Sustainability as a meta-narrative: the semantics of global governance? A systems-theoretical and concept-historical analysis

Marco Billi*, Germán Marchant**, Gonzalo Bustamante***

ABSTRACT

Sustainability has become a ubiquitous concept in modern society, but its inherent ambiguity makes it a source of enduring controversy. While the mainstream narrative has striven to make it the fundamental *telos* of all human activities, counter-narrative accounts have tended to treat it as an empty, rhetorical catchword potentially used to justify imperialism. Not siding with either of these interpretations, this manuscript delves into how sustainability is, becomes, and endures as a concept, in addition to the performative effects it engenders in modern society. In particular, we argue that sustainability has functioned as a semantic horizon and meta-narrative that allowed modern governance to emerge and become the new global rationality. The paper takes an analytical approach based on conceptual history and sociology, observing concepts as webs of meanings in relation to latent social structures. On this basis, the paper provides a conceptual-historical reconstruction of the emergence, core meaning and communicative performance of sustainability semantics, followed by a reflection on its relation to governance. The manuscript concludes, first, that sustainability emerges as a way to overcome the communications paradox involved in the reciprocal interdependence between society and its environment. Second, that the current communicational success of sustainability semantics derives from its ability to combine flexibility and coherence across the cognitive and normative dimensions. And third, that this ability makes sustainability a common horizon of possibility (of

* Adjunct Professor, School of Government, Universidad Adolfo Ibáñez (UAI). Researcher at Center for Climate and Resilience Research (CR2), Systemic Transdisciplinary Studies Hub (NEST-R3) and Institute of Public Affairs (INAP), University of Chile. PhD Political Processes and Institutions, UAI. Mg. Systems Analysis applied to Society, University of Chile. MSc. Economics, School of Economics and Business, L. Bocconi University.

✉ marco.dg.billi@gmail.com

** Young Researcher, NEST-R3. Mg(c) Systems Analysis applied to Society, University of Chile. MSc. Psychology, University of Chile.

✉ german.marchant@ug.uchile.cl

*** Full professor and researcher, School of Liberal Arts, UAI. PhD Culture of Economics, Erasmus University de Rotterdam. MSc. Philosophy, Universidad Católica de Santiago.

✉ gonzalo.bustamante@uai.cl

meaning), in turn granting legitimacy and coherence to an emerging governance regime coordinating global efforts at steering and governing the interaction between society and its environment.

Keywords: sustainable development, conceptual history, performativity, governance, Social Systems Theory.

Sustentabilidad como metanarrativa: ¿La semántica de la gobernanza global? Un análisis con base en la teoría de sistemas e historia conceptual

Resumen

El concepto de "sustentabilidad" se ha vuelo casi omnipresente, pero su inherente ambigüedad lo convierte en una constante fuente de controversia. Mientras el relato dominante se ha esforzado por convertirlo en el *telos* fundamental de toda actividad humana, numerosos contrarrelatos lo han etiquetado como un lema retórico y vacío, potencialmente utilizable para justificar los imperialismos. Tomando distancia de ambas interpretaciones, este artículo profundiza en cómo la sustentabilidad es, se convierte en y se mantiene como concepto, y en los efectos performativos que genera en la sociedad moderna. En particular, argumentamos que el concepto de sustentabilidad ha funcionado como un horizonte semántico y una metanarrativa, permitiendo la emergencia y consolidación de la gobernanza como una nueva racionalidad global. Para fundar el argumento, el manuscrito emplea un enfoque analítico basado en la historia conceptual y la sociología, observando los conceptos como redes de sentido en relación con estructuras sociales latentes. Sobre esta base, el documento proporciona una reconstrucción histórica del surgimiento, significado central y desempeño comunicativo del concepto de "sustentabilidad", seguido de una reflexión sobre su relación con la gobernanza. Se concluye, primero, que esta semántica y metanarrativa surge como una forma de superar la paradoja comunicativa involucrada en la interdependencia recíproca entre la sociedad y su entorno. Segundo, que el éxito comunicativo del que aquella goza actualmente se deriva de su capacidad para combinar flexibilidad y coherencia, en términos tanto cognitivos como normativos. Y tercero, que esta capacidad la convierte en un horizonte común de sentido, otorgando a su vez legitimidad y coherencia a un régimen emergente de gobernanza que coordine los esfuerzos globales para dirigir y gobernar la interacción entre la sociedad y su entorno.

Palabras clave: desarrollo sustentable, historia conceptual, performatividad, gobernanza, Teoría de Sistemas Sociales.

1. Introduction

Sustainability tends to be an ambiguous and elusive concept. Back in 2008, more than 300 different definitions were identified (Ehrenfeld 2008) and the figure must have at least doubled by now. The contemporary concept of sustainability encompasses ideas and dilemmas concerning our understanding of time, history and intergenerational inequalities;

space, geography and spatial inequalities; the environment, its laws and its interplay with human societies; technology, technological advances and related risks; politics, law, and governance; economics, development, and trade; as well as culture, education, religion, and ethics (Thiele 2016).

As much as sustainability may be depicted as a buzzword, it is not, as Jeremy Caradonna (2014) keenly puts it, 'buzzless'. On the contrary, the concept has been extremely successful in making its way as one of the core articulating concepts across various communicational fields, including science and politics.

The terms "sustainability" or "sustainable" are contained in the titles, keywords or abstracts of more than 266,000 scientific papers by over 100,000 individual researchers from practically every country in the world[1].

Sustainability semantics has come to articulate an ever-growing scientific terminology base, including popular expressions such as "global warming" or "climate change", and other notions like "carrying capacity" (Meadows *et al.* 1972), "planetary boundaries" (Rockström *et al.* 2009), "global environmental change" (Stern *et al.* 1992) or "Anthropocene" (Crutzen and Stoermer 2000). Even other terms of common usage, such as "adaptation", "transition" or "transformation" have been incorporated -and often resignified- under the umbrella of sustainability. Since the 2000s, a new discipline has been created, self-dubbed, "sustainability science" (Kates *et al.* 2001, Spangenberg 2011), while a variety of other sub-disciplines and research communities adopt some form of sustainability semantics as their key research object, including ecology and environmental sciences, environmental and ecological economics, environmental history, and environmental law.

Likewise, sustainability has morphed into one of the central founding principles of a broad and growing apparatus of national and supranational regulations (Jordan and O'Riordan 2004, Stephens 2009). The Sustainable Development Goals launched in New York encompass environmental degradation, poverty and inequality, technological planning, and global peace and cooperation (United Nations 2015). Sustainable development thus currently acts as an overarching goal of "Earth Politics"

[1] This considers papers indexed in the Web of Science database. Query made on 22 August on the WoS Core Collection, between 1975 and 2020.

(Von Weizsäcker 1994), articulating a variety of interlinked goals guiding international cooperation and action at multiple levels and reorienting environmental concerns from the reactive remediation of human-made natural disasters towards an integrated and proactive planning of a sustainable future (Grober 2012, Quental *et al.* 2011, Spindler 2013).

The increasing dissemination of sustainability semantics across diverse fields and usages warrants the question: Should we consider sustainability just a rhetorical catchphrase (Pereira and Curvelo 2015), a contentless but popular and positively biased discursive marker employed to grant visibility and legitimacy to otherwise unconnected policy efforts and corresponding ideas of justice, or is it possible that, behind its heterogeneity, sustainability does have some transversal meaning to its different usages?

1.1. Sustainability and governance

This paper advances the hypothesis that sustainability articulates a meta-narrative that allows the emergence of contemporary global governance. More particularly, we will show that sustainability semantics offer both a descriptive framework and normative legitimation for the technical-administrative rationale behind the global governance of sustainable development.

As has been explored elsewhere (Billi *et al.* 2021), the concept of sustainability shares a strong relationship with "governance," a relationship manifested both genealogically as well as in their current usages. In fact, the need to "govern" or steer the relationship between society and its environment seems to be a recurrent tenet of most of the literature on sustainability, from its origins onward, and the interplay between the two concepts is key in providing structure to the current scholarship on the topic.

On the other hand, the idea that sustainability derives both its celebrity and its political influence from its ambiguity is well-known (Jordan 2008, Kates, Parris and Leiserowitz 2005). At the same time, it is also commonly accepted that the definition of sustainability is intrinsically political and ethically laden, so that different conceptual approximations involve different types of social change (Vallance *et al.* 2011) and

trade-offs with unequal consequences for different individuals, groups and systems (Brien *et al*. 2009, Meadowcroft 2009, Shove and Walker 2007). However, two very different understandings about sustainability and its relationship with governance stem from this common premise, which we will respectively call the "mainstream narrative" and the "counter-narrative."

The mainstream narrative reads as follows: given the growing and compelling scientific evidence that current society is unsustainable because it is quickly degrading the conditions that are the basis of its existence, humanity faces the urgent need and responsibility to put into action policy and governance mechanisms aimed at shifting towards a more sustainable future. This narrative bestows a counter-factual reference for governance efforts: it symbolizes a state of the world which, by definition, is not currently true, and which can only be achieved by transforming the global structure through governance. Accordingly, sustainability is a key normative standard guiding the design and evaluation of governance arrangements. In more sophisticated terms, this places sustainability outside the "world" as it currently is, and in fact in opposition to this world, with the explicit aim of transforming it to make it more sustainable. Likewise, it makes it a teleological outsider, turning be-sustainable into a fundamental *telos* of all human activities, and governance into a Weberian *Mittel zum Zweck* (means to an end) to fulfil this telos (Weber 1964).

The counter-narrative, on the other hand, treats sustainability as an empty, rhetorical catchword hiding currently existing governance arrangements. Within this narrative, "sustainability" is just a new, flashy name for business-as-usual, pivoting on rhetorical and emotive metaphors (Páez 2010), evocative "imaginaries" (Luke 2015), reductionist narratives (Liverman 2009) and simplifying semantics (Blanco 2016) that provide them with broad legitimacy and a sense of urgency. Sustainability is just a façade draped across this world, hiding its inner workings from view, granting it legitimacy and concealing its contradictions. From a Schmittian perspective, we can say that this perspective downgrades sustainability into a subordinated concept: one seemingly indifferentiable in its contents from other general and vacuous concepts used to justify imperialism, such as "humanity" and its derivatives, "love for humanity", "crimes against humanity", etc. (Rasch 2003, Scheuerman 2016).

This research begins with a different premise, seeking a third way between the temptation of "naturalizing" sustainability as a pre-determined and apolitical premise for governance, or identifying it as a catchword devoid content of its own, created by some to justify their government over others. Instead, taking a second-order perspective (Luhmann 1993), we observe the concept of sustainability in the space of its own reproduction, striving to clarify how sustainability is, becomes, and remains a concept: where does its unity comes from and what makes it widely recognizable as a concept while also motivating people to continue conceptualizing it.

From this perspective, we will investigate the hypothesis that the relationship between sustainability and governance is contrary to the one commonly held: governance does not simply arise to answer the problem posed by sustainability; rather, it is sustainability -as a concept- that enables the emergence of contemporary governance, which in turn champions sustainability semantics in contrast with other possible and alternative narratives on the relationship between society and the environment. In other words, that sustainability emerges as a meta-narrative, a common horizon of possibility (of meaning), granting legitimacy and coherence to an emerging "sustainability regime" coordinating global efforts to steer and govern the interaction between society and environment. The reason behind sustainability's current success is precisely that it balances a high degree of flexibility with the ability to articulate and mobilize a powerful horizon of meaning, particularly suitable to enable the emergence of a governance regime on a planetary scale.

To this end, in the next section we explain the analytical framework chosen to observe sustainability as a concept. This is followed by a brief description of the conceptual history of sustainability, distinguishing two moments: 1) its origins and 2) its contemporary emergence, linked to the normative content of global governance. Next, we display sustainability as a meta-narrative and describe its performative effects as such, before making our closing remarks in the conclusions.

1.2. An analytical framework for viewing concepts

We understand concepts as "webs of meaning" (Ophir 2016a, 2016b), or as complex arrays of heterogenous references to specific ideas, experiences

and the socio-historical contexts in which these have evolved. By linking several ideas, terminologies, experiences, and contexts, concepts generalize, typify and condense meaning as a "horizon of possibilities" for the reproduction of thought and communication (Luhmann 1997). Thanks to concepts, we can attribute the same meaning to communications when dealing with different objects, people, and times.

Because of this, concepts tend to be intricate constellations of terms and symbolized contents (or of signifiers and signified entities), where each term or word may symbolize multiple meanings and each meaning, in turn, can be conveyed through different words. Thus, any concept, and particularly complex concepts such as sustainability, are always intrinsically ambiguous and flexible. This is as it should be, as its objective is to translate a meaning through communications when dealing with different objects, people, times.

Interpretative flexibility allows concepts to adapt to the different contexts in which they are used. These uses, moreover, can range between very general horizons of communications (sustainable society or development) and very specific applications (measuring the degree of sustainability of a firm, a state, an action). Likewise, these uses may be descriptive (describing something as sustainable or unsustainable) or normative (promoting sustainability as a collective aim). However, concepts must also have a coherent core identity that ensures that all these uses are understood as part of the "same" concept. This identity is itself built through a particular type of communication that can be understood as conceptualization. We indulge in conceptualization, for instance, when we try to explain or express what a concept means or propose novel interpretations of it (Ophir 2016a, 2016b). Conceptualization is therefore an important part of a concept's "life" and its performance. Through conceptualization, we can influence concepts to take on new meanings or drop older ones, thus conditioning the usages that can be made of the concept and, as we will promptly see, enabling or disabling forms of steering and governing.

This resonates with Koselleck's (2004, 2011) fundamental idea that concepts operate in a circular relationship with the latent structures of society: on the one hand, these structures can only be described through concepts, while also contributing to shaping concepts; on the

other hand, concepts reproduce social structures, while also opening up opportunities to change these structures, or at least, to envision their contingency. This also means that, while we recognize the socially and historically constructed nature of sustainability semantics -its communicative "fictionality"- we contend that one should not lose sight, as has often been the case with previous studies, of it being a "real" fiction. That is, one real enough to have real performative effects that even extend to, as we argue, enacting a new form of worldwide governance regime.

In particular, concepts can work by displacing communication paradoxes: using Spencer-Brown's formulation (Spencer-Brown 1979), a paradox arises when a form is re-entered upon itself, prompting "communication impossibilities" to arise (Andersen 2011), in which any further attempt at communication is locked in an infinite chain of recursive references. For instance, when we try to communicate about the future, is it *our* future that we are communicating about, not the future as will be seen from the perspective of the future. Moreover, we are doing so from the perspective of a present which will itself be regarded differently in future communications, and so on. Similarly, when we communicate about the relationship between society and the environment, this communication also happens within society, so that we are not really observing the environment or society as they 'really' are, but rather are just observing a reflection of what society *describes* as society and as the environment.

As we discuss at the end of this paper, these two paradoxes are particularly defeating for any attempt aiming to *steer* the future relationship between society and its environment (i.e., its governance). After all, it would require dealing not with one, but with *two* communication impossibilities at the same time. However, that is *precisely* what sustainability –and other environmental semantics– are all about: in fact, as we show below, the very birth of sustainability semantics may precisely be tied to the need to find a way to *communicate* about this problem while avoiding the paradox it entails. By giving it a name, it avoids the chain of references, substituting it for a symbolized identity, though of course the paradox does not just disappear, but merely shifts elsewhere. As we will subsequently show, this allows the emergence of a meta-narrative describing the world as a unitary "place" to be governed and normatively legitimizing that governance.

2 A brief conceptual history
of the concept of sustainability

This section reconstructs how sustainability emerges as a contemporary meta-narrative that articulates, frames, and contributes to legitimizing other narratives oriented towards the development of science, technology, government actions, and lifestyles. This emergence is not straightforward but the result of a winding quest for a semantics capable of making sense of the relationship between society and the environment, and how this relationship can be steered. We show how two phases punctuate this development: in the former, sustainability remains restricted to its native field of natural resource management; in the latter, it becomes into the key semantics behind global governance.

The basic material for our argument stems mostly from existing scholarly analyses on the concepts of governance and sustainability, including many excellent reconstructions of the history of sustainability and other environmental semantics (Caradonna 2014, Grober 2012, Radkau 2007, 2014, Warde 2011, Worster 1994).

2.1. The origins of sustainability: reframing the management of natural resources

Though concerns about the relationship between human societies and their environment can be found in most ancient civilizations (Radkau 2007), it is only during early modern times when these apprehensions started adopting the key features that we can recognize within most contemporary renderings of sustainability. As is the case with many key political concepts, the cradle of this appearance is Europe. Until the late Middle Ages, the unity of the Eurocentric world was guaranteed by the divine order of things: it ensured that all things were felt as a part of a whole, and it gave everyone a moral code of conduct to uphold (Luhmann 2012). God was not only the Creator of Man and Nature alike, but also ensured through His own will the conservation (*conservatio*) of Creation. Likewise, *Divina Providentia* guaranteed the ongoing provision of the atmospheric and earthly fruits that gave sustenance (sustentamento) to Man and all creatures while caring for things and individuals towards the final *telos* of salvation (Grober 2012).

The Scientific revolution did not completely forsake this doctrine, though it gradually eroded its foundations. Meanwhile, the 17th and 18th centuries brought about one of the greatest economic and political crises since the fall of the Roman Empire (Aston 2013), punctuated by plagues and famine. This led many virtuous thinkers, such as René Descartes and Baruch Spinoza, to wonder how Man might ensure his self-preservation (*conservatio sui*). Likewise, as brilliantly reconstructed by Michel Foucault (2006), this led to a drastic change in the way sovereignty was conceived, a growing interest in statistics, demographics, economics, and the surge of new élites.

The rethinking of the relationship between Man and Nature was clear in forestry. Wood was one of the most important resources at the time. Because of increasing demand everywhere in Europe, forests were shrinking, and prices were booming, thus making the task of ensuring an enduring supply of wood among administrations' key priorities. In England and France, respectively, this spurred the publication of John Evelyn's *Sylva*, in 1664, and Jean-Baptiste Colbert *Ordonnances*, in 1669. Both discussed best management practices for the "conservation" of local forests, that is, to ensure their continuing ability to produce wood. Both, moreover, stressed the idea that forests were to be preserved for the good of "posterity."

As anticipated above, the problem that these thinkers faced was the society's dependence on its environment: society required forests to supply its needs, but it was increasingly clear that in fulfilling these needs could end up eradicating all forests. Forests could be conserved, but conservation required intervention. More than that, as Evelyn and Colbert showed, forests could be designed so that they provided the most possible wood without being destroyed in the process. But their books were a collection of practices, lacking a name that could describe their motive. Conservation would not do, since it left too much of society's needs out of the equation. After all, Carlowitz was a pragmatic thinker, trying to solve a practical problem: not conserving forests, but reconciling the present and future uses of the wood they produced.

The result is his 1732 book *Sylvicultura Oeconomica* (Carlowitz 1732), featuring the first known rendering of the modern concept of "sustainability," the German term *nachhaltende Nutzung* (sustaining/sustainable

use). The word *nachhalten* was of common use at the time, referring to the practice of hunters and gatherers to set some supplies aside for times of need (Spindler 2013).

Sustainable use turns the paradox into an optimization problem. It provides a *measure* of how much wood a forest can offer and also contains a *mandate*: taking as much as possible from the forest without taking more than it can sustain. In the 19th century Carlowitz's ideas inspired the sustainable-yield doctrine, whose goal was establishing the maximum felling rate –and the maximum benefit– compatible with a sustainable use of forests.

In the meanwhile, Linnaeus, became the first intellectual to study 'the economy of nature' (*oeconomia naturae*), which was at once a rational and a sacred effort to understand the laws of nature. A century later, Linnaeus's mission would mature into ecology, turning nature into a complex web of interdependent flows and cycles connecting virtually all living organisms on Earth (Scheiner *et al.* 1993). Ernst Haeckel, a strong admirer of Linnaeus' work and Charles Darwin's theory of evolution, gave the discipline its official name in 1866. Ecology brought new elements for the sustainable management of natural resources and increasing faith in the scientific understanding of processes and interactions connecting social and environmental processes, increasingly seen as a necessary condition for a society to endure and flourish. Paul Warde (2011) showed that these ideas were momentous for the transition of the concept of sustainability from forestry to agriculture.

However, fossil fuels began monopolizing the spotlight at that time, renewing the faith in the promise of technological and economic "progress." Since the 18th century, the notion of "progress" had emerged as "a secularized heir to the Christian ideal of salvation" (Von Wright 1997). Faith in progress had become so strong that it was seen almost as a necessity (Du Pisani 2006). The Industrial Revolution inherited the narrative of human progress but particularly emphasized its roots in technological advancement and economic liberalization: its ethical drive was producing the maximum possible wellbeing for the largest possible number of individuals (Caradonna 2014). Of course, it did not go unchallenged. Since the late 19th century, a conservationist movement had emerged to condemn the deterioration that human

action was causing to nature (Worster 1994). On the other, even within economic circles, ideas such as the "stationary state," or the inevitable tendency of growth to slow because of decreasing availability of land, shed doubts upon the long-term feasibility of progress (Lumley and Armstrong 2004).

However, the discovery of fossil fuels temporarily cast off these shadows of doubt and sustainability ideas mostly remained confined to intellectual and academic circles. Their comeback would start in the United States of the 1930s, in the aftermath of the Great Depression, as part of President Franklin Roosevelt's New Deal. Pioneering thinkers such as Gifford Pinchot and Aldo Leopold were key to bringing back sustainable forestry's vocabularies and mixing them with modern scientific ecology (Leopold 1949). In this guise, the concept makes its first appearance within a United Nations Document in 1951, in the Food and Agriculture Organization's Principles of Forest Policy (FAO 1951). But it was only as a consequence of the Second World War that these ideas began to take on global significance beyond natural resources management.

2.2 The contemporary resurgence of sustainability: a meta-narrative for a global governance

The horrors of WWII, and particularly the catastrophically destructive potential of the atomic bomb, clearly showed humanity's self-destructive potential to the whole world (Worster 1994). The United Nations was born precisely to catalyze global efforts to avoid such horrors and promote global cooperation for development (United Nations, 1945).

In the 1950s, the mass media began dedicating increasing coverage to environmental disasters and industrial pollution (Kroll 2001). Several blockbuster books were published in the following years, calling to action in the face of the upcoming "environmental crisis" (Estenssoro 2007). The ideas mobilized hopeful ideals of grassroots movements at the time (Martínez-Alier *et al.* 2014) with nostalgic cries for the beauty of the simple, the "small," the "tribal" (Mebratu 1998); visionary proposals of an "operation manual" to steer the unsteerable "Spaceship Earth" (Fuller 1963) and dry warnings about the rising population and the dangers of blind individualism (Hardin 1968).

In 1972, the report *Limits to Growth* employed sophisticated, state-of-the-art methods, displaying how the Earth had a finite "carrying capacity," beyond which terrible catastrophes would befall humanity (Meadows *et al.* 1972). In the same year, a United Nations conference was held in Stockholm, the first of many "Earth Summits" that would attempt to articulate emerging ecological concerns with the long-established aims to overcome poverty and guarantee human rights (Quental *et al.* 2011). The cover to the final report featured the motto "Only One Earth," accompanied by the very first photo of the Earth from orbit. The photo had a huge cultural influence: what had been the common dream of many forward-thinkers since Kepler was finally publicly accessible, showing at once the beauty and the fragility of the Earth and fueling new hopes for world unity (Conze *et al.* 2016). Among this summit's key priorities was identifying a concept that can translate the meaning of "limits to growth" without its negativity, emphasizing the idea of "development" and this development's dependence on the conservation of natural resources.

Since the 20th century, development was gradually adopted as a substitute for progress, as a rallying cry for international cooperation and the above-mentioned key goals of the United Nations. This semantics shifted the understanding of progress, as seen in *North-South: A Programme for Survival,* which proposed uncoupling the concept of "growth" from "development." Likewise, it also introduced the concept of "sustainable" as the acknowledgment of the mutual dependence between humanity and the planet (Brandt 1980).

Meanwhile, James Lovelock's *Gaia* hypothesis instated a new understanding of nature as a self-regulating, complex system able to maintain and perpetuate its conditions (Lovelock and Margulis 1974). Shortly after, C.S. Holling's notion of ecological resilience depicted nature as neither utterly fragile nor unpredictable, but rather in need of being aided to do so by not pushing beyond its limits (Folke 2016). Accordingly, the concept of "conservation's" initial focus on the passive, static "preservation" of natural endowments in a pristine, virgin state, was gradually substituted by a more active "conservation." The International Union for the Conservation of Nature (IUCN) fully acknowledged this change in the "World Conservation Strategy," where conservation is

defined as "the management of human use of the biosphere so that it may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations" (IUCN 1980: 18).

Shortly thereafter, the World Commission on Environment and Development (WCED) formulated a "global agenda for change" (WCED 1987: 15). The report, published in 1987, starts by claiming that humanity's inability to fit its activities into the "natural" patterns of the Earth is the fundamental cause of planetary changes leading to life-threatening hazards. It advocates the adoption of more "sustainable" paths of development that can meet "the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). While the report is sometimes criticized for having opted for a somewhat ambiguous interpretation of environmental goals, leaving out more radical and transformative interpretations (Pierri 2001), it is one of the most influential renderings of the concept of sustainability (Quental and Lourenço 2012).

Like "sustainable use," "sustainable development" comes to displace a paradox. In both cases, sustainability seeks to reconcile the present with the future: to conserve society, its environment must be conserved. Through the distinction of sustainability –meaning foresight, good management, sustainment, and rational management of natural cycles, the paradox is transformed into a problem of optimization: sustainability indicates the "maximum rate" of development compatible with earth's limits, and at the same time calls for "good governance" capable of optimizing the Earth's potential, ensuring that no more than this potential that the earth can replenish is unfolded at any given time.

The conceptual innovation does not solve the dilemma or ensure that development is sustainable. However, it makes it possible to communicate about this problem without falling into the paradox. It makes sustainability something that can be observed, expected, and even demanded. Through this concept, the conservation of society and its environment becomes coupled with development. The subsequent step was adding the concept of governance to the equation, a decision made at the 1992 Earth Summit in Rio de Janeiro.

On that occasion, sustainability was codified as an overarching goal to articulate environmental conservation, economic growth, and social

development as interlinked objectives for international cooperation (United Nations 1992). The encounter displaced the reactive remediation of human-caused natural disasters towards the proactive planning of a sustainable future (Spindler 2013). Also, this summit developed Agenda 21, the first successful governance attempt at using "soft law" to regulate the global environment (Abbott and Snidal 2000), and the key model for future developments in the field (Kiss and Shelton 2007). Ten years later, the Johannesburg Earth Summit would integrate it with 8 "Millennium Development Goals." This would ultimately conclude in 2015, with the approval of Agenda 2030. whose 17 sustainable development goals (SDGs) extend sustainability to the most important goals and spheres of public policy (United Nations 2015).

On this path, sustainability gradually incorporated a variety of meanings, symbolizing as much the material fragility of the Earth as well as its sacred beauty; the importance of conserving nature as well as its own resiliency; an enduring faith in "development" (as the unfolding of the inner potential of Man and Nature) together with the need to restrict development to the planet's carrying capacity; the transcendence of long-term planning and inter-generational equity with the contingent attention to sufficiency, quality of life and intra-generational justice. It thus emerged as a meta-narrative, a narrative of narratives (Wong *et al.* 2013) flexibly adapting to the perspective of different observers but at the same time connecting each particular observation with a wider horizon of meaning.

3. Sustainability as a horizon of meaning and meta-narrative

As we have shown, sustainability semantics have evolved into a meta-narrative, in an age characterized by the death of all meta-narratives (Lyotard 1979, Chernilo 2017). They are thus deeply intertwined with teleological utopian thinking as the promise that a better future is possible. However, unlike other meta-narratives, such as progress or development, sustainability focuses more on the potential for this better future than its actual materialization. This grants it a higher level of generality, since it is compatible with a wide range of possible understandings of what a "good future" looks like. Even more, emphasizing the cases in

which society has already overcome this potential, it offers a strongly temporalized construct. The semantics of "limits" –carrying capacity, planetary boundaries (Rockström *et al*. 2009)– maintains this directionality, just like semantics emphasizing radical change or transformations, such as "climate change, "global environmental change" (Stern *et al*. 1992) and the "Anthropocene" (Crutzen and Stoermer 2000, Steffen *et al*. 2007). Sustainability operates as a common horizon of possibility for governance efforts, one independent of the specific definitions of "good development" by any subject-position or any governance domain. For a specific society-environment nexus to be sustainable, conserving its potential for future development is not enough. It must also refrain from diminishing the potential of other possible forms of the society-environment nexus.

While it does not specifically choose one desirable future, it defines a set of alternatives compatible with Earth's carrying capacity. It could be called a "normative identity" that crosses time so that society can use it as an anchor, a fixed reference to regulate and control its operations even without full access to an accurate description of itself (Luhmann 1997).

Sustainability engenders a unitary world to be governed, made up of all possible domains sustainability may apply to - the climate, biodiversity, economic sectors and markets, property rights arrangements, corporate strategies, and public policies ranging from the local to the national and the supranational levels - and the interrelations among them.

In normative terms, sustainability indicates an asymmetry. Unsustainability is implicitly condemned, as it destroys the conditions on which the reproduction and development of both societies and ecosystems rely. Sustainability becomes cherished and can thus orient behavior towards a more sustainable future, even without full agreement on what this future should look like. Sustainability embeds a normative measure to judge a course of action's "goodness" (or desirability). Simultaneously, it establishes a normative principle to put in force initiatives seeking to promote sustainability: what "good" or "desirable" mean is left open for further conceptualization. Sustainability may refer to the ultimate foundations of both development and sustainability, the kind of goals and interests that should be prioritized, and who should have a say in defining this.

Similarly, sustainability contains a claim to the symbolical representation of a community of interest spanning the entire Earth and across generations (and, arguably, species). Individuals carry a variety of possible perspectives or horizons of meaning. Sustainability makes room for these by leaving what is to count as sustainable or unsustainable in any given case in principle undefined. However, it provides a unified motivation for (collective) action by asymmetrically positing sustainability as desirable and unsustainability as undesirable. Thus, it grants strong, cross-cutting support for efforts struggling to combat unsustainability and enact sustainability. In summary, sustainability operates as a powerful "regulative idea" for the purposive steering of the co-evolution of society and nature (Jetzkowitz 2019), an idea that acts both as an object of knowledge and of social action.

Cognitively, sustainability focuses on the ability of something to conserve its potential for development over time. As commonly used, the concept refers to the ability of ecosystems to create the conditions for their sustenance and reproduction. The concept's meaning can be expanded to other entities: for instance, one may speak of social sustainability (Vallance *et al*. 2011) or the sustainability of capital (Missemer 2018). Likewise, unsustainability can refer to processes and forces that may come to hamper this ability. In this definition, sustainability helps to explain, at a very general level, why societies and ecosystems persist, whereas unsustainability explains why they at some time perish or change drastically.

The question remains regarding the correct measure of sustainability: countless proposals have been advanced to operationalize the concept of sustainability into a measurable form (Little *et al*. 2016). Because of this openness, sustainability features a higher degree of universality than other regulative ideas, such as Human Rights, for example. That may explain its tendency to "agglutinate" other regulative ideas, such as the Sustainable Development Goals (United Nations 2015), which seem to cover almost every desirable aim: fighting climate change, protecting biodiversity and natural resources; promoting cleaner, more equitable and modern energy systems and cities; overcoming poverty, hunger and discrimination, fostering health, wellbeing, economic growth, and ensuring global peace and cooperation.

The above considerations do not situate sustainability as a "neutral" lens; on the contrary, it remains strongly dependent on the array of ideas (and interests) that comprise its semantic web. Caution should be reserved for claims heralding sustainability as the ultimate vehicle for the deconstruction of the structural configurations of society (Avelino and Grin 2017) and its transformation into a more "just" and universally "better" world (O'Brien 2017).

Importantly, sustainability is not the *only* semantics that emerged to tackle the communication impossibilities associated with steering society's future (and that of its environment). Moreover, the concept has been the object of wide discussion and critique. By 1988, Marcuse had already pointed out that sustainability could lead to sustaining the unjust status quo, masking diverse conflicts of interest (Ruttan 1988). Later on, it was accused of becoming a strange theoretical abstraction that has little to do with our lives, depicting it as a myth that led to "the politics of never getting there" (Blok 2013). Along these lines, several articles have asked whether sustainability is itself a sustainable concept (Zeng *et al.* 2020).

Unsurprisingly, novel semantics have emerged as an alternative to sustainability to understand and act upon environmental problems (Arias-Maldonado 2013). We examine a few below: environmental crisis (and transformation), Gaia, Anthropocene, regenerative culture, and degrowth.

The idea that we are in an environmental crisis is not new: it was the key tenet of the environmental movement in the 1960s (Estenssoro, 2007). Recently, this idea has become central to speaking about climate change and other connected socioenvironmental issues. Describing the problem as a crisis or an emergency underlines the argument that incremental action is not enough and must be supplemented by transformative practices, ideas, and governance, seeking to radically shift the present course to avoid the worst possible outcomes of climate and environmental change (O'Brien 2018). This, in turn, leads to the request for urgent and radical mobilization of resources on many levels (Davidson *et al.* 2020). Thus, "transformation" has become another way to talk about sustainability (Feola 2015). Similarly, terms such as "climate action" or "climate-resilient development" (Singh and Chudasama 2021) have emerged to embody these ideas.

As mentioned above, the Gaia hypothesis was initially developed by James Lovelock. It states that the earth is a self-organized and self-regulated living being, in line with cybernetics theory and Maturana and Varela's idea of autopoiesis (Zaffaroni 2010). According to this concept, the theory of evolution was misunderstood, leading to an overvaluation of strength and undervaluation of cooperation, appealing to the survival of the fittest. Hence, if cooperation is the key to species' survival, then capitalism –which is competitive– is the biggest obstacle to the survival of humans on earth (2010). Other scientists have used Gaia to reflect upon the role of scientific production in environmental issues (Lenton and Latour 2018).

Somewhat similarly, the Anthropocene concept highlights that modernity can be seen as a period in the history of the Earth in which humans have exerted a major influence on the planet's ecosystems (Crutzen and Stoermer 2000, Lewis and Maslin 2015, Steffen *et al.* 2011). By underscoring human influence on the Earth's functioning, can call attention to its future. If our actions significantly determine the only place where life can thrive, then these easily become matters of reflection and transformation (Arias-Maldonado 2013). Bruno Latour also elaborates this notion, highlighting how we can think of agency in this context. Living in the Anthropocene would imply that all actors share the same "shape-changing destiny," a destiny that entails agency and difference distribution (2014).

Regenerative cultures are another alternative to sustainability. In contrasting to the former's main focus on efficiency and reducing the damages caused by the excessive use of natural resources, these take a different avenue, stressing the opportunity for society to create mutually beneficial relationships with the environment. For these reasons, regenerative cultures can move beyond sustaining the environment, seeking to regenerate nature's wellbeing along with our own (Reed 2007). Accordingly, this shift also brings more attention to integral approaches to human and ecological health (Hinchliffe 2015). This term has been widely used by environmental protest movements such as Extinction Rebellion and is receiving growing attention on the Internet and in the media, albeit less so in academic literature. This group has tried to foster regenerative cultures through the ethics of care,

thus challenging modern society's destructive and uncaring relations towards the environment (Westwell and Bunting 2020).

At last, degrowth identifies the problem as economic growth, a fundamental pillar in development models. Within this narrative, growth is taken to imply an ever-increasing demand for energy and natural resources in general. Conversely, degrowth is depicted as a planned reduction of resource and energy use, which would balance the living world with the economy, and improve environmental and human well-being (Hickel 2020). Evidence such as what is contained in the IPCC 2018 special report has partially supported these ideas, highlighting that it will only be possible to remain within carbon budgets if high-income nations slow their material production and consumption (Hickel 2020). Also, this idea requires addressing how to achieve degrowth in a socially sustainable way, instead of a problematic and catastrophic one (Kallis 2011). Likewise, degrowth considers inequality, specifying that only countries exceeding their fair share of natural resources need to degrow. Since degrowth focuses on reducing the excessive use of resources, it should only be applied to economies –or countries, nations– characterized by that excess (Hickel 2020).

The appearance of these concepts has tended to lead to a diverse discussion over the concept of sustainability. However, far from leading to abandoning the latter, this discussion has ended up enriching its theoretical background and diversifying its uses. Despite or maybe even thanks to the criticism, sustainability semantics are today very much alive and thriving.

4. The performance of sustainability:
emergence of a planetary governance regime

While sustainability is not the only environmental semantics around, it has undoubtedly managed to become the most successful at symbolizing the need for global long-term planning. Its use has continued to spread despite the criticism, and a growing number of governance arrangements have been adopting terms such as "sustainability" or "sustainable development" to describe their ultimate purpose. Most of these arrangements share similar features: they mobilize claims to

act or speak in the name of a community of interests, often codified in frameworks maintained by the United Nations or other supranational institutions; they enact new "places" of governance different from the nation state, either requiring strict coordination between the latter and institutions operating in different domains or scales or bypassing the national level of decision-making entirely. Ultimately, they explicitly attempt to coordinate and integrate a plurality of mechanisms –most of which fall outside traditional "political" forms of governing– towards the achievement of sustainability.

Some examples of these arrangements include the United Nations Framework Convention on Climate Change and the different "agreements" it has accomplished over the years. One of the most discussed of these is the "Paris Agreement" (UNFCCC 2016), which in addition to stating a collective agreement on the goal of global climate action, put in place different mechanisms to foster knowledge production, create and monitor nation-level commitments, promote financing, technological development and transfer, and capacity building. These mechanisms work across private, public and civil society actors.

Likewise, a plethora of initiatives have sprung up around the world in recent years to foster countries' transition towards more sustainable energy systems or to promote a more sustainable and resilient process of urbanization around the world. While some of these efforts occur at a national level, many others either happen under the auspices of subnational and local authorities, supranational institutions, or transnational arrangements between public, private, academic and NGO partners. The Medellin Collaboration, Race to Zero and Race to Resilience, LedsLac and other similar programs are all examples of these hybrid arrangements put in place to foster sustainability in different ways, most of which explicitly or implicitly mention the UN Agenda 2030 for Sustainable Development (United Nations 2015) as their ultimate goal and guideline.

We contend that all these examples of sustainability semantics within supra- and transnational governance efforts are neither a coincidence nor simply the rhetorical exploitation of a highly popular and positively biased term to grant greater legitimacy and importance to otherwise independent regulatory or political efforts. Rather, they hint at the emergence of a higher

structure, a planetary-scale governance regime, coordinating various institutions operating on multiple scales and in multiple domains to govern the present and future of the world at a planetary level.

The term "governance" can be understood as a new "grammar" to speak about government, regulation and management (Bora 2014, Rhodes 1996), one that marks the growing tendency to develop public policies with the collaboration of a vast set of social actors, both public and private (Kooiman 2003, Loorbach 2010). The emergence of governance arrangements is usually associated with society's growing complexity (Kooiman 1993), where both traditional centralized and purely spontaneous, market-led, decentralized coordination end up being inadequate (Voss *et al.* 2009).

From systems theory perspective (Luhmann 1997), governance can be understood as an emerging form of societal coordination that arises to counter the centrifugal trend of contemporary society, namely its increasing differentiation in multiple and communicative domains. While these domains become increasingly autonomous and irreconcilable in their different rationalities (e.g., obtaining votes to reproduce power; making profits to reproduce money; doing research to reproduce truth), they also are ultimately interdependent, since each can only maintain itself on the presumption that other systems will continue to exist and perform their function. Thus, governance may be seen as a way to reconcile the autonomy and plurality of modern society with the coherence needed to process its interdependencies (Willke 1984, 1987).

On a structural level, this reconciliation is sought by adopting increasingly non-coercive and contextual (Mascareño 2011) forms of societal intervention, such as economic incentives (Harrington and Morgenstern 2007), 'soft laws' -nonbinding and highly interpretable (Abbott and Snidal 2000, 2009), social norms or even simply shared expectations (Konrad 2010, Rip 2012). Rather than directly intervening in the autonomy of the target system, these forms intervention respect said autonomy by offering new distinctions in a "language" the latter can resonate with, expanding its communication alternatives and nudging it to acknowledge that it stands to gain from self-orienting its structures and operations per the objectives of the intervening actor (Mascareño 2011, Willke 1987). Noticeably, these actors can be public

institutions, private and non-governmental organizations, or a combination (Abbott and Snidal 2009).

However, these mechanisms do not emanate from a central entity, but rather a decentralized collection of disparate efforts motivated by distinct purposes, tackling different objects and in different ways. Using our previous terminology, if governance is ultimately a quest to regulate interdependencies in the face of growing autonomy, the problem is how to provide a relatively stable and cross-cutting way to describe what these interdependences are, and thus, what governance is about. Following Luhmann's (1997) line of thinking, they need a communication "identity" that allows observing, with a sufficient degree of independence from the perspective of the observer, the "difference" between the desirable and actual state of the world, so that this difference may become the object of future-oriented steering. The problem is that governance cannot explicitly and directly provide such an identity, as by in doing so, it would generate a potentially destructive paradox: since each actor involved in governance would have its views about the "right" object and purpose of governance, who would then "govern" the definition of said object and purpose? Governance would be needed to govern governance, and this meta-governance, in turn, would require another governance in an infinite chain of self-references. Ultimately, any governance arrangement would be deemed arbitrary and lose all legitimacy over the very actors it attempts to govern.

Thus, the balance between coherence and autonomy must also be sought for a semantic level, and that can be achieved precisely through concepts such as sustainability. Since this semantics oscillates between flexibility and coherence, it can provide a sufficient degree of unity and coherence to communicative efforts aimed at future-oriented global governance, while also allowing sufficient flexibility and undefinition to make room for diversity and heterogeneity of meaning. Importantly, sustainability has both a descriptive and a normative value, allowing us to observe both the world as is (and its flaws) and the world as it "should be." In addition, since sustainability is the object of scientific observation, it may provide an "external" reference to governance efforts, thus avoiding the self-referential paradox arising if governance was left alone to define its own object and purpose.

Sustainability works as a horizon of meaning, which grants society with a global rationality –albeit a minimal one– over the mutually dependent relationship between itself and its environment, thus making the governance of said relationship possible.

Thus, sustainability encompasses a very heterogenous set of actors, action-types, spatialities and temporalities, including the management of natural resources and public goods such as oceans, the atmosphere or ecosystems; public policies ranging from the local to the national and the supranational levels; property rights arrangements, corporate strategies, and markets, among others. The idea that sustainability brings forth is that all these spaces of action are part of a single network, a "network-of-places" as Lindahl (2018) called it, and which finds one if its top-level codifications in the Sustainable Development Goals, which is then reproduced across the various policy documents that refer back to them. Similarly, when sustainability is called upon by different governance initiatives at the supranational, national, sub-national, corporate or local levels, it always evokes the same symbolized "unity of object:" the interdependence between society and the environment and the need to steer it. This object takes several forms in different levels and domains, jointly making up the symbolical network-of-places of sustainability. Remarkably, this network of interdependencies also works as a putative unity of interest, which is called upon to justify or promote policies or strategies, or to legitimize decisions. In some cases, these institutions are democratically elected or appointed, but this is often not the case, as occurs with the many NGOs, stakeholders, and public-private partnerships that coalesce around official sustainability meetings and strategies. Thus, the legitimacy of the latter purely relies on the claim to represent the planetary unity of interest that the label "sustainability" symbolizes.

Importantly, sustainability is not the only semantics potentially working as a symbolic unity for global governance efforts. Other well-known concepts, such as human rights and world trade, also give rise to planetary governance regimes (Lindahl 2018). Moreover, precisely because all these regimes put forth their own understanding of the "world" to be governed, they are all to a certain degree mutually exclusive. On the one hand, they cannot all "govern" the same entities simultaneously (though they may co-exist by adopting different definitions of the

entities they govern). On the other, as much as these regimes may strive to be inclusive (i.e., to extend to multiple individuals, domains, and perspectives), they cannot avoid excluding (individuals, domains and perspectives which do not fall within what each legal order recognizes as its own). The cost of providing unity and order is outlawing other possible forms of order –or even turning them into "strange places" that are unrecognizable and meaningless for the regime.

Of course, this condition also applies to sustainability. As was shown at the end of the previous section, sustainability coexists with other competing definitions of the relationship between nature and society, each of which would put forth its "network-of-places" and thus, potentially, constitute the foundation of a global regime. The fact that sustainability currently remains the dominant semantics in the field is not a coincidence but rather the product of the effort by the regime it engenders to reproduce itself, either by assimilating or by marginalizing competing narratives. While sustainability is not the only environmental semantics, it has managed to be the broadest and most successful in symbolizing the need for global long-term planning; that is, planetary governance.

From a performative perspective, it is precisely the impossibility to close the debate on the "best" concept to depict the relationship between society and the environment that fuels a continuously growing scholarship on the matter, all while new, emerging concepts are gradually absorbed within the form of sustainability, further extending sustainability's semantic web. In this sense, sustainability can be used in communication in very diverse domains, from economics to science to law to politics, art, etc. But its key communicational performance is in governance: depicting a unitary world that can and must be governed justifies and gives substance to a worldwide governance regime.

5. Final considerations

As discussed in this paper, sustainability can be seen as a horizon of meaning and a meta-narrative that emerged to make sense of the paradox involved in the reciprocal interdependence between society and its environment, thus shaping and legitimizing attempts to steer such

interdependence. In this sense, sustainability provides a measure for assessing how modern society has developed, including the value it has assigned to other living systems and how it depicts and pursues its future and that of its environment. Therefore, it also includes a critique of how we should globally organize our present and future lives. This has allowed sustainability to embody the challenges that our society faces in the 21st century and the call for new forms of governance to tackle these challenges. Nonetheless, as shown, this semantic evolution happened over centuries and not without controversy.

Interestingly, this evolution has occurred on a par with the centrifugal trend in contemporary society, leading to ever-greater complexity and internal differentiation. Because of this trend, the different and uncoordinated responses that each system offers to the environmental problems tend to easily become a source of constant and reciprocal irritation and fearful alarm between one system and another, running the risk of paralyzing or disrupting their reproduction (Teubner 2006). In fact, Luhmann himself advances the possibility that the gradual process of systemic differentiation may lead social systems to decouple themselves from the "natural" environment to the extent that they become intolerable to that very environment (Luhmann 1989). Put it more bluntly, from this perspective, society reproduces itself by making itself indifferent to its environmental conditionings, but because of this very indifference, it cannot ensure that it will not destroy the conditions for its own reproduction (Valentinov 2014). However, at the same time, and somewhat paradoxically, it is this very process of differentiation and complexification that has granted society the ability to become aware of the possible consequences of its own reproduction (Luhmann 1997), and it is only by nurturing this complexity and plurality of perspectives that it will be possible to provide an answer to the problem.

Thus, talking about sustainability almost automatically entails a problem of governance. Simultaneously, sustainability provides a common horizon of possibility for efforts at steering and governing the interaction between society and its environment. This horizon grants society a global rationality –albeit a minimal one– over the dependent relationship between itself and its environment, thus making it possible to govern that relationship. In other words, sustainability demands

governance as much as it provides support –a shared meaning and a source of legitimation– for it.

We stress the non-neutrality of sustainability semantics, not just in scientific terms, but also in political ones. Insomuch as these semantics provide the basis for a global regime steering the relationship between society and the environment, they also entail a prioritization and exclusion of other alternative forms to understand and govern that relationship. Therefore, it would be interesting to investigate the concrete ways in which sustainability becomes conceptualized at any given time to reveal the 'phronetic' (Flyvbjerg 2004) conflicts that underly its universal claim to make a better future for all. Stating that sustainability entails conflicts should not, of course, lead us to condemn it or to abandon it altogether as a regulative idea. Any attempt to steer society will require some normative horizon to guide it. Therefore, the challenge is how to take advantage of the great degree of flexibility that sustainability semantics provide to steering while also struggling to maintain a critical perspective.

Likewise, it is worth remembering that sustainability is neither the only nor the first attempt to depict and govern a unitary world. Rather, it coexists and partially overlaps with other alternatives. From Christian theology to economic-technological progress, Human Rights, and even private commercial law, many meta-narratives exist that have attempted to enact a unitary horizon of meaning to drive and justify governance attempts (Kjaer 2018, Mascareño and Mereminskaya 2013, Verschraegen 2012). It would deeply improve our understanding of contemporary society to observe the relationship between these regulative ideas: how they have clashed, transformed and merged over time.

Because of its hybridity, sustainability fosters an increasing coupling between scientific and political communications, with as-yet unforeseeable consequences. On the one hand, this may pave the road for a deepening of functional differentiation, providing both science and politics with a standardized way to select their mutual interdependencies, while also offering more opportunities for their self-referential reproduction.

Other avenues of future research involve investigating the potential consequences that the emergence of sustainability may produce

on the inner functioning of modern society, including the reciprocal autonomy and interface between science and politics –considering how sustainability seems to produce at once a politization of science and an epistemization of politics– or how it triggers a reconfiguration of juridical arrangements at the national, subnational and trans-national levels. In sum, sustainability bridges the gap between the past, the present and the future; it gives a new name and interpretation to problems that have plagued society in the past; it gives ground to novel forms of communication within science and politics in the present. Consequently, it may be a hallmark of change in the society's future evolutionary trajectory. A word of caution about attempting to forecast future developments before they happen: while the current sustainability debate and the new governance arrangements that have been arising around it can be seen as signs of an emerging structural transformation, there is no guarantee that this transformation might not be reversed in the future, or simply proceed in an unexpected direction, different from what the very advocates of sustainability would anticipate. History is rich with such examples.

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