



# Media Reform as Transformation Tool: A Hegemonic Gap in Environmental Research and Policy

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## Abstract

Sustainability researchers are writing much about levers for transformations towards sustainability but too little about the most powerful means available for obstructing and activating them: mass-reaching media systems. How media systems are structured and governed form a profoundly important meta-level layer of decision-making that ought to be central in the study of environmental politics and in environmental policymaking. A politics- and media-focused account of the rise of Jair Bolsonaro to the presidency of Brazil illustrates the essential role of media systems and the need for new principles, structures, and policies for their governance if the interlinked goals of democracy, equity, and environmental protection are to be achieved. The pervasive inattention to this in environmental research reinforces hegemonic forces and needs to be widely discussed, understood, and overcome to achieve much needed just transformations towards sustainability.

**Keywords** Media reform · Digital media · Artificial intelligence · Cognition · Hegemony · Global environmental change · Sustainability transformations · Brazil · Research policy · Inequality · Workers Party · Jair Bolsonaro

## Introduction

The social world is obdurate but subjective; its structures are fueled by interpretation; its so-called laws are actually norms re-instituted time and again, dramatized every moment of every day. The ‘realism’ of society and its investigation are achieved and performed; they are not naturally there (Alexander, 2019).

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Jeffrey Alexander's sociological articulation of the nature of the social has deep implications for scholarship and action on global environmental changes (GEC). Widely supported by populations around the world, nearly 200 governments have committed to United Nations treaties bearing on human rights, just and responsible development, climate change mitigation, and sustainability transformations, but are failing to actually meet them (Conca, 2015; Dimitrov, 2020; Dixson-Declève et al., 2022). Not even 30% improved delivery on nations' commitments under these treaties would reconcile the global sustainable development goals with respect for planetary boundaries (Randers et al., 2019). Specificity as to how transformations towards sustainability can be set into motion tends to be lacking, despite a growing body of literature and policy frameworks on sustainability transformations (Bentz et al., 2022; Lahsen, 2020; Global Sustainable Development Report, 2019).

Contrasting pervasive feelings of powerlessness to mitigate GEC (Jamieson, 2014), taking to heart social systems' dependence on interpretation and repetition implies a certain fragility of dominant order. Derived from the Latin word "medius," "media" refers to communication channels of many sorts, including telecommunications media (which involves one-to-one communications, as via telephones) and mass- and social media (both of which can involve one-to-many communications, as via printed newspapers, radio, and television). Intervention in what messages are transmitted in large-scale and repetitive manner is an exceptionally powerful lever for societal change, one that could be used in favor of GEC mitigation and sustainability (Abson et al., 2017; Meadows, 1999). Mediated by someone or something, such as our parents, school education, museums, photos, film, television, games, or internet, the vast majority of what we assume, believe, know, and value is given form through symbols (typically language and images), rather than somatically, through direct sensory sensation of our surroundings (Ott & Mack, 2020). Humans understand the world through signification—systems of frames, metaphors, and narratives which, when pervasively repeated, come to widely influence values, goals, and beliefs, including perceptions of available strategies and empowerment to act and have impact (Carvalho et al., 2017). If repeated over the long haul, not least through mass-reaching media systems, meanings tend to shape "cultural givens," with potentially great socio-environmental implications. For example, many dominant assumptions about science, progress, finance, and nature have grave implications for how natural resources are used and cared for (Berry, 2019; Hansen, 2010; Lakoff, 2010).

Due to their reach, media systems would seem an obvious focus for environmental research and policy. Rarely challenging audiences to think and act in the global interest (Patrick D Murphy, 2017), current media systems are not governed and used to fulfil their transformational potential, quite to the contrary (Herman & Chomsky, 2010; Lahsen, 2020; MacLeod, 2019; McChesney, 2007; Slaughter, 2021). Despite its deep-cutting socio-political influence, this aspect of "epistemic governance" (Alasuutari & Qadir, 2019) is rarely discussed in GEC research and policy. Neither realm tends to include—and much less centrally so—the topic of how media

systems could be reformed and governed in ways that improve well-being of life on earth, including socio-economic equity and preservation of biodiversity, ecosystems, and natural resources on which it depends (Leach et al., 2018).

Arguing that reform and wiser governance of media systems is a tool that societies cannot afford to ignore if they are to enhance prospects for just sustainability transformations, this article illustrates (1) the centrality of current media governance for environmental devastation and (2) the limited extent to which environmental research and policy discuss the importance of media systems, in particular their reform and wise governance as potential levers for enhancing social well-being, equity, and preservation of Earth's life-supporting systems. To focus and support the argument, the first sections discuss examples from Brazil that illustrate the power of media systems in recent environmental devastation in Brazil. These sections set the stage for description and analysis of how media systems, and specifically the need for their reform, feature in social theory and in GEC research and policy.

The term “media systems” adopted here is meant to be inclusive of these various types of media, but especially mass (one-to-many) media and social media with large-scale reach. Micro-targeting using artificial intelligence-driven algorithms increasingly shape both traditional print- and newer digital media content and blur distinctions between mass and social media (Kitchin, 2017), at least at the level of reach and societal impacts. Social media often involve person-to-person (non-mass) communication, but they have also become an important means of shaping large-scale public outcomes, including through micro-targeting to, for example, influence national election outcomes (Ituassu, 2019; Ott & Mack, 2020; Zuboff, 2019).

## A Media-Centric Account of Environmental Devastation in Brazil

### Responsibility Attribution 1.0

Brazil's exceptionally biodiversity rich and climate stabilizing biomes have long been devastated by an ill-conceived, extraction-based development model that is exceedingly harmful and wasteful (Viola & Franchini, 2012). Neoliberal globalization and technological modernization have exacerbated the extent to which this model benefits only a tiny population segment—in narrow, financial manner—while generating relatively few jobs and high socio-environmental public costs, including climate change, biodiversity loss, and food and water insecurity (Lahsen et al., 2016; TRUCOST, 2015). While often prioritizing economic considerations over environmental ones (Hall & Branford, 2012), 14 years of government led by the Workers Party (*Partido Trabalhista*, “PT”) (2003–2016) brought impressive environmental advances, including reduction of deforestation and greenhouse gas emissions (Azevedo, 2015). By contrast, deforestation and emissions intensified rapidly and dramatically under the presidency of right-wing politician Jair Bolsonaro (2019–2022), along with pollution. In the wake of his 2018 electoral victory, *The Guardian* observed: “our planet can't take many more populists like Brazil's Bolsonaro” (Watts, 2018). Evidence quickly proved it right (Werneck & Angelo, 2021).

Measurements published in 2023, the year following Bolsonaro's electoral defeat, show that annual greenhouse gas emissions from the Brazilian part of the Amazon forest roughly doubled during his first two years in office (2019–2020) compared with the two preceding years (Gatti et al., 2023). The study's authors called attention to the importance of environmental laws, and their enforcement, to prevent deforestation, degradation, and fires associated with cattle ranching and farming, facilitated by a deliberate systematic removal and downgrading of environmental laws and their enforcement. In an accompanying interview (Greenfield, 2023), the lead author highlighted Bolsonaro's responsibility for the spike in emissions and forest destruction, as well as the agribusiness interests that he served. Stressing the Amazon forest's role as a buffer against climate change, Luciana Gatti commented: "agribusiness in Brazil is looking to the Amazon to turn the country into the farm for the world. This is a terrible plan, not only for Brazil but for the whole world" (Greenfield, 2023).

The implicit take-away action messages were thus as follows:

- Choose carefully who you vote for.
- Mobilize to prevent such disastrous politicians and forces that destroy conditions for life, present and future.
- Oppose plans for Brazil to be a farm for the world.
- Pressure governments to strengthen and enforce national laws and regulations in favor of forest protection and climate stabilization.

The article and its communication in national media are politically highly relevant, providing ammunition for presidential debates and record keeping. The messages are not particularly enlightening about how things might change, however, and as such they are at best vaguely actionable and empowering. By the time of the scientific publication in August 2023, Bolsonaro had lost the presidency and deforestation had already plummeted under the return of the Workers Party President "Lula" da Silva that same year (Press, 2023). Moreover, neither the measurements nor the problem framing point to obvious policies or strategies for preventing that another election—or impeachment—bring to power such a spectacularly disastrous politician and administration. Nor do they convey how to change the damaging extractivist development model and the intensifying power of Brazil's agricultural lobby that predated Bolsonaro (Accioly & Sánchez, 2012). Here, as is common in environmental science (Lahsen, 2020), the *how* of desired social change, the mechanisms, were left unclear.

All stories leave something out; without doing so, they would not be coherent and effective—they would not be stories at all. Gatti et al.'s (2023) attribution of responsibility for the tragic destruction of Brazil's biomes and the doubling of national greenhouse gases singled out President Bolsonaro and his administration, an abstract category of agricultural policy, and insufficient laws and law enforcement pertaining to forest protection. As such, the scientists stayed well within what is commonly thought of as the "environmental realm." Transgressing the boundaries of that realm, an alternative responsibility attribution could have highlighted the machinery of signification and its political economy. These factors were as essential to Bolsonaro's rise to the presidency, but they are less discussed in GEC research (Hackmann et al., 2014; Lahsen & Turnhout, 2021; Newell, 2011; Overland & Sovacool, 2020; Roberts, 2011; Stoddard et al., 2021).

## Responsibility Attribution 2.0: Adding Media

Looking to a mix of alternative journalism and niches in the social sciences and humanities, one can piece together the confluence of historic, political economic, and technological conditions that empowered Bolsonaro. These conditions simultaneously reflected and reinforced long-standing narrow, private, oligarchic, political, agricultural, and geopolitical interests at the expense of improved democracy, socioeconomic equality, and environmental protection. All of these elements come together in an alternative story focused on the role of media in Bolsonaro's ascent to power.

Bolsonaro's rise was only possible because of a "soft" coup using "law fare"—that is, (mis)use of law as a substitute for military means to achieve the objective—with the support of virtually all of Brazil's powerful mass media outlets, albeit a few less than others (Rodrigues, 2018). Planned by elite opponents of the Workers Party, including a coalition of members of Brazil's Congress and military (Leirner, 2020; Van Dijk, 2017), the goal was to remove the Workers Party, which had won every popular election since the turn of the century, and to replace it with a center-right government more inclined to serve a neoliberal agenda and, thereby, finance and US interests (Mier et al., 2023). The plot resulted in the 2016 impeachment of the democratically elected Dilma Rousseff on illegitimate grounds (ibid.). Resoundingly biased reporting presuming her guilt and favoring her impeachment was found in all the country's major news outlets, reinforced by dramatic televised spectacles portraying both her and then ex-President Lula as criminals responsible for the merely alleged misdeeds and corruption (Rodrigues, 2018). Dilma Rousseff had gained the presidency after "Lula" da Silva (2003–2010), who left office with a Nobel Peace Prize and public approval levels at 83% (Marinho, 2010), having brought exceptional reduction of not only deforestation and greenhouse emissions but also hunger, poverty, and inequality (Sauer et al., 2019). These conquests—core elements of recommended policies for sustainability transformations (Dixon-Declève et al., 2022)—were lost with the impeachment.

To obstruct the Workers Party's return to power after an interim government under the center-right Michel Temer, the law fare coup also fabricated charges against then ex-President Lula, who was the leading candidate in the 2018 presidential election. Lula was imprisoned in April 2018, without due process, prohibiting his candidacy. He was also denied access to the press until well after Bolsonaro's election (Mier, 2023). Brazil's Supreme Federal Court eventually ruled Lula's imprisonment unlawful, freeing him in November 2019, a year after Bolsonaro had won the Presidency in general elections. The UN Human Rights Committee eventually confirmed that Lula's rights were violated—his political rights and his rights to privacy and to be tried by an impartial tribunal (United Nations, 2022). Reducing the pressure of international opinion, factual knowledge about the law fare plot and other problematic aspects of these major, consequential political events were also obstructed outside of Brazil by the corporate press in the Global North (Mier, 2019). Foreign corporate media kept international audiences largely oblivious to the illegitimacy of both Dilma's impeachment and Lula's imprisonment, as well as the "overwhelming" evidence of US involvement (Mier, 2023). Pro-Lula information circulated in much smaller networks and had less reach (Dourado & Salgado, 2021).

Interviewed immediately before Dilma's impeachment, then ex-President Lula observed: "Nowadays in Brazil, we don't have opposition parties. In reality, the opposition is the media itself. ... the media has assumed the role of the party. This is serious. This is a risk for democracy" (Greenwald, 2016). Scholarship confirms that Brazil's media are political actors in their own right, a fact rarely recognized in the international policy literature (Hughes & Prado, 2011). Brazil's commercial media tend to be partisan. They lean right on the political spectrum and contrast public interests and the great diversity of its civil society (Reporters Without Borders, 2013). In the words of an academic analyst:

The impeachment of Brazilian President Dilma Rousseff in 2016 was the result of a coup of the economically dominant conservative oligarchy against the leftist [Workers' Party], in power since 2003. The right wing Brazilian media played a crucial role in this coup by manipulating public opinion as well as the politicians who voted against Dilma. In particular, the media of the powerful Globo Corporation, such as the *O Globo* newspaper, and especially Globo's *Jornal Nacional*, the pervasive TV news program, systematically demonized and delegitimized Dilma, as well as ex-President Lula and [their Workers Party], in their news reports and editorials by selectively associating them with pervasive corruption and attributing the serious economic recession to them (Van Dijk, 2017, p.199).

An analysis of budget allocation shows that, once in power, President Michel Temer quickly and significantly boosted government funds flowing to media outlets that supported Dilma Rousseff's impeachment and his administration (Fonsêca et al, 2017, p.31–32).

The plan to remove the Workers Party was successful, but only for six years. Moreover, a central feature of the plan went awry: the plan to bring a center-right PSDB party candidate and government to power. The unpopularity of the interim center-right government, and leaked information showing corruption on the part of the supposed anti-corruption forces going after the PT, ended up engulfing the center-right in controversy as well, along with the entire national political system (Feres Júnior & Gagliardi, 2021). The PSDB lost popular support and popularism rose along with public distrust of government—sentiments also cultivated by right-wing forces via social media. This left Bolsonaro as the most powerful alternative opponent of the Workers Party. His electoral success in November 2018 owed to the described political interventions, combined with strategic use of social media and super apps such as WhatsApp and Telegraph, harnessing unprecedented, cutting edge algorithmic power (Epstein, 2022; Machen & Nost, 2021). From abroad, there were also strong signs of support coming from an international right-wing network, including Steve Bannon (Cesarino, 2019).

Lula re-won the presidential elections in 2022, but by a very narrow margin. The campaigns against him made him a much more divisive figure, helped by outdated national communications policy and lacking law enforcement, public involvement, and oversight, a longer-standing context discussed in the section that follows.

## Media: An Anti-Democratic Force

After witnessing Brazil's media facilitate the political coup against Brazil's democratically elected president on illegitimate grounds, Reporters Without Borders (2016) ranked Brazil 104th in press freedom. Pointing to oligarchic ownership structures as a central reason for Brazil's political turmoil, the organization commented:

Brazilian media coverage of the country's current political crisis has highlighted the problem. In a barely veiled manner, the leading national media have urged the public to help bring down President Dilma Rousseff. The journalists working for these media groups are clearly subject to the influence of private and partisan interests, and these permanent conflicts of interests are clearly very detrimental to the quality of their reporting (Miranda, 2016).

Media are a profoundly powerful and non-democratic force in Latin America (Hughes & Prado, 2011, p.109). Among the world's largest, Brazil commercial television network is exceptionally influential, also in international comparison (The Economist, 2014). Social media platforms and super apps have become central in Brazil, as elsewhere, under surveillance capitalism, including as tools for elite interferences in national elections subject to very little transparency (Witt & Pasternack, 2019; Zuboff, 2019). Television remains a powerful influence in Brazilian society and politics (Mauersberger, 2016), however, and it is the most trusted media source of news (Reuters & Oxford University, 2020). In the early 2010s, 97% of households had at least one television set, and 73% of the population watched television every day for an average of over four hours. Particularly ubiquitous and singularly dominant, the Globo network enjoyed over 40% of all viewership in 2020 and trust levels above 50% (Reuters & Oxford University, 2020).

As in most Latin American societies, in Brazil "a small elite uses the media's definitional power to, consciously or unconsciously, further a set of class and family-based interests and ideologies that have helped maintain a status quo of social inequality" (Hughes & Prado, 2011, p.109). During the most recent military dictatorship (1964–1985), media outlets served military leaders' agenda to stimulate a consumer economy and control political information (Hughes & Prado, 2011). Indeed, with only one exception from the transition to democracy until the election of Bolsonaro in 2018, Brazil's mainstream media, led by the exceptionally powerful "Globo" media empire (The Economist, 2014), favored the center-right Partido da Social Democracia Brasileira (PSDB) candidate against the Workers Party candidate. Media coverage was consistently positive when it came to the PSDB, and negative towards the PT and its candidates (Feres Júnior & Gagliardi, 2021). Still four decades after the spread of electoral democracy in the region, few Latin American media outlets support deepened democracy (Rebouças & Dias, 2015). Moreover, they "privilege entertainment and a consumerist aesthetic to the detriment of more accurate and in-depth (political) debate" (Matos, 2014, p. 148).

This long-standing pattern of undemocratic power in the interests of the few persists (Rodrigues, 2018) and is now boosted by social media and artificial intelligence-powered algorithms and associated socio-political and economic arrangements, allowing a level of psychological manipulation unprecedented in human

history (Epstein, 2022). Furthermore, Brazil has no laws prohibiting a single corporate entity ownership of multiple types of media companies (“cross-ownership”), allowing traditional media companies to subsume also internet media sites and thereby further consolidate their already massive power (Rebouças & Dias, 2015). National media owners include politicians and large landowners (Brazil’s traditional political elites) who have a long history of using local media to gain public office, from where they serve rural interests. The Federal Constitution of 1988 prohibits this conflict of interests as well as monopolies and oligopolies. This is widely ignored, however. Besides, no law defines what constitutes monopoly or oligopoly, and media-owning politicians hide behind figureheads, often family members (Fonseca et al, 2017; Hughes & Lawson, 2005; Mauersberger, 2016; Reporters Without Borders, 2013).

Expressing the impact of these arrangements, political leaders, business elites and entrepreneurs, academics, and 41 presidents interviewed for a 2004 report considered the principal obstacles to democracy in Latin America to be inadequate institutional controls, the multiplication of interest groups that function like lobbyists, international markets, and increasing media concentration. Their responses to the question of who exercised more power in the region centered on the financial economic sector (79.8%) and the commercial market media (64%) (Matos, 2014, pp. 145–146), which are interlinked. Media influence against effective environmental policy in Brazil includes persistent messaging in favor of the agricultural sector, among others, variously hiding and justifying destruction of Brazil’s life-supporting biomes in service of an extractivist development model that favors the few over the many (Lahsen et al., 2016). Journalists experience pressures and professional incentives to present favorable coverage of the agribusiness (Capital, 2017).

Iterative signification builds systems of mental frames and motivating norms and beliefs (Lakoff, 2010). In Brazil, dominant media messaging portrays the damaging extractivist development as necessary for Brazil’s economy and as sustainable (dos Santos et al., 2019; Milanez & dos Santos, 2019). At times amounting to a near taboo, this includes pervasive avoidance of critical information and discussion about the main source of national greenhouse gases and driver of deforestation: meat production (Lahsen, 2017). Where meat production is recognized as an environmental problem, this knowledge is often accompanied by disempowering messages about the possibility of reducing meat consumption and production (Lahsen, 2017). Investigative journalism suggests that corporations such as Exxon, BlackRock, and Cargill exercise great gatekeeping power over international reporting to spread similar pro-business, pro-extractivist messages (Brazilwire, 2021).

## Difficulty of Media Reform in Brazil

Policies define who has oversight and the financial resources to shape and repeat messages in media. These policies could be designed to favor equity and transformations towards sustainability. While not easy, progressive changes might be achieved



if the problem with current media systems and structuring policies became more general knowledge and a focus for activism.

Brazil's 1962 communications policy is grossly outdated and deeply inadequate, even more so for regulating new communications technologies and media platforms (Mauersberger, 2016; Reporters Without Borders, 2013). Policy reform to update and democratize the country's media antagonizes the higher social classes, including the media (owners) themselves, causing political vulnerability on the part of its undertakers and supporters. It is difficult to obtain political support for media reform among politicians and other powerful actors, because the current system is central to the perpetuation of their power. Facilitating their reelection and political favors, broadcasting licenses are a vital source of politicians' power and access to public office. Many politicians are media owners, despite a constitutional prohibition against it. They are often also large landowners and part of the "ruralist" caucus, the largest lobby in the Brazilian government (Reporters Without Borders, 2013), which centrally shapes national politics and, even, presidents' fates (Capital, 2017). A 2013 report by Reporters Beyond Borders about the politics of Brazil's mass media included the observation that it is "Easier to remove the president in Brazil than to withdraw a broadcast frequency from any politician" (Reporters Without Borders, 2013, p.1).

During her first years in office (2011–2014), President Dilma Rousseff maintained a timid position with regard to media reform, deflecting the topic by saying that the only media control she took into consideration was "the remote control," meaning individual agency to change between available TV channels (Mauersberger, 2016; O Estado de Sao Paulo, 2011). This aligned well with common but fallacious (Rebouças & Dias, 2015) framing of media reform as censorship, as if media left to market forces served freedom of expression and democracy. It discontinued a media reform project that Lula had begun but not completed while president (Jiménez, 2019; O Estado de Sao Paulo, 2011). While still stressing opposition to government interference in content, Rousseff eventually decided to make democratizing media reform part of her second term's political platform. Her proposal for her successful bid for a second term in office (2014–2018) was to alter the political economy of national media away from oligarchic, monopolistic control and provide support for community and non-profit media outlets. Challenged by media organizations, political opponents and, even, from segments of her own coalition, the policy initiative did not materialize, however. Rousseff did not manage to get her proposal through the legislative process, and her attempt antagonized media outlets, further motivating their mobilization against her (Rodrigues, 2018; Santos & Guazina, 2020; Van Dijk, 2017).

In his first interview from prison, journalists asked then ex-president Lula whether he had regrets on a series of fronts. He responded no to each of them. His only regret—a "grave error" that he brought up, unprompted—was not having prioritized and pushed through Congress his drafted democratizing reforms of the national telecommunications policy before leaving office (Jiménez, 2019). His exceptional political skills and great popularity at the time had offered a policy window (Kingdon, 1985). His

decision against using this power then was consequential, to the extent that it enabled the impeachment, after which many of the PT's advances in combatting hunger, poverty, and deforestation were rolled back; all three problems spiked back after the return to neoliberal policies under the Temer and Bolsonaro governments (2016–2022), which followed the common recipe of privatizations of state companies, concessions to foreign oil companies, and draconian cuts in social spending.

## Discussion: Media in Environmental Research

Lula might also have expressed regret about the Worker Party's choice of research emphasis. Under Dilma Rousseff, Brazil invested massively in scientific capacity under the "Science Without Borders" program. With the explicit ambition of helping Brazil to become a prosperous knowledge society, eighteen areas eligible for funding were all technical and scientific in a narrow sense.<sup>1</sup> The social sciences and humanities ("human sciences") were entirely excluded. This was not an oversight. The ministries of education and science and technology emphatically insisted on this exclusion when it was challenged in court.<sup>2</sup> They argued that inclusion of the human sciences violated the very goals of the program. Ironically, the aim—becoming a knowledge society—by definition entails transformation of information into resources that facilitate the ability of all of its members to take effective action that benefits the society as a whole (Stiglitz & Greenwald, 2014). International science leaders and institutions consider inclusion of the social sciences, at a level at least equal to the natural sciences, to be vital to improving societal benefits in the form of transformations to sustainability (Lahsen, 2016). In the area of climate change, such research might productively center on the question of how to activate levers that simultaneously serve the goals of sustainability, equity, and democracy (Global Sustainable Development Report, 2019). An internationally under-funded topic at present, this topic was highly relevant to PT's political platform, helping align PT's socio-economic and environmental agendas. Exclusion of human sciences thus arguably undermined rather than advanced the stated goals of both the national program and the government at the time.<sup>3</sup> Furthering the irony, this research investment that was intended to promote national development excluded critical investigation of the social forces that caused PT's own downfall and dramatic economic, institutional, and environmental regression.

In the section that follows, I review pertinent knowledge and trends in scholarship bearing on the relationship between media, power, and social change. This sets the stage for the subsequent section, which illustrates the pervasive inattention to media systems' influence and reform in environmental research, including social science prescribing research agendas addressing GEC challenges.

<sup>1</sup> <http://www.cienciasemfronteiras.gov.br/web/csrf/areas-contempladas>, Accessed 1 April 2021.

<sup>2</sup> <http://portal.mec.gov.br/ultimas-noticias/222-537011943/18394-tribunal-susta-liminar-sobre-a-inclusao-das-ciencias-humanas>.

<sup>3</sup> See also [https://en.wikipedia.org/wiki/Knowledge\\_society](https://en.wikipedia.org/wiki/Knowledge_society), Accessed 6 April 2021.

## Media and Power

Firmly supported by social theory and empirical evidence alike (reviewed below), at one level the importance of what messages are spread and repeated seems obvious. Especially with the spread of neoliberalist ideas since the 1980s (Brown, 2015), however, calls for public concerns about media systems' negative public impacts, and for active democratic involvement in media systems' design, are countered by a significant stream of scholarship (Gavin, 2018). In synch with prominent cultural beliefs in contemporary Western societies (Turner, 2013), the Minimum Influence Thesis (Gavin, 2018), for example, holds that media systems mainly reinforce pre-existing attitudes, and that citizens enjoy decisive agency over what media messages they absorb and engage.

Preset commitments are known to powerfully guide both what information individuals and groups are inclined to believe and whether and how they act upon it; once in place, meanings and attitudes become largely unconscious and difficult to dislodge, obstructing uptake of divergent information (Kahan et al., 2012). Individuals enjoy some level of agency in the form of independence of perception and resistance to dominant ideas (Neuendorf & Jeffres, 2017; Radway, 2009). Such agency has also been pooled into collective action in innumerable ways. For example, grassroots organizations across the world, including Latin America, have used social media strategically to create community and organize to challenge corporations' impacts on climate change and on the quality and availability of food, water, and other natural resources. For example, some indigenous peoples called governmental and broader world attention to violations of their rights and lands by uploading to Google Cloud and social media platforms images, videos, and narratives about their culture and the violations of their lands. Discussed by Patrick Murphy (Murphy, 2017), such cases illustrate that media events and communication technologies can be leveraged to expand the repertoire of discourses, bringing greater attention to realities, meanings, and perspectives that are otherwise silenced or marginalized.

Lack of adequate access to media is nevertheless one of the factors that marginalize environmental justice movements (Ciplet et al., 2015, p.160), as they are up against a pervasive global reality of concentrated, commercial media ownership and control. The lever in the form of media attention also turned short-lived and insufficient to meet the goals of the indigenous groups discussed by Murphy (2017). Moreover, while contemporary media systems quite widely cover environmental problems and convey criticisms of inaction, they tend to limit the focus to weakly ecological changes in consumer choices and to discourses that rarely challenge ecological modernist frameworks and associated doctrines of free market forces, individualism, and perpetual growth that drive humanity's ecocide (Murphy, 2017).

Overwhelmingly serving narrow and opaque financial and political interests, the current arrangement of media systems engenders a chastened state and a "depoliticized culture of selfishness and consumerism" (Hackett & Carroll, 2006, p.4). A 2023 report by investigative journalists revealed commercial partnerships between fossil fuel companies and major, widely trusted mainstream news outlets in the US and Europe, including Reuters and the New York Times. The collaboration involved careful design of favorable ("greenwashing") content about the sector and about policy schemes that the sector favors, as well as reinforcement of misleading "ecological

modernist” narratives and institutional frameworks according to which industries are responsibly greening in step with the ecological challenges (Murphy, 2017; York & Rosa, 2003). Corporations now complement such long-standing use of traditional, “vertical” media (print, television, radio advertising, etc.) with super apps and personalized, “horizontal” social media channels such as Twitter, Instagram, Facebook, and YouTube (Murphy, 2017; Steinberg et al., 2022), subject to little transparency and public accountability and benefits (Zuboff, 2019).

Grabbling with media systems’ power requires consideration of how worldviews and interpretive inclinations are formed in the first place, including the relative inability to absorb divergent information, the resistance that informs the Minimum Influence Theory. Powerful attitudes and perceptual filters do not form out of nowhere (Lahsen, 2008; Proctor, 1998). Like all messages, messages about environmental risks emanate from a wide variety of sources, both formal and informal, including parents, school, museums, for example, and receivers play an active role in how they are received (Hansen, 2010; Otway, 1992). Mediating institutions are plentiful, but media systems are *the* space of power in contemporary societies—the place where politics play out (Castells, 2011), including climate politics (Anderson, 2009). On balance, media omissions and framings overwhelmingly ultimately support environmental destruction and obstruct the formation of understandings and values that inspire environmental protection (Carvalho et al., 2017; Freudenburg, 2005; Hansen, 2010). Research on cognition shows apparently intimate, private values, beliefs, emotions and, even, biological aspects to be deeply social (Mercier & Sperber, 2017; Proctor, 1998) and imprinted by political economic forces, including environmental understanding and dispositions, not least through media systems, new and old (Lakoff, 2010).

Jürgen Habermas (1984) envisioned a public sphere that would nurture social and institutional interactions and forums for inclusive, open, and transparent debate by which to reason together and reach informed positions. By contrast, current media systems resemble those of the Frankfurt School’s “culture industry,” which naturalizes and promotes elite interests (Benson, 2009). They depoliticize issues in need of critical public attention and debate and form a general context for the academic lacunae and silences. For this reason, neo-Gramscian scholarship conceives of media as part of a networked civil society that to a significant extent helps secure public support for hegemonic agendas and arrangements (Ford & Newell, 2021). Critical scholarship highlights the deep influence of contemporary commercial media on perceptions and their profound societal consequences (Carvalho et al., 2017; Gavin, 2018), backed by political economic analyses of media systems and associated technologies (Anderson, 2009; Gramsci, 2000; Hall, 2005; Herman & Chomsky, 2010; Lahsen, 2020; MacLeod, 2019; McChesney, 2007; Slaughter, 2021).

While national and regional differences exist, much of the class dimensions of Brazil’s media system and its ownership reflect global patterns. Around the world, media systems tend to bolster societal arrangements that disempower civil society as well as national governments, including their ability to prevent socio-environmental destruction (Provost & Kennard, 2023). This is achieved by a variety of means, including transmission of understandings and values that favor democratic deficit, socio-economic inequality and elite privilege, all of which tend to translate into environmental destruction (Freudenburg, 2005; Leach et al., 2018; Pickering et al., 2022). In Brazil as

elsewhere, mass-reaching media systems are a prime means by which elites persuade publics into acceptance of their disproportionate wealth and power (Eleftheriadis, 2014; Rowlett & Gerken 2021; Lipton, 2015; Mancuso, 2007; Markus & Charnysh, 2017; Shiva, 2019; Tienhaara et al., 2012). Importantly, for example, private media tend to naturalize inequality and to intensify it, including by swaying popular preferences in favor of privatized rather than democratically controlled media structures. Examples are described by Kennedy (2019) and found in the form of a *New York Times* article (Kulish, 2021) about the pervasive trend of billionaire acquisitions of newspapers in the United States. The article presents billionaires' choices to acquire newspapers as a selfless civic service and as the better of supposedly just two conceivable options, the other being ownership by hedge fund owners. By contrast, in the words of a New York University Professor of Media, Culture, and Communication, "The great danger to North American democracy is not the virtual death of daily newspapers. It is the concentration of media owners in the country" (Lima, 2010).

With regard to new digital media platform and artificial intelligence, European countries lead the world in efforts to instate protection against abuses, including hate propagation (Alkiviadou, 2019) and privacy violations (Hamilton, 2021).<sup>4</sup> But they, too, are doing relatively little about these intertwined media and AI technologies' deeper, pervasive power and destruction of meaningful democratic rule. Reducing this power requires addressing deeper inequities and questions of ownership and democratic control (Matos, 2016; McChesney & Pickard, 2017; Slaughter, 2021; Zuboff, 2021). It requires active, wise choices and new narratives that can discredit and transcend a hegemonic neoliberalist logic that currently saturates social spheres, shaping crucial aspects of language, practices, and ideas, served by corporate media which also naturalize predatory use of nature (Berry, 2019; Freudenburg, 2005; Lahsen, 2017; Murphy, 2017).

Media systems could conceivably transmit other sets of values, such as values in favor of environmental protection, fairness, equity, empathy, responsibility, and openness to new ideas. Studies of antiquity show that not only the demos but also, sometimes, civilizations' very existence are undone when rulers and dominant meanings fail to subscribe to principles and values along these lines (Brown, 2015; Butzer & Endfield, 2012; Lakoff, 2010). This would align with the widely popularly supported commitments mentioned in the introduction—commitments that nearly 200 countries have made under international treaties bearing on human rights, just and responsible development, climate change mitigation, and sustainability transformations. Societies could choose to emphasize transmission of such values. But that requires that they also choose and manage to govern media democratically and in favor of the many.

Given the existence of quite extensive knowledge of the significance of media systems for societal outcomes, it is striking—and puzzling, unless one considers hegemonic structures and incentives—that relatively little attention in environmental research, policy and societal discussions focus on the need to rethink policies and political arrangements that bear on media systems.

<sup>4</sup> Some, including Shosana Zuboff, look with hope to the European Uniform Domain-Name Dispute-Resolution Policy (UDRP) (Hamilton, 2021, p.153).

## Social Science Tendencies and Gaps

While more support, including funding, for social science and humanities research is welcome and needed (Lahsen & Turnhout, 2021; Overland & Sovacool, 2020), it is no panacea in itself. Much work in these fields also insufficiently addresses the systemic aspects reviewed above and how mass media reform might support sustainability transformations.

There are positive examples, such as Murphy (2017) and Anderson (2009), who call for sustainability research and action focused on the political economics and other power dimensions of media. Anderson (*ibid*, p. 166) called in 2009 for research into the increasing concentration and globalization of news media ownership and sophisticated use of media by public relations companies hired to legitimize environmental destruction. In 2010, Lahsen et al. (2010, p. 370) called for including politics-attentive, critical media analysis in international research agendas addressing climate impacts, adaptation, and vulnerability, including how they can be designed and used to overcome entrenched, parochial, conflicting interests, inertia, and lack of political will.

These calls have not been widely heeded, however.

Sustainability science serves as example. The contours around sustainability science are vague at best, given its interdisciplinary nature. Drawing from a range of perspectives, including, among others, ecology, economics, engineering, medicine, political science, and law, it seeks to understand and address the complex challenges associated with achieving sustainability. Sustainability science aspires to bridge gaps between research, policy, and action by both developing and applying knowledge, tools, and strategies that promote sustainable development. Yet there is not even a *reference* to media - nor to artificial intelligence and, specifically, the intensifying power of algorithms - in an extensive, 42-page review of the field after 20 years of contributions, much less discussion of the need for their reform (see (Lahsen, 2024), forthcoming). Structural power—the third dimension or “face” of power that roughly corresponds to Gramsci’s notion of hegemony and that works through signification—is weakly engaged in the field, according to the field’s own leaders (Clark & Harley, 2020).

GEC and sustainability researchers have widely called for new narratives and for a bottom-up, “values-led shift toward an alternative global vision,” including “lifestyle changes and greater social solidarity” (Raskin et al., 2002, p.47). They implicitly and explicitly place hope on civil society mobilization as the motor of broad-based transformations in norms conducive to transformations towards sustainability, but without any detailed framework for how. Besides often understanding “the people” through under-developed, under-critical lenses (Adloff, 2021), analysts rarely specify how populations might overcome the formidable knowledge and action obstacles on their own, in a context of digital tools with unprecedented power to sway public perceptions and behavior (Epstein, 2022; Lahsen, 2005, 2020).

The growing interest in how to change norms is a positive trend. The discussions about norms and levers tend to remain abstract and timid, however, (Lahsen, 2020). Despite titles such as “Leverage Points for Sustainability Transformation,” “Social Norms As Solutions” (Nyborg et al., 2016), and “A Great Transition? Where We

Stand” (Raskin, 2014), this literature rarely discusses media systems—and much less the need for their reform and processes for achieving such reform. Nyborg et al.’s (2016) article in *Science* about norms as solutions to social problems ends with a nod to mass media but goes no further (“Key issues we did not engage here but which require continued study include group norms, social identity, norm internalization, and the role of new technologies and social media,” p.42, emphasis added). Corbett’s article in *Nature Climate Change* (2015) stops at merely posing the question of whether media serve larger populations or elite interests. Dixson-Declève et al.’s “survival guide for humanity” (2022)—a report to the Club of Rome lauded by world environmental leaders—is replete with detailed, valuable recommendations such as a need for universal basic dividends, trade re-unionization, and new narratives. However, like the other works, it also does not mention mass media and communications, neither as obstacles nor as means of activating the aimed for transformations.

As these prominent examples illustrate, the topic of the political economics and governance of mass media nearly invariably gets written out of rather than into analyses. And that applies, even, to authors who have expertise in political economics and hegemony—leading environmental social scientists who offer otherwise excellent and hard-hitting reviews of entire fields in attempts to explain and overcome inaction on climate mitigation and shape research directions for that end. Santos et al.’s (2022) review of the barriers and solutions to achieve stronger climate mitigation mentions communications, including campaigns by fossil fuel interests. But it does not mention media and their ownership and needed reform. Similarly reviewing climate mitigation obstacles, Stoddard et al. (2021) stress the obstructing role of prevalent imaginaries, yet they, too, exclude analysis of mass media. A review of the sociological climate literature by another, smaller-sized star team of social scientists led by Falzon et al. (2021) mentions mass media and associated algorithm-boosted manipulation techniques as drivers of climate change. However, mass media are not among their recommended topics for future research (the closest to it is a possibly relevant but unelaborated and abstract call for attention to “design and visioning ‘imaginaries’”). Similarly, Folke et al.’s (2019) otherwise resoundingly power-centered analysis of transnational companies control of planetary resources and outcomes mentions mass media, but only in a single sentence; it lists media among other sectors marked by concentrated corporate ownership, but it otherwise centers entirely on more traditional and material foci in environmental research and policy literature—energy, minerals, food production, etc.

Other positive but limited examples include Lenton et al. (2022) and Newell et al. (2022). Lenton et al. list “broadcasting public information and behavioral nudges” among the actions that can trigger positive tipping points. They do so only in passing, however, similar to Folke et al. Authored by Newell and thirty other high-level experts in environmental social science and communications, the 73-page *Cambridge Sustainability Commission on Scaling Behaviour Change* report surveys expert opinions and literature to answer the question of whether and how behavior can change in the face of climate change. It makes only eight references to media,<sup>5</sup>

<sup>5</sup> Keywords used in the search were “media” and “communication[s]”.

and these references are descriptive rather than prescriptive, such as references to polarized social media debates and civil society groups that use media to generate attention. The report's recommendations include "reaching out" to such groups, but it does not discuss how they might better use media to reach environmental goals.<sup>6</sup> It does not discuss any need for mass media reform nor express support for use of media systems for social change. The report does mention social marketing campaigns, observing that campaigns spreading information with the intention to change behavior can be highly effective and have generated obvious public enthusiasm (Newell et al., 2022, p.42). However, ending on the note that results of a particular social marketing effort only showed incremental improvement (p.42), the impression is that the authors do not particularly endorse social marketing.

Social marketing is an exception to the pervasive avoidance of engagement with the question of whether and how media might be harnessed to progressive ends. It is a seemingly relatively overlooked line of research and publications even though it subsumes clear results. Rodriguez-Sanchez (2023) presents evidence that social marketing, if properly applied, can be an effective tool for sustainability transformations, and that this potential can be further boosted if combined with use of persuasive technologies such as video, games, and virtual reality tools, and Bogueva et al. (2017) describe how social marketing can help stimulate significant diet change away from beef, for example. Yet, in line with the undercutting reference with which Newell et al. end their analysis, it is often discussed in non-committal if not subtly critical manner by communications scholars. The offered reason and justification for this can seem vague (see also Carvalho et al., 2017 for examples). This may reflect a desire for more radical interventions. On the other hand, is it not self-defeating for a movement in favor of sustainability transformations to give scant attention to social marketing merely because it, thus far, perhaps could have been executed with greater force and focus? Research-wise, this should at least beg great scholarly attention to how this transformation tool might be responsibly deployed and by whom and under what conditions.

Critical media studies are marginal in environmental studies and even in media studies (McChesney & Pickard., 2017; Murphy, 2011). Inversely, the global environment is not a common topic in media studies. How to tackle a GEC research agenda in media studies "is by no means self-evident," according to Murphy (2011), because it diverges from traditions in the field (p.219). Murphy's evaluation is backed by the editors of a recent handbook of "ecomedia studies," who find that standard curricula in academic programs covering media studies, cultural studies, film, or communications "symbolically annihilate" the environment (López et al., 2024, p.1).

<sup>6</sup> The following describes the topics covered where the references to media are found (those on communications were not very relevant to this analysis): the contemporary political and social media climate is polarized (p.30); modeling environmentally friendly behavior in the media can be influential (p.30); a finding found that interventions that spread behavior—relevant information through both mass-media and individuals' social networks and communities can reduce direct emissions from households (p.42); there is distrust of expertise and the media in society (p.52); movements such as Extinction Rebellion use new-media platforms to expand their reach (p.64); media have played a key part in silencing activists pushing for behavior change to address climate change (p.71); an opportunity for behavior change that might be better tapped is to reach out to and engage powerful and influential sectors with significant scope for behavior change who receive significant media attention (p.72).



The gap in attention to media systems in environmental social science harmonizes with a broader trend since the 2000s for global environmental politics scholarship to offer narrow analyses and adopt technical methods that weaken policy relevance and impact. For instance, as a whole, the scholarship tends to focus on market-based and specific, formal mechanisms of global environmental governance, without deeper questioning of these mechanisms' merit and short-changing discussion of broader power dynamics and political economies that affect environmental outcomes (Dauvergne & Clapp, 2016; Newell, 2011, 2020).

It is of course often reasonable, even necessary, for research and analyses to break subjects into parts to make them approachable. Different fields of expertise need their own subcommunities and conversations, and delimitation of scope is necessary for the sake of clarity and rigorous analysis. On the other hand, it is conspicuous that so many lacunae and silences concern precisely lines of investigation and knowledge that are most threatening to power. The above-cited evaluation that it is "easier to remove the president in Brazil than to withdraw a broadcast frequency from any politician" conveys just how crucial media are to political power, as social theorists also have long observed. This should mobilize environmentally concerned activists, researchers, activists, and decision-makers alike. Instead, the opposite is the case. System-critical attention to media systems and associated inequities of power and needed reforms are generally left out of major environmental research programs, assessment processes, and policy discussions. Calls for attention to media as lever for change exist, but they are few, marginal, and insufficiently heeded.

The observed patterns warrant analysis, reflection, discussion, and change, as do widespread, fallacious assumptions in academia and society alike that the current media systems are benign, if not neutral, and the best system possible, even if imperfect (McChesney & Pickard, 2017; Turner, 2013, 2019)—when in fact media systems, and especially Google and other Big Data and algorithm-(em)powered digital platforms, are "in a unique position to alter our attitudes, opinions, beliefs, and behaviour without us knowing this is occurring and without leaving a paper trail" (Epstein, 2016, p.28). What causes these patterns? What should and can be done to encourage more critical and constructive attention to current information systems, and achieve wiser governance of them in the public interest? How much do scientific norms discourage attention to more obviously social and political factors such as signification and (inter)subjectivity?

Alexander (2019) suggests that an inferiority complex relative to natural and exact sciences partly explains why social scientists attend insufficiently to signification, as they "longingly" look to what they "imagine as the explanatory perfections and achievements of the natural sciences" (p.44). Preoccupations with "[b]ehaviorism, scientism, statistics, causality, and reduction ... have tightened their grip" in American social science since the 1950s, he observes, favoring quantitative methods such as modeling and statistics that are ill-adapted for accessing and understanding social dynamics. His observation echoes that of Dauvergne and Clapp (2016), who similarly find that the growth of quantitative methods in research on global environmental politics risks disconnecting contemporary scholarship from problem-focused, policy-oriented, and activism-linked research. Status-inflected methodological considerations can discourage attention to power, politics, and media in environmental outcomes. Findings of mere correlation are considered inferior to causal relations, yet it is challenging to find more than correlations in studies of media influences on political attitudes and behaviors (Lorenz-Spreen et al., 2023).

## Conclusion

Gatti et al.'s (2023) story and messages about Brazil's spike in deforestation and greenhouse gas emissions centered on Bolsonaro, a single man whose power already has been curtailed, and on Brazil's most powerful economic sector, agriculture. The alternative account offered above brings into view what environmental research—even environmental social science and sustainability science—pervasively leaves out: the exceptionally decisive role of the political economies and policies that shape what and whose meanings are repeated in media. Currently, media systems are used to overwhelmingly benefit the few at the expense the many, obstructing achievement of the interlinked public goals of democracy, equity, and sustainability.

Public policies shape the political economies that define whose interests media systems serve, with major consequences for socio-environmental outcomes. Public policies can be changed. Like the social world, climate change and other global environmental threats are fueled by interpretations. The understandings and practices that fuel them need continuous reinforcement; they require “dramatization every moment of every day” (Alexander, 2019). This conveys fragility at the heart of power: dramatizing other meanings can potentially bring a different and better reality.

Realizing the transformative potential of media systems requires mobilization of academics, publics, and decision-makers to research, discuss, and design wise governance and use of these exceptionally powerful tools of persuasion such that they better serve public interests, not least meaningful democracy, equity, and sustainability transformations. Failure to do so will become even more consequential with the emergence of generative artificial intelligence, which immensely boosts the power to manipulate and disorient publics.

Media reform is politically challenging precisely because media systems' current configurations are crucial to power. Understanding the centrality of signification in shaping socio-environmental outcomes knowledge can be empowering, and it is necessary for change to happen. In Brazil, civil society mobilization could, to start, focus on pressing for ratification and enforcement of existent laws. The 1988 Constitution includes prohibition of monopolies, supports press freedom, and requires prioritization of media outlets dedicated to educational, artistic, and cultural ends (for specification of the articles, see Matos (2014, p.148).

Our very conceptualization of the adjective “environmental” in the context of research and policy may need expansion or replacement. Currently, the term does not adequately encompass the higher layer of epistemic governance that is decisive for becoming knowledge societies—societies in which citizens are offered adequate conditions and tools for understanding global challenges and translating that knowledge into effective, multi-level public policies. “Environment” refers to everything that surrounds us. However, common understandings of the term are not currently conducive to seeing sufficiently beyond biogeochemical, visual, and measurable phenomena to the social core of GEC challenges, such as decisive issues of power, conflicts of interest, media systems, democracy and equity.

The emergence of social media and artificial intelligence has only made the challenge steeper and is continuously sharpening and concentrating power against

meaningful democracy. Already tools perfected and deployed to serve private commercial, military, and political purposes (Feres Júnior & Gagliardi, 2021; Ituassu, 2019), they are about to be turbo-boosted by even more deception-facilitating generative artificial intelligence (Kapoor & Narayanan, 2023). The extent to which these technologies' huge positive potential to serve public interests is developed and how well their equally huge risks will be contained depends on how wisely and effectively they are governed, and time is of the essence as development leaps ahead with few guardrails.

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## Declarations

**Ethics Approval and Consent to Participate** The research did not involve human subjects and does not require informed consent forms.

**Competing Interests** The author declares no competing interests.

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