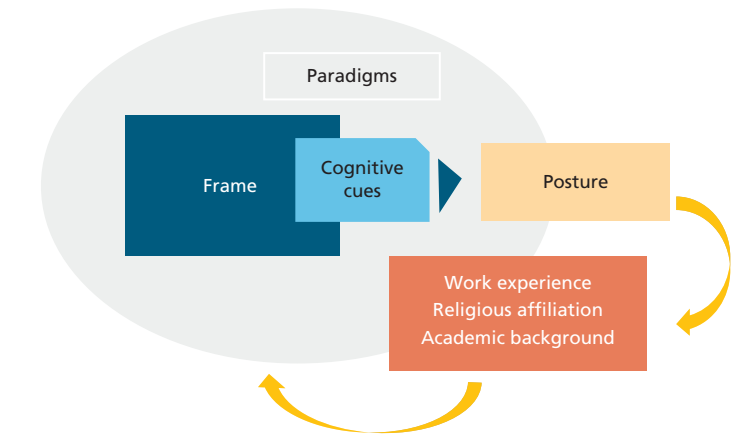


Source: Peterson and Knopf (2016).
Author's elaboration.

Figure 2 does not encompass the diversity of definitions and mechanisms that can be employed to understand the relationship between paradigms and behavior. Devall (1980), for example, defines a paradigm as a shorthand description of the worldview, comprising the collection of values, beliefs, habits, and norms that form the frame of reference for a collectivity of people who share a nation, a religion, or a social class. Taylor (2000) conceptually merges metaphors and frames by defining frames as metaphors, symbolic representations, and cognitive cues used to assess a social condition and to suggest alternative modes of action.

For the sake of simplicity, figure 3 presents the study’s conceptual framework, which aims to understand how high-level civil servants frame sustainable development.

FIGURE 3
Study’s conceptual architecture



Author’s elaboration.

The posture or disposition towards supporting the SD agenda or suggesting its priority for decision-making is assumed to depend on SD framing. An individual’s cognitive and operating logic is inspired or influenced by theories and ideas, also known as paradigms.

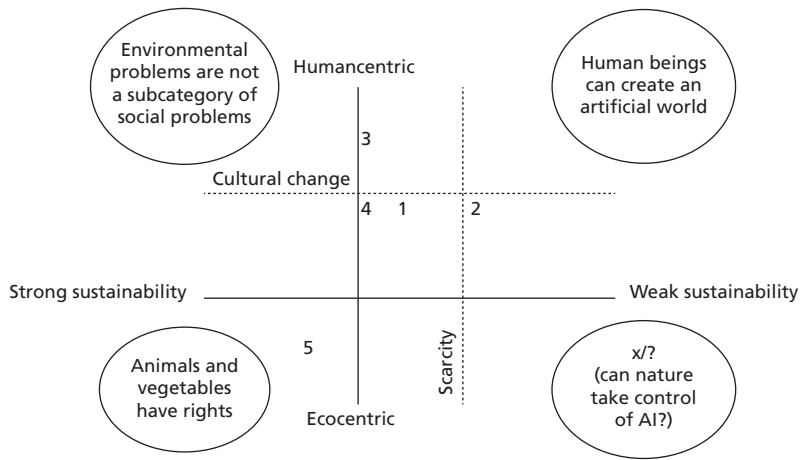
The underlying paradigms that supply the Sustainable Development debate and practice offer a kaleidoscope of cognitive clues, metaphors, inspirations, and cognitive processes, constantly rearranging in the continuous movement of narrative building and conflicts. In this manner, the concept of “sustainable development” triggers distinct frames, as individuals come from diverse contexts. For example, SD logic can be organized as a pattern, process, perspective, or practice (Eldon, 2017). Alternatively, it can be characterized by a tension between a concept of broad acceptance but weak arguments or strong stances and high resistance (Lélé, 1991).

Despite the several possibilities of configurations, this study considers two paradigmatic axes that influence the framing of sustainable development. Ruggerio (2021) argues for a structural divide between very strong and weak sustainability approaches. Strong sustainability host paradigms that frame nature conservation as a priority, even if it means a loss for human beings. Weak sustainability is centered on sustaining the economic system of nature, with nature perceived as a supplier of natural resources (Ruggerio, 2021).

The secondary axis grades the perspective of Nature as a conscious agent, also known as ecocentrism. This perspective challenges human-centric perspectives, which view the world through the lens of human consciousness and are centered on the quality of human life. A strong human-centric and weak sustainability approach advocates for the substitutability between technological advancement and natural endowments.

Figure 4 illustrates the categories of sustainable development paradigms.

FIGURE 4
Paradigm axes and extreme cognitive cues



Author's elaboration.

4 MAPPING SUSTAINABLE DEVELOPMENT PARADIGMS

An unsystematic literature review of leading authors on sustainable development supported the identification of the paradigms. Each mapped paradigm was categorized based on whether it supported weak or strong sustainability and whether it overall aligned with a human or ecocentric perspective, illustrated in figure 4. Additionally, the theories and ideologies were classified by their primary emphasis on economic, social, or environmental issues.

The reviewed literature is within the fields of economics and political science. This bias is justified by the SD concept, which gained prominence in the academic decade of the 1970s, when leading proponents and supporters could be linked to the field of environmental economics.

TABLE 1
Paradigms of sustainable development

Paradigms	Major emphasis	Weak/strong sustainability	Human (HEP)/ecocentric (NEP)	Study's reference author	Axis figure 3
Ecological modernization	Economy	Weak	HEP	Arthur Mol	1
Degrowth	Economy	Strong	HEP	Edward Goldsmith	3
Natural capital	Economy	Weak	HEP	Herman Daly	2
Neomarxist	Economy	Weak	HEP	John Bellamy Foster	2
Post modernism	Social	In between	HEP	Ingolfur Bludhorn	3
Political ecology	Social	In between	HEP	Arturo Escobar	3
Environmental justice	Social	In between	HEP	David Schlosberg	4
Human ecology	Social	In between	HEP	Kenneth Boulding	4
Environmental economics	Economy/environment	In between	HEP	Paul Davidson	4
Environmental politics	Social/environmental/economy	In between	HEP	Neil Carter	4
Radical ecofeminism	Social	In between	HEP	Greta Gaard	4
Buen Vivir	Social/environmental/economy	In between	HEP	Alberto Acosta	4
Radical ecologist/ecologic rational	Environmental	Strong	NEP	John Dryzek	5
Deep ecology	Environmental	Strong	NEP	Bill Devall	5
Conservationist	Environmental	Strong	NEP	Aldo Leopold	5

Author's elaboration.

The literature review provided cognitive cues within the paradigmatic axes of weak and strong sustainability, as well as human and ecocentric perspectives. The human-ecocentric axis refers to the extent to which the paradigm prioritizes humans and non-human beings as the core of theorizing and practice. On the node of “humancentric,” there are roughly two approaches. The first concerns human agency in overcoming societal inequalities and mitigating risk exposure to environmental problems associated with racial, gender, and income groupings. In this context, “Environmental Justice” encompasses a basic needs claim, situating the pursuit of a more equitable and just society within a framework of connection to the natural environment as a primary aspect (Schlosberg, 2013). “Radical Ecofeminism,” on the other hand, brings gender issues as the primary driver of an agenda for sustainable development (Gaard and Gruen, 1993). “Political Ecology” also claims that cultural and communitarian approaches are the central focus for advancements (Escobar, 2012).

Those approaches are situated halfway between valuing technological development and supporting the conservation of nature's pristine areas. Some level of technological advancement, meaning nature's transformation by human beings, is necessary to ensure basic needs and a more equitable society. An example of extracted cognitive clues is: "The experiences and answers to environmental matters do not affect everyone equally."

Neo-Marxists also depart from a "human-centric" perspective, but they are critical of technological advancements within the capitalist system. Capitalism's current situation, they argue, leads to a harmful process through a logic of "metabolic rift," "raubbau," or a "stealing" of natural resources to fuel the insatiable engines of the capitalist windmills (Foster, 2011). The neo-Marxist frame for sustainable development would then be an integrated metabolism between humans and nature, characterized by the lowest level of energy waste (Foster, 2011). In this context, a related cognitive cue is: "Neglecting capitalism and not attacking its fundamentals leads to superficial and cosmetic actions."

The second "humancentric" approach is the view of humans as agents of change within a modernization process, where technological advancements are valued in and of themselves. Those theories emphasize universal and unrestricted solutions (Ecological Modernization – Mol and Spaargaren, 2000). Ecological modernization theory's primary concern is increasing human well-being through societal progress and modernization. They have a more "homogeneous" view of humans and developmental paths (Boulding, 1966; Mol and Spaargaren, 2000; Daly, 2002). A cognitive cue related to the traditional modernization paradigm is: "Nature is available for people's use." The mainstream or modernization-encircled perspectives evolved to integrate nature as a constraining variable in societal development. This shift is rooted in a critique of classical economists, who have considered nature not to be scarce, and therefore not priced or included as a factor in microeconomic or macroeconomic functions (Daly, 2002). This concept of unending resources is linked to the image of an "unknown frontier," a territory to be explored whenever shortages or risks arose (Boulding, 1966). The current image of the Earth as a "spaceship" or a complex system of interacting inputs and outputs, with the exhaustibility of inputs such as energy, stems from the paradigm of limits to the Earth ("Human Ecology" – Boulding, 1966). From those perspectives, an example of a cognitive cue is: "The environmental crisis is expected, so we ought to formulate the means of adaptation and resilience."

The scarcity dilemma is the intersection between human society's population growth and social progress, and the limits of nature. The ingrained scarcity worldview that permeates frames from distinct paradigms can be attributed to Malthus' prediction of how population growth would jeopardize human existence. Hardin (1968) held a pessimistic view of human ability to self-regulate breeding. Then,

he advocated for actions toward population control, arguing that a finite world can only support a finite population (Hardin, 1968, p. 1243).

Overpopulation as the main problem for environmental sustainability is implicit or explicit in several frames, even in “Radical Ecofeminism” (Gaard and Gruen, 1993). But this strand advocates that simple birth control policies are not enough if socioeconomic status and, most importantly, women’s empowerment are not concretely improved.

The “Natural Capital” paradigm, a mainstream economic perspective, posits that pricing environmental services fosters efficiency, frugality, and the redistribution of benefits and resources (“Natural Capital” – Daly, 1990; 2002). The following cognitive cue represents this approach: “Pricing Nature’s products and services contribution is an excellent way to promote sustainable development.”

The perception of nature’s limits supports a “steady-state” and “conservative society” approach (Goldsmith, 1972; Devall, 1980), which entails decelerated energy consumption, frugality, and low entropy. The limits to growth perspective offers a less optimistic view of technological transformation in the face of humankind’s escalating problems and crises, as human activities burden nature. The cognitive cue exploratory of this frame was: “Endless growth is unviable.”

Challenging the Malthusian ideas, authors such as Alberto Acosta (2016) and Arturo Escobar (2012) tend not to frame sustainable development as overpopulation management and containment. Their view is that the problems stem from the disorganization of traditional or communitarian ways of living. This dislocation led to an imbalance between humans and the natural world. In this manner, the focus is not on population containment but on addressing the population’s physical and cultural needs. SD is not merely the management of scarcity, but rather the evolution of local knowledge and traditional ways of living, which facilitate a more balanced interaction with nature. An example of a cognitive clue related to cultural change is: “Other cultural values, distinct from those of modern society (urban, scientific, and industrial), are needed.”

Finally, the second fundamental cleavage is “biocentrism”. Within this venue, it is understood that humans and nature are intertwined; nature is not an element “out there” (Acosta, 2016). Nature is also an agent inside this strand; we must listen and communicate with its signals (“Radical Ecologists” – Dryzek, 2013). Along these lines, we find the view of nature as a sovereign scope that must be preserved and considered, even if it means disregarding human needs. Yet, more conciliatory perspectives argue that humans and nature mutually reinforce each other’s existence, necessitating a paradigmatic shift (Daval, 1980). A cognitive clue associated with these theories and ideologies is: “We must think like a mountain in problem and solution definitions for sustainable development.”

The cognitive clues extracted from the exploratory literature review were incorporated into a survey administered to senior-level civil servants, as described in the following sections.

5 METHODS

This study collected the data through a survey, and statistical analysis was performed with Stata 14.0. An Exploratory Factor Analysis (EFA, N = 92) was performed to identify dimensions and define the items for cluster analysis. The clusters represent how senior-level civil servants frame sustainable development. Chi-squared tests were used to determine whether support and priority for the SDG were influenced by age, sex, and religious affiliation.⁵

5.1 Survey design

Qualtrics hosted the survey design and management. Five specialists contributed to a pre-test and cognitive evaluation of the survey. Their suggestions addressed the survey length, the improvement of the orientation question, and the homogenization of terms (e.g., government and State, Nature and environment), among others.

The pre-test survey included questions for a cognitive evaluation, as detailed in table 2.

TABLE 2
Survey cognitive evaluation

Dimension	Questions
Comprehension	1. Directions were clear?
	2. Any term that is not clear?
	3. Your answer is representative of how you see the world?
	4. Any question that was not consistent?
Retrieval	1. How was your mental processing to answer the questions?
	2. Did you change any answer that you gave? What made you reconsider the answer?
Judgment	1. Do you evaluate that the answers that you gave are representative of your understanding of sustainable development?
	2. At any time when answering did you consider what others would criticize your answer?
Response	1. Do you understand that the format for answering is appropriate?

Source: Ryan, Gannon-Slater and Culbertson (2012).
Author's elaboration.

The survey was structured in three sections. The first set of questions consisted of an item evaluation using a 5-item Likert scale. The respondents were asked to evaluate the items, considering the question: “Assuming you occupy an important

5. The study's supporting material is available at: <https://doi.org/10.5281/zenodo.16507683>.

office position with the primary task of leading the debate and defining the agenda for sustainable development in your country, evaluate the items below.” The question design sought not to influence the respondent with the inevitability of the agenda by using the word “debate.” However, it also aimed to trigger the respondent in a decision process, raising the cognitive cues that would be applied in real-world situations.

The second block of questions inquired about the respondent’s sex, the number of years they have worked in the public sector, their professional background, and their religious or spiritual affiliation. The third block examined the source of knowledge regarding cognitive cues or item evaluation and provided information on the respondent’s perception of others sharing their worldview.

The fourth block questioned respondents’ familiarity with the Sustainable Development Goals. The last block of questions aimed to produce a marker variable to test common method variance, followed by two items to evaluate social desirability.

Surveys that address development and sustainability issues are subject to common method variance. Contextual elements such as politics, media coverage, and crisis occurrence, among others, may cause variance due to the method used, inflating the relationship among variables with correlations unrelated to the measured construct (Miller and Simmering, 2023). For example, the occurrence of a flood attributed to climate change may influence the answers when responding to the survey. The respondent may be sensitive to governmental inaction, the strength of nature, or any other temporary influence on the survey response pattern.

In the context of public administration, the dispute over job positions and the associated beliefs regarding how civil servants interact with politics were identified as potential causes of common method variance. A marker variable was inserted in the survey, allowing a statistical test for common method variance. The defined marker variable is the “color blue scale,” which is theoretically unrelated to the construct and was measured with the same Likert scale suggested by Miller and Simmering (2023). Nevertheless, respondent anonymity, item randomization, and the use of a 5-item Likert scale were additional measures adopted.

The primary risk for this survey is social desirability bias, which occurs when *respondents distort answers to conform to popular social norms* (Neuman, 2011, p. 330). In this context, in addition to the already above-cited actions, the survey also included two items from the Crowne and Marlowe (1960) social desirability scale: “At times I have really insisted on having things on my way” and “I have never been irked when people expressed ideas very different from my own.”

5.2 Measurement scale development

A search in Google Scholar using the terms “measurement scale” and “sustainable development” did not yield a specific measurement scale to identify how civil servants frame sustainable development. The items’ list was identified through a literature review, with a few items extracted from a measurement scale developed by Biasutti and Frate (2017). Biasutti and Frate’s (2017) scale measured attitudes toward sustainable development among Italian university students.

The literature review revealed that the concept of sustainable development is a function of diverse worldviews and conceptual cleavages. In this manner, the 63 survey items tried to reflect this diversity of perspectives. A survey with many items increases the risk of biased results due to respondent attention and potential non-responses. However, the risk was mitigated by the opportunity to understand the adherence of high-level civil servants’ framing to the conceptual variety in the debate about sustainable development. Notwithstanding, an attention check item was included, resulting in a total of 64 items.

The items also present some redundancy as part of the strategy to reveal the phenomenon from different perspectives. In the initial stage of measurement scale development, redundancy is *not bad* (Devellis, 2003, p. 65). Finally, some items were included to identify individuals who are “unconverted” or share a worldview distinct from the sustainability agenda.

5.3 Survey application and respondents’ profile

The survey was distributed via a messaging app to groups of federal-level civil servant career members, specifically those in Public Policy Specialist and Governmental Management, and disseminated by the career’s professional association. Since the survey link was open-access, a question was inserted to ensure respondents belonged to the relevant career.

The Public Policy Specialist career comprises a pool of 928 active professionals, of whom 93 responded to the survey, representing 10% of the population. Respondents were predominantly male, with 60% of the sample, and 47% of the respondents were aged between 40 and 50 years. The career was chosen because it is a transversal career that attracts individuals from diverse academic and professional backgrounds. The academic background in social sciences is more predominant, accounting for 62% of the respondents, with an additional 13% from law school. Other careers are represented by 11% of engineers and 14% of others (biology, health, agrarian sciences).

The career is not representative of the pool of civil servants in Brazil, who, on average, are older and less formally educated.⁶ Thus, the proposed measurement scale is suitable for mid-career high-ranking government officials.

5.4 Data analysis

The exploratory factor analysis (EFA) was preceded by the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. Small KMO values indicate that the variables have insufficient commonality to warrant a PCA.⁷ The obtained value for the KMO was 0.529, a “miserable” but acceptable number. On the other hand, the Bartlett test yielded a p-value of 0.00, indicating that the variables are sufficiently interrelated. The results for the EFA with oblique rotation were satisfactory, with 20 factors that had eigenvalues greater than 1. After running the Cronbach’s Alpha for each factor and unique items, six factors persisted ($\alpha > .07$). Discriminant analysis was performed by conducting a factor analysis of each of the six factors separately and testing the correlation among them. Not only did each of the six factors result in a single factor, but the correlation among them was small, with a value of less than 0.4533.

Cluster analysis for the Likert scale is not a widely accepted approach. However, the results obtained through cluster analysis are consistent with the theory. The distance measure used was Euclidean distance, along with Ward’s linkage hierarchical clustering method.⁸ In this manner, despite paving a “heterodox” data analysis, the cluster tree or dendrogram and the resulting respondents grouping offer support for theoretical contributions.

6 RESULTS

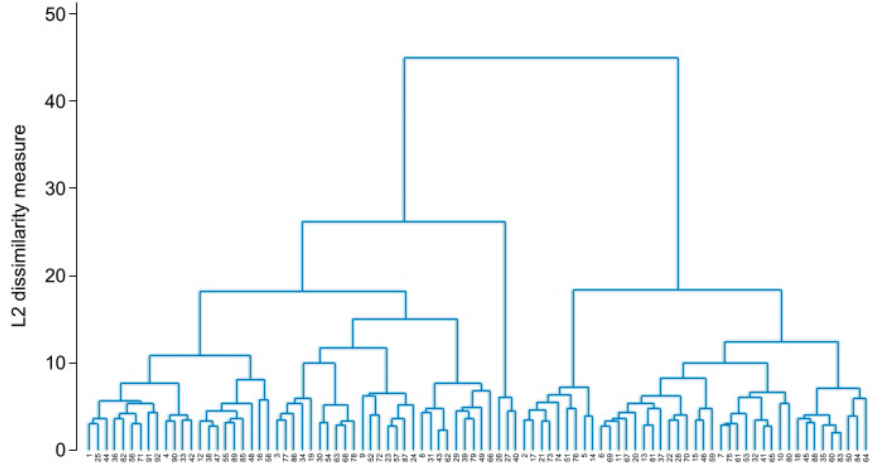
Cluster analysis revealed two main clusters of sustainable development frames, with Cluster 1 aggregating 55% of the respondents. Figure 4 shows the cluster tree.

6. Overall, the federal government workforce has an average age above 60 years, and fewer than 63% hold a graduate-level education. Available at: <http://painel.pep.planejamento.gov.br/QvAJAXZfc/opendoc.htm?document=painelpep.qvw&lang=en-US&host=Local&anonymous=true>.

7. See Stata. Available at: <https://www.stata.com/manuals/mvpcapostestimation.pdf>; and <https://www.stata.com/manuals/mvclusterlinkage.pdf>.

8. Available at: <https://www.stata.com/manuals/mvpcapostestimation.pdf>.

FIGURE 5
Cluster tree: sustainable development framing



Author's elaboration.
Obs.: Figure whose layout and texts could not be formatted due to the technical characteristics of the original files (Publisher's note).

Exploratory Factor Analysis indicated six dimensions that aggregate the evaluation of the cognitive cues with which high-level civil servants frame sustainable development. The dimensions are:

- L1 – Private management;
- L2 – Societal responsibility;
- L3 – Ecoethics;
- L4 – Limits of economy-driven approaches;
- L5 – Desired level of change; and
- L6 – Limits to growth.

TABLE 3
Frame dimensions and clusters

Dimension	Item	Paradigm		Cluster (means and standard deviation)							
		Weak/ strong	Human- centric/ ecocentric	1 (N = 51)	2 (N = 41)	1.1 (N = 48)	1.2 (N = 3)	1.1.1 (N = 22)	1.1.2 (N = 26)	2.1 (N = 9)	2.2 (N = 32)
L1	Natural resources' private management increases will worsen the access to something that belongs to everyone.	Weak	Human	2.82 (1.07)	3.92 (0.98)	2.89 (1.05)	1.66 (0.57)	3.54 (0.96)	2.34 (0.79)	2.55 (0.88)	4.31 (0.59)
	Natural resource's private management increase will lead to the degradation and extinction of elements that belong to everyone.	Weak	Human	2.47 (0.96)	3.68 (1.05)	2.54 (0.94)	1.33 (0.57)	3.09 (0.75)	2.07 (0.84)	2 (0.50)	4.15 (0.57)
L2	Society must offer basic free services.	Weak	Human	3.80 (1.03)	4.26 (0.94)	3.93 (0.90)	1.66 (0.57)	3.86 (0.88)	4 (0.93)	4 (1.22)	4.34 (0.86)
	Society must be responsible for people's well-being.	Weak	Human	3.78 (0.96)	4.17 (0.77)	3.93 (0.75)	1.33 (0.57)	3.95 (0.57)	3.92 (0.89)	4.111 (1.05)	4.18 (0.69)
L3	Animals and vegetables also have rights.	Strong	Eco	3.31 (0.96)	4.26 (0.96)	3.41 (0.94)	1.66 (0.57)	3.86 (0.78)	3.03 (0.77)	4.66 (1.20)	4.15 (0.85)
	We must think like a "mountain" in problem definition and solutions for SD (put oneself in the position of a natural element).	Strong	Eco	2.78 (1.09)	3.41 (0.80)	2.83 (0.98)	2 (0.57)	3.27 (0.90)	2.46 (0.99)	3.88 (0.86)	3.28 (0.80)
	Materialism and the lack of contact made our society undervalue Nature.	Strong	Eco	3.58 (0.94)	3.97 (1.04)	3.68 (0.88)	2 (1.73)	3.77 (0.63)	3.61 (0.90)	4.44 (0.78)	3.84 (1.08)
	Infinite growth is unviable.	Strong	Eco	3.37 (1.04)	4.46 (0.77)	3.5 (0.98)	1.33 (0.57)	3.18 (0.56)	3.76 (1.11)	4.33 (0.50)	4.5 (0.80)

(Continues)

(Continued)

Dimension	Item	Paradigm		Cluster (means and standard deviation)							
		Weak/ strong	Human- centric/ ecocentric	1 (N = 51)	2 (N = 41)	1.1 (N = 48)	1.2 (N = 3)	1.1.1 (N = 22)	1.1.2 (N = 26)	2.1 (N = 9)	2.2 (N = 32)
L4	The GDP is an adequate measure of the SD level.	Weak	Human	1.94 (1.00)	1.51 (0.50)	1.79 (0.79)	4.33 (1.15)	1.72 (0.63)	1.84 (0.92)	1.66 (0.5)	1.4 (0.50)
	Only managing what is considered environmentally unsustainable is a highly satisfactory strategy.	Weak	Human	1.84 (0.80)	1.97 (0.72)	1.72 (0.67)	3.66 (0.57)	1.63 (0.58)	1.80 (0.74)	2.11 (0.92)	1.93 (0.66)
	Another set of cultural values, different from those of modern society (urban, scientific, and industrial), is needed.	Strong	Human	3.96 (0.77)	4.34 (0.65)	4.06 (0.66)	2.33 (0.57)	4.04 (0.65)	4.07 (0.68)	4.55 (0.72)	4.28 (0.63)
	Material growth (goods, products, and infrastructure) is not the only priority.	Strong	Human	4.19 (0.84)	4.58 (0.49)	4.27 (0.73)	3 (1.73)	4.13 (0.94)	4.38 (0.49)	4.88 (0.33)	4.5 (0.50)
L5	Neglecting capitalism and not attacking its fundamentals results in superficial and cosmetic actions.	Strong	Human	2.68 (0.89)	3.75 (0.93)	2.77 (0.82)	1.33 (0)	3.27 (0.68)	2.34 (0.94)	4 (0.72)	3.68 (0.95)
	We are reaching the limits of what people on earth can endure.	Strong	Human	2.70 (1.12)	3.29 (0.94)	2.77 (1.09)	1.66 (0.57)	2.81 (0.88)	2.733 (1.09)	4.22 (0.86)	3.03 (0.96)
	Collective building of new forms of life is needed.	Strong	Human	3.60 (1.05)	4.39 (0.62)	3.75 (0.91)	1.33 (0.57)	3.72 (1.03)	3.76 (0.81)	4.66 (0.5)	4.31 (0.64)

(Continues)

(Continued)

Dimension	Item	Paradigm		Cluster (means and standard deviation)							
		Weak/ strong	Human- centric/ ecocentric	1 (N = 51)	2 (N = 41)	1.1 (N = 48)	1.2 (N = 3)	1.1.1 (N = 22)	1.1.2 (N = 26)	2.1 (N = 9)	2.2 (N = 32)
L6	We must establish a maximum growth level, taking into account the necessity of survival in the face of environmental changes.	Strong	Human	2.39 (1.04)	3.31 (0.54)	2.45 (0.98)	1.33 (1)	3.04 (0.78)	1.96 (1.13)	3.77 (0.72)	3.18 (0.50)
	A steady state must substitute for the logic of infinite growth.	Strong	Human	2.86 (0.90)	3.92 (1.14)	2.95 (0.85)	1.33 (1.15)	2.90 (0.79)	3 (0.91)	4.11 (0.83)	3.8 (1.09)
	We are reaching a limit in the number of people on earth.	Strong	Human	2.70 (0.90)	3.29 (1.14)	2.77 (0.85)	1.66 (1.15)	4.22 (0.83)	3.03 (1.09)	2.81 (0.79)	2.73 (0.91)
	Finite resources can not maintain infinite growth.	Strong	Human	3.49 (0.89)	4.56 (0.87)	3.58 (0.82)	2 (0.57)	3.63 (0.75)	3.53 (0.89)	4.55 (0.92)	4.56 (0.87)

Author's elaboration.

The two main clusters (1 and 2, see figure 5) illustrate the divide among civil servants on the role of the private sector and societal responsibility in providing basic welfare. However, it is not a sharp divide since, when considering the private management dimension (L1), the averages are closer to a “do not disagree/agree” answer. The second cluster is more supportive of the logic that society should provide basic welfare (L2). Cluster 2 also shares cognitive clues related to the ecoethics (L3). Therefore, Cluster 2 sympathizes more with the logic of animals and plants having rights, as well as the perception of the unfeasibility of infinite growth, within an evaluation of society moving away from a more natural way of living.

Both clusters (1 and 2) are highly critical of GDP as a measure of sustainable development (SD) level and restrict SD strategies to managing unsustainable environmental practices. They also share the view that material growth, including goods, products, and infrastructure, is not the only priority. However, Cluster 2 emphasizes the need for new cultural values that differ from those of modern society (L4).

Regarding the desired change (L5) level, Cluster 2 gives higher values for the need for structural changes. They support criticism of capitalism and advocate for the development of new forms of life. Cluster 2 shares the Malthusian perspective that the earth will reach its limit in terms of population, whereas Cluster 1 tends to disagree with this cognitive framework.

Both clusters are highly differentiated in adopting the logic of limits to growth (L6). Cluster 2 highly supports limiting growth and embracing the logic of a steady state. Within Cluster 1, we find a sharp divide, with a small group of individuals (1.2) that strongly supports private management and economic measures, challenging the framing as ecoethics and limiting growth. Private management (L1) also rifts clusters 1.1.1 and 1.1.2.

Regarding the ramifications in Cluster 2, Private management (L1) is also a cognitive cue that rifts the framing. Cluster 2.2 is more supportive of society offering basic services and is critical of market approaches.

Civil servants who have job experience in a non-governmental organization (NGO) tend to belong to Cluster 2 ($\chi^2(1) = 5.1929$, $p < 0.05$). Of those who reported previous experience in NGOs, 14.63% belonged to Cluster 2, while 1.96% belonged to Cluster 1. Individuals who belonged to Cluster 1 also had less experience in agencies that used the Sustainable Development Goals in their strategic planning, with 15.69% having never worked in an agency with this profile, contrasting with individuals in Cluster 2 who, in totality, had this experience ($\chi^2(2) = 7.0877$, $p < 0.05$). The chi-squared test reported no significant difference in experience in the private sector, knowledge of the SDGs, or work experience in an agency that used “sustainability” in its strategic planning.

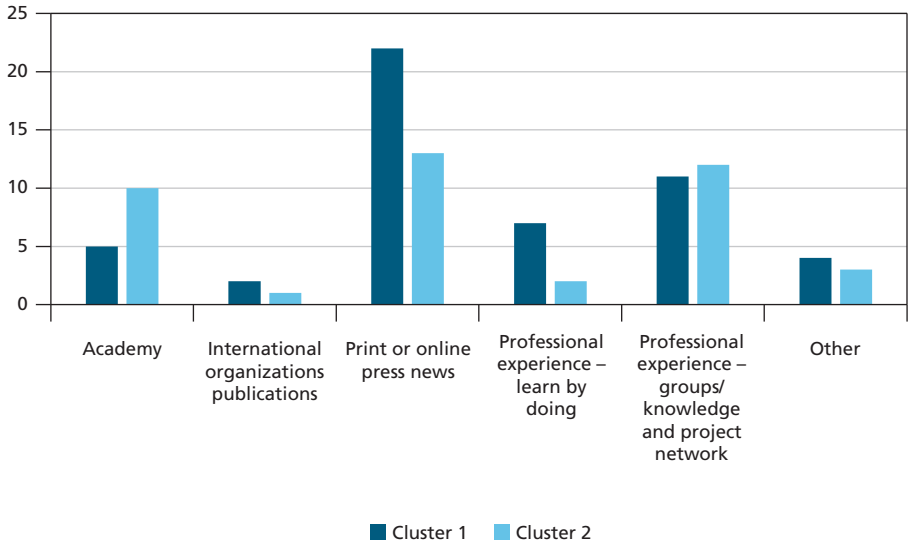
Concerning posture, individuals in Cluster 2 applied the SDG more structurally than their counterparts in Cluster 1 ($\chi^2(2) = 10.3604$, $p < 0.05$). Cluster 2 civil servants structurally used the SDG in 29.27% of cases, only in an informative manner in 53.66%, and 17.07% had never applied the concept in written documents. In Cluster 1, the structural application of the SDG in written documents was used by only 15.69%, with 35.29% applied in an informative manner and 49.02% never used.

Cluster 2 individuals are also more supportive of prioritizing the sustainable development agenda ($\chi^2(4) = 10.4511$, $p < 0.05$). Of those individuals from Cluster 2, 39.02% strongly agree that the agenda must be prioritized, and 53.66% agree with this statement. Cluster 1 individuals strongly disagree (3.92%), disagree (9.80%), are neutral (17.65%), agree (50.98%), or strongly agree (17.65%). Cluster 1 individuals are also more skeptical that the SD supports the country's interests ($\chi^2(4) = 11.1256$, $p < 0.05$).

The perspective of the SDG agenda is also distinct between the two Clusters. Cluster 1 is more neutral or skeptical about the country's interest in the SD agenda ($\chi^2(4) = 11.1256$, $p < 0.05$) and the viability of the agenda for the government ($\chi^2(4) = 13.4433$, $p < 0.05$). Additionally, they disagree more or are more neutral about prioritizing the SDG agenda ($\chi^2(4) = 9.7137$, $p < 0.05$).

Regarding the source of knowledge, Cluster 1 is more dependent on press news and learning by doing. On the other hand, Cluster 2 has strong academic references and knowledge sharing through networks. The difference between averages is only descriptive, without statistical significance. Figure 6 illustrates the results.

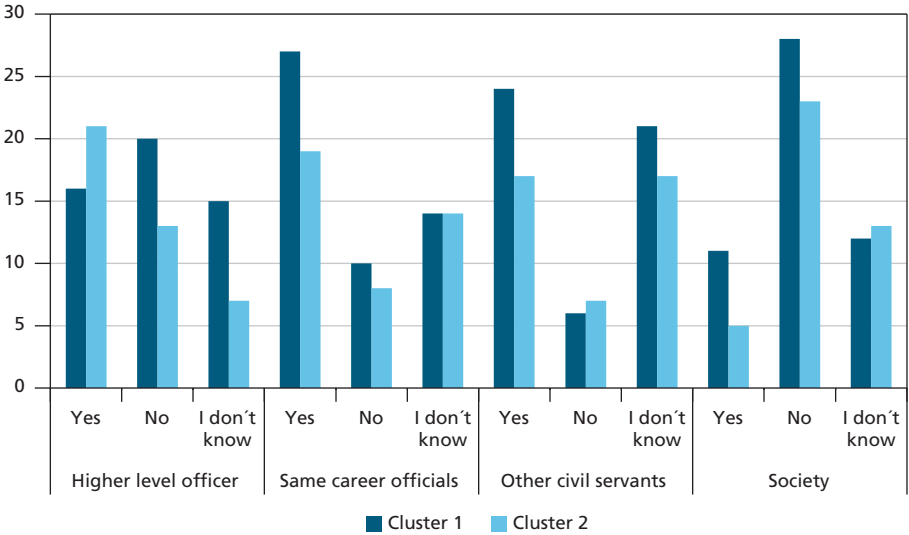
FIGURE 6
SDG agenda: high-level civil servants' primary knowledge sources, by cluster



Author's elaboration.

Figure 7 summarizes the answers to the question of some social groups that shared the same worldview as the respondents in the survey. Again, the difference between averages is only descriptive, without statistical significance. Results show that Cluster 1 respondents see their frames less represented by higher-level officials. However, they are more certain that the same career officials, other civil servants, and society share their frame.

FIGURE 7
High-level civil servants perceive others sharing their SD/SDG frames, by cluster



Author's elaboration.

7 DISCUSSION

This study contributes to understanding how high-level policy-making civil servants frame sustainable development and the SDGs. The results reveal a clear divide among high-level civil servants in their approach to framing sustainable development and its associated goals.

Cluster 1 was more representative, with 55% of the respondents belonging to this group. Cluster 1 frames sustainable development as an endeavor where the private sector plays a crucial role, sharing skepticism about society's ability to provide free access to basic services, as well as concerns about the logic of eco-ethics, growth limits, overpopulation, and the scarcity paradigm. Their primary knowledge sources are predominantly press news and work experience. They don't feel that higher-level officers represent their views. However, they feel more represented among other social groups, such as their career peers, civil servants, and the broader society.

Cluster 2, on the other hand, is more skeptical about the role of the private sector and holds a stronger perception that society is responsible for providing free basic services. This group also shares a framework that incorporates eco-ethics, which posits that natural beings possess some level of conscience. Cluster 2 also frames SD as firmly rooted in the paradigms of earth limits, scarcity, and the risks of overpopulation. Cluster 2 knowledge sources of SD and SDG are sharper in academics and through interaction in knowledge and professional networks.

Both Clusters show similar averages in referring to the exhaustion of materialism and GDP as inadequate tools to measure sustainable development. Additionally, they support the notion that merely managing what is unsustainable is insufficient. They don't fiercely challenge capitalism, although Cluster 2 supports cultural values change.

It is essential to note that cognitive clues related to the role of government or public policy did not meet the minimum loading threshold (.04) in EFA or were part of factors with low Cronbach's alpha. This can be attributed to the small sample size or the intriguing fact that it is not a framework for high-level civil servants, such as the notion that "the state, market, and civil society share responsibilities for sustainable development" or that "more people's participation is essential for sustainable development." This suggests the need for further studies on the prospect of collaborative governance to enable SD and SDG implementation, as the obtained results indicate that high-level civil servants do not frame SD as a shared responsibility, have no clear vision of whether society shares their framing, and do not value more participation as essential for SD.

The findings of this study caution that when "opening the box" of government, the debate on public governance, notably new public governance and collaborative governance (Osborne, 2010; Ansell and Gash, 2008; Denhardt and Denhardt, 2000), appears detached from reality. The desire to set a public management agenda and establish a new governance paradigm must be more closely aligned with existing paradigms that guide the actions of civil servants. Although respondents have high support and priority for the SDG agenda, they are indifferent to participation and sharing responsibilities with other actors, such as the market or non-governmental organizations. State responsibility and public policy also do not appear as relevant frames.

It is also relevant that Cluster 2 values cultural change and has less confidence in private management. However, in contrast to Cluster 1, it strongly aligns with the frames of the growth limit and overpopulation crisis, which are related to the scarcity paradigm widely disseminated through economic analysis rooted in the work of Thomas Malthus. Probably, the prevalence of the Academy as a source of information for Cluster 2 contributes to framing sustainable development by the paradigms built on population containment and limited availability of natural resources.

Despite being an international agenda headed by United Nations agencies, high-level civil servants do not frequently cite publications by these agencies as their primary source of information. Job experience in non-governmental agencies is a distinctive trait between Cluster 1 (1.96%) and Cluster 2 (14.63%).

Civil servants frame SD with a potpourri of paradigms, aligning with Haas (2016), who argued that individuals adopt ideas based on expected outcomes.

A more supportive posture to SD and SDG is observed among civil servants within Cluster 2. Cluster 2 comprises individuals who are less inclined to delegate to private sector management and are willing to take the standpoint of natural beings. They agree more with the collective building of new forms of life and the role of society in providing free basic services. Notwithstanding, they also view the SD challenges as being framed by scarcity, overpopulation, and the need to set a limit to growth. This means Cluster 2 is more influenced by the human ecology paradigm, with a minor influence of neo-Marxism and deep ecology. The more representative Cluster 1, for instance, is indicated to be highly influenced by the ecological modernization paradigm.

This study evidenced that, even when evaluating a single civil service career, there is no homogeneity in SD and SDG framing. However, both groups frame SD and SDG within frames that convey a logic of dissatisfaction with material growth, which can be attributed to the perception of adverse ecological side effects caused by the production of those goods (Reckwitz and Rosa, 2023), rather than a deep-seated desire for change, and thus only seek moderate change.

8 CONCLUSION

It is easier to describe a paradigm by summarizing the thoughts of reference authors, but it is challenging to categorize individuals as belonging to a particular paradigm. Individuals are enmeshed in a world of ideas, and few act with clear-cut thinking that challenges prevailing paradigms. The superficiality of learning processes and the opacity of analysis, due to the acceleration of information and time, obscure the origins of ideas and the cognitive cues that guide our actions. In this context, the SD and SDGs agenda is an ambiguous endeavor, resulting in the accommodation of different social forces. The ambiguity creates space for contradictions, as individuals produce theories and praxis that cross the boundaries of diverse paradigms, sometimes combining contradictory paradigms. Praxis lends logic to what, in concept, seems illogical. However, action guided by contradictory reasoning may create inertia, as it reduces the potential for convergence and shared purpose, since individuals are using the exact words but do not share the same language, or they do not share worldviews and beliefs rooted in the same paradigms. Therefore, the concept of sustainable development and the implementation of the SDGs often give rise to chaotic conversations.

Nonetheless, the findings indicate that the scarcity, overpopulation, and the need to set a limit to growth are common grounds on how civil servants frame SD and SDG. However, there is a divide between a larger group that is more influenced by the ecological modernization paradigm and a second group where neo-Marxism and deep ecology paradigms are more prevalent. While the first groups may tend

to focus on technocratic and green growth solutions, the second group may support minority inclusion and ecocentric agendas. Although a variety of paradigms and ideas are healthy, polarizations can lead to deadlocks. It is necessary to have leadership, training, and agenda-setting strategies that create convergences and mutual understandings, channeling debates into more concrete actions.

Regarding the study's limitations, the sample size (10%) in this study was representative of the researched career. The career profile does not accurately represent civil servants in Brazil, but rather relatively high-level officers with increased influence in agenda setting, public policy formulation, and implementation. Nonetheless, approximately 44% of individuals from the career held commissioned positions in the government during the study period (Brasil, 2022).

Further studies could explore the influence of framing on the posture for responsibility sharing and collaborative governance arrangements, as the SD and SDG agendas, and their implementation, are complex subjects that require multilevel and multisector strategies. Additionally, the proposed measurement scale can be refined and tested with other public administration contexts, focusing, for example, on occupants of high-level commissioned positions. Consequently, greater awareness of the paradigms that guide public policies can be achieved.

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