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Imagining a “post-carbon” future? Climate change as represented by media and film industries

We either slow down or stop,
or face an economic and human catastrophe
on a grand scale within our grandchildren’s lifetime.

Ian McEwan in *Solar*

Introduction

Climate change (CC) is currently seen as one of the most significant challenges to ensure prosperity (or survival) of future generations; yet until recently many people in the developed countries have perceived it as a distant problem that had few tangible consequences except for an occasional local heat wave, and barely any impact on their lifestyle choices.¹ It is increasingly clear, following the recent UN climate Conferences of

¹ Andrew C. Revkin, “Climate Change as News: Challenges in Communicating Environmental Science,” in *Climate Change: What It Means for Us, Our Children, and Our Grandchildren*, ed. Joseph DiMento and Pamela Doughman (Cambridge, MA: The MIT Press, 2014).

the Parties (COPs) in Paris (2015), Marrakech (2016), Bonn (2017) or Katowice (2019), that the political and social divisions have prevented radical action to stop global warming and backgrounded the importance of mobilizing the public to stave off the demise of the planet through imagining alternative scenarios of the future of our species. Obviously, the “imaginative” industries – the news media, popular science, film and climate fiction – have been providing space for CC coverage and including CC motifs, particularly recently. However, there is an ongoing debate within the political economy of the media whether how they represent CC is actually influenced by their need to maintain profits within the neoliberal economic conditions and retain their agenda-setting capacity to represent political elites and business companies.

Firstly, much of recent research on CC communication has been devoted to explaining the reasons of public passivity with respect to environment-oriented actions throughout much of the 2010s, despite the growing awareness of the scientific consensus and the availability of simulations of consequences of global warming (now relabeled as “global heating” or “climate emergency”²). This body of research has pointed to the role of the media, first, in engendering uncertainty or distorting the science behind CC research to stir controversy and over-dramatize the situation for their own profit.³ Literature suggests that in the previous decade, instead of reframing the CC issue towards realistic local solutions and resilience in view of ever more drastic weather events, mainstream media and science popularization outlets tended to appease public and reproduce the current economic models of human consumption based on the discourses of sustainability. The world as we know it could continue to prosper, provided the humanity adopts greener technologies. This is what we define in this study as techno-optimism.⁴ In the current decade, the media have largely concentrated on a few prioritized scientific and political issues to present CC as a crisis of governance and as a challenge to scientists and leaders in terms of recognizing the threats and intervening to forestall them, for example through regulation of carbon emissions and carbon trading or through geoengineering.

² See for example *The Guardian's* environmental pledge 2019 <https://www.theguardian.com/environment/ng-interactive/2019/oct/16/the-guardians-climate-pledge-2019>

³ Maxwell Boykoff, *Who Speaks for the Climate? Making Sense of Media Reporting on Climate Change* (Cambridge: Cambridge University Press, 2011).

⁴ John Urry, *Climate Change and Society* (Cambridge: Polity Press, 2011).

Another facet of CC communication that we explore in this article is related to popular culture’s conventions of representation and its potential to (re)imagine the future along the story lines constructed in prominent works of climate fiction and subsequently made box-office movies. A preliminary survey of climate fiction narratives and the popularity of dystopian genres indicates audiences’ fascination with destruction and demise, which may well be seen as parallel to the alienation and insecurity felt in neoliberal risk societies as theorized by Ulrich Beck.⁵ However, since their popularity spiked much earlier than the general understanding of the severity of the problem, they are not necessarily linked directly with climate-related concerns.

This article is devoted to reviewing some case studies of the dominant narrative and visual characteristics of representation of techno-optimistic (e.g., geoengineered) futures in mediated and cinematic images of the climate-changed planet. We present respective codes inherent in news media and film/fictional representations of CC and discuss the implications from this comparative analysis in terms of the potential rhetoric of (de) mobilization first to imagine the alternative and then to act collectively for the sake of the post-carbon future.

We also note that, although the media and film industries have persuasively instructed us how we should reduce our individual carbon footprint, they have failed to provide viable guidance how to collectively pressure the political and corporate actors for the transformation of social and economic systems towards a post-carbon future. Mobilizing collective action to target systemic obstacles and big players that impede the change is obviously not in the interest of media and film industries that could well be classified as core part of the problematic neoliberal capitalocentric economy that is responsible for the climate crisis.

Media narratives of climate change and techno-optimism

Media narratives of climate change have been subject to intense politicization and framing. On the one hand, the inherent uncertainty of science has been initially emphasized to cast doubt on scientific consensus

⁵ Ulrich Beck, *World at Risk* (Cambridge: Polity Press, 2009); Maciej Jemioł, “Triumph of Dystopia in Modern and the Most Recent Pop Culture – Causes and Characteristics,” a presentation at International Conference “Shapes of Futures” Bielsko-Biała, 1st March 2019.

and engender climate skepticism, especially in the US.⁶ On the other extreme, some media narratives have been constructed in catastrophic and alarmist tones and have generated public discomfort and alienation to the point of denial, resignation or acceptance of double standards.⁷ It is beyond the scope of this article to review all the framings and narrative devices that have been deployed to represent the possible futures in CC communication. We are aware that there have been surges in reliable coverage that generates public interest following critical weather incidents, prominent reports and international conferences (COPs), which in turn were followed by cycles of skepticism, disinformation or scandal.⁸ The focus of this short review is solely on the dominating techno-optimistic narratives and their implications.

In tune with the traditional views brought by the Enlightenment, technological progress is treated as desirable or at least as neutral or amoral – it just happens – and is part of both the history of civilization and the future of humanity. The grand narratives of civilizational advancement, human uniqueness and heroism, and prosperous futures abound in news media coverage and popular science, with both genres reveling in updating the public on new discoveries, advanced computer technologies, medical, genetic and biotechnological solutions, space exploration prospects and the implications of artificial intelligence. The “progress narrative” tends to be uncritically embraced, or naturalized, by the news and entertainment media. It is worth remembering that such techno-optimism, even techno-fetishism, is inextricably intertwined with advertising that funds the media industry, at the same time exacerbating demand and consumption. According to Rudiak-Gould, although media consumers occasionally learn about the environmental costs of technological progress and the possibility of catastrophic destabilization of planetary systems, they treat such news

⁶ Naomi Oreskes, and Erik M. Conway, *Merchants of Doubt* (London, New Delhi, New York, Sydney: Bloomsbury, 2010).

⁷ James Gustave Speth, *The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability* (Yale: Yale University Press, 2009).

⁸ Anabela Carvalho and Jaquelin Burgess, “Cultural Circuits of Climate Change in UK Broadsheet Newspapers, 1985–2003,” *Risk Analysis*, Vol. 25, No. 6 (2005), pp. 1457–1469. The scandals include the allegedly leaked emails by top climate scientists that indicate that they have conspired to present global warming as more threatening than it is, or revelations about the carbon footprint of the flights and other activities related to organizing climate conferences.

⁹ Peter Rudiak-Gould, “Progress, Decline, and the Public Uptake of Climate Science,” *Public Understanding of Science*, Vol. 23, No. 2 (2014), pp. 142–156.

items as yet another infotainment device, not as a simulation of a possible future.

Critical theory and research in environmental humanities suggests that, throughout the last decades, the “narratives of progress” have been overshadowing the environmental costs of industrial growth, which led to “humanity’s ignoring its own tragedy”¹⁰ by failing to see how these advancements destabilized ecological balance through excessive development, consumption and depletion of resources. “Progress” results in the fact that clean water, free land and fertile soil, natural plant and animal life, as well as mineral deposits and fossil energy resources are increasingly hard to come by to sustain lifestyles of consumerism. Moreover, it is apparent that, through careless mismanagement of resources for industrialization, let alone intensified carbon emissions, humans have caused a greenhouse effect and other kinds of damage, now beyond repair. The Anthropocene, or the epoch of the Western addiction to comfort and consumption, has turned out to render us blind to the possible scenario of the planet’s demise.¹¹ This blindness might well be seen as a collectively indulged defense mechanism deployed to shield oneself from the stress generated by the burden of responsibilities imposed on individuals in the context of the neoliberal risk society.¹²

We explain the paradox of public passivity with respect to CC in this study by looking through the lens of representations that are forwarded by commercial media outlets and film studios (imaginative industries) focused on maximizing profits and endorsing narratives that are compatible with neoliberal capitalist arrangements that endorse unstoppable economic growth. We pay special attention to selected media representations complicit in envisioning technological solutions to climate problems and backgrounding the need to mobilize individuals to demand large carbon reductions from political and business leaders. These techno-optimistic motifs are so seamlessly naturalized that apparently even environmental movements have been involved in perpetuating the neoliberal order.

¹⁰ Clive Hamilton, *Defiant Earth: The Fate of Humans in the Anthropocene* (Cambridge: Polity Press, 2017).

¹¹ Cf. Naomi Klein, *This Changes Everything: Capitalism vs. the Climate* (Penguin Books, 2014); Ewa Bińczyk, *Epoka człowieka: Retoryka i marazm antropocenu* (Warszawa: Państwowe Wydawnictwo Naukowe, 2018); Naomi Oreskes and Eric M. Conway, *The Collapse of Western Civilization: A View from the Future* (New York: Columbia University Press, 2014).

¹² Beck, *World at Risk*.

Some environmental organizations actually invested in “clean” energy companies,¹³ and green charities routinely appeal for corporate and private donations to conserve ecosystems that make untenable sustainability a priority.¹⁴ For example, they prioritize shielding habitats of spectacular large mammals from human exploration without noting the paradox that climate-change induced transformations (meltdown, desertification, spread of diseases, acidification of oceans) will make these habitats unlivable.¹⁵ We aim to trace how the techno-optimistic visions of dealing with the climate crisis have fed into popular imaginaries of “post-carbon futures”¹⁶ in which unabated consumption still seems to be an option.

Our argument is that, despite a range of political stances represented by Western media outlets, few would be willing to denounce “progress” narratives, advocate austerity and allow themselves to alienate advertisers to such a degree as to lose their profits for the sake of mobilizing around CC through diminished consumption. Instead, to keep loyal readers and viewers, some media have been disseminating information about the possible technological solutions that would help us to combat climate change without having to curb consumption, such as geoengineering. Geoengineering is a collective name for some alternative technologies to manage climate, such as stratospheric particle injections to deflect sunlight, carbon sequestration and storage, ocean fertilization or cloud seeding.¹⁷

Our review of research on the mediation of CC indicates surprisingly low levels of critique of individualism and consumerism. Take, for example, the early rhetorical study of the *New York Times*’s presumably “pro-environmental” editorial line in 2007.¹⁸ The dominant narratives in the coverage, despite its declared contempt for excessive consumption, include new trends in lifestyle, innovations in architecture and building design, investments and purchasing. The “solutions” are aimed at legitimizing

¹³ Bruno Latour, “Fifty Shades of Green,” *Environmental Humanities*, Vol. 7, No. 1 (2016), pp. 219–225.

¹⁴ Katarzyna Molek-Kozakowska and Elżbieta Szymańska-Czaplak “Nature Needs You’: Discursive Constructions of Legitimacy and Identification in Environmental Charity Appeals” (in preparation).

¹⁵ Krithika Srinivasan, “Conservation Biopolitics and the Sustainability Episteme,” *Environment and Planning A: Economy and Space*, Vol. 49, No 7 (2017), pp. 1458–1476.

¹⁶ Urry, *Climate Change and Society*, p. 16.

¹⁷ For an overview, see for example Oxford Geoengineering Project website <http://www.geoengineering.ox.ac.uk/index.html>

¹⁸ Betsy L. Verhoeven, “*New York Times*’ Environmental Rhetoric: Constructing Artists of Living,” *Rhetoric Review*, Vol. 30, No. 1 (2011), pp. 19–36.

individualist preferences, such as e-offices to reduce commuting burdens, and are largely constructed to appease well-off readers’ narcissism and feelings of guilt. On the other extreme, narratives based on scientific ingenuity and technological development are rarely problematized. A longitudinal corpus study of broadsheet coverage of geoengineering in selected Western countries, such as the US, the UK, Germany and Scandinavia,¹⁹ points to more positive and less critical narratives used over time. The study has identified four dominant discourses: (1) apocalyptic – advocating geoengineering on grounds that it is a lesser evil although it ignores the fact that there are technologies to cut CO₂; (2) fatalist – since it is a waste of time negotiating worldwide conventions, geoengineering is the only possible solution; (3) techno-optimistic – technology is an imperative and, since it is neutral morally, there should be no political or social constraint imposed on geoengineering; and (4) normalizing – geoengineering is our Plan B with the technologies imitating natural processes, such as volcanic eruptions, but in a controlled manner. Although such coverage does not make readers deny climate change, it cultivates them into accepting the supposedly scientific consensus achieved by the Western science despite the fact that adverse impacts from failed geoengineering projects could affect all nations with “mega-risks, ethical dilemmas and governance challenges.”²⁰

The illusion of control over the planetary system and the hope in scientific solutions can be sensed in popular science outlets. This can be revealed through a comparative analysis of discourses emerging from institutional reports and collectively authored analyses (Intergovernmental Panel on Climate Change, World Meteorological Organization) on the one hand, and journalistic or editorial choices in covering CC issues on the other. An analysis of *New Scientist’s* CC coverage shows both diversity and in-depth concern, but also a prevalence of techno-optimism. The need to cultivate loyal readers requires the editors to pay attention to new developments in alternative farming methods, water desalinization, fight with invasive species and epidemics, as well as to ever more precise

¹⁹ Jonas Anshelm and Anders Hansson, “The Last Chance to Save the Planet? An Analysis of the Geoengineering Advocacy Discourse in the Public Debate,” *Environmental Humanities*, Vol. 5 (2014), pp. 101–123.

²⁰ Jonas Anshelm and Anders Hansson, “Has the Grand Idea of Geoengineering as Plan B Run out of Steam?” *The Anthropocene Review*, Vol. 3, No. 1 (2016), pp. 64–74.

monitoring and simulation results provided by scientists.²¹ The focus on elite scientists and prominent policy makers may strengthen newsworthiness and garner attention, but such techno-optimistic representations can displace individual “lifestyle-related” frames and impede mobilization. Why bother, after all, if the scientists are going to take care of the problem anyway.

To help mobilize political support for a better post-carbon future, media narratives would also have to overcome the overwhelming fatigue with CC coverage having a continuous low-key presence in the media. Whereas more drastic images and alarmist slogans could lead to desensitization,²² more balanced, multifaceted and informative news items might not catch enough attention. One study, a visual analysis of Spanish TV news coverage of global warming, shows that the lack of imagery and film footage that captures the complexity of the climate threat leads to audience disengagement.²³ The main challenge for CC communicators is thus related to how to represent the issue as closer to one’s home or community, or as having consequences in the future one can easily envision. This has been partly achieved in non-Western press and media, where CC is presented as a pending domestic, not global, issue. A press corpus study of Brazilian news published from 2003 to 2013, for example, evidences higher awareness and concern levels in that society, probably due to more practical and fewer alarmist framings.²⁴ Indeed, “meaningful visualizations depicting climate change futures could help to bridge the gap between what may seem an abstract concept and everyday experience, making clearer its local and individual relevance.”²⁵ That is why in this study we further explore how mediated representations of CC as a challenge to human technological capacity and creativity are reproduced in highly popular films.

²¹ Katarzyna Molek-Kozakowska, “Popularity-driven Science Journalism and Climate Change: A Critical Discourse Analysis of the Unsaid,” *Discourse, Context & Media*, Vol. 21 (2018), pp. 73–81.

²² Matthew C. Nisbet, “Communicating Climate Change: Why Frames Matter to Public Engagement,” *Environment*, Vol. 51, No. 2 (2009), pp. 514–518.

²³ Bienvenido León and María del Carmen Erviti, “Science in Pictures: Visual Representation of Climate Change in Spain’s Television News,” *Public Understanding of Science*, Vol. 24, No. 2 (2015), pp. 183–199.

²⁴ Carmen Dayrell, “Discourses around Climate Change in Brazilian Newspapers: 2003–2013,” *Discourse & Communication*, Vol. 13, No. 2 (2019), pp. 149–171.

²⁵ Sophie Nicholson-Cole, “Representing Climate Change Futures: A Critique on the Use of Images for Visual Communication,” *Computers, Environment and Urban Systems*, Vol. 29, No. 3 (2005), pp. 255–273, p. 255.

The film industry, public agendas and imaginaries

In our discussion of media representations of CC and the need to overcome public passivity, mainstream cinema may seem a particularly valid domain to explore. A common-sense view on the social impact of cinema assumes its significant potential to stimulate and direct social change; particularly, as an instrument of setting agendas. Having in mind the combined effect of wide appeal and ability to generate strong emotional responses, film may seem an almost ideal tool of influence, mobilization or, at least, dissemination of knowledge. However, the literature on the subject has painted a much more complex picture. Our argument is that films are usually effective in stimulating the already existing commitments. At the same time, their influence on the opponents of a given agenda is severely limited. This is largely the case due to the process of selective exposure and elimination of cognitive dissonance followed by both the audience and producers. People with strong political convictions are unlikely to devote their attention to films openly challenging their views or sentiments.²⁶ On the other hand, the motivation to attract the widest audience possible often leads to equivocal and defensive framing of problems or outright avoidance of potentially controversial issues.²⁷

Although the media-owning corporations like to project themselves as liberally-minded and socially engaged, progressive issues usually make their way into the mainstream cinematic narratives only *after* they have become more widely accepted.²⁸ Thus, the embrace of the ostensibly “progressive” or “controversial” problems by the film industry usually marks their final integration into the hegemonic discourse. The vast body of research on the Hollywood’s evolving treatment of racial and gender equality or gay rights easily provides ample evidence for such strategic integration.²⁹

²⁶ Terry Christensen, Peter J. Haas, and Elisabeth Haas, *Projecting Politics: Political Messages in American Films*, 2nd ed. (New York and London: Routledge, 2015), p. 21.

²⁷ Probably the most famous examples of such avoidance include Hollywood’s reluctance to engage in any controversies surrounding the Vietnam War (when the conflict was still raging), or refraining from any treatment of abortion.

²⁸ Marcin Florian Gawrycki, *Uwikłane obrazy: hollywoodzki film a stosunki międzynarodowe* (Warszawa: Wydawnictwa Uniwersytetu Warszawskiego, 2011), p. 89.

²⁹ See for instance Harry M. Benshoff and Sean Griffin, *America on Film: Representing Race, Class, Gender, and Sexuality at the Movies*, 2nd ed. (Wiley-Blackwell, 2011); E. Ann Kaplan, *Looking for the Other: Feminism, Film and the Imperial Gaze* (New York: Routledge, 1997).

Yet the inherent disinclination towards political controversy that could damage profits only partly explains the reluctance of the big-budget cinema to meaningfully engage with CC. This absence becomes even more conspicuous when juxtaposed with the abundance of documentaries and novels on the same subject. The avoidance of CC also seems to derive from the industry's entanglement in the ideological and financial mechanisms supporting consumer capitalism.³⁰ Hollywood blockbusters are commodities themselves. They usually glamorise consumption, while the corporations responsible for producing them are often financially tied (through ownership or advertising contracts) to various CC enablers (fossil fuel energy or chemical companies, car manufacturers etc.). Moreover, big-budget films typically constitute just one element of a wider commercial package involving film-inspired merchandise (e.g. gadgets, books, toys or clothes), theme parks or fan tours. Thus, the CC-friendly message of moderation or self-restraint goes counter to the decades of industry practice and experience and puts it "at odds with the dream of responsibility towards and re-allocation of finite global resources which is at the heart of the best environmental politics."³¹

Apart from economic and political entanglements, there are also noteworthy problems of the more specifically diegetic character of this industry that may hinder the inclusion of CC themes into popular film narratives. With a strong emphasis on action, spectacle and flashy special effects, the blockbuster film formula is hardly a conducive platform for the presentation of complex scientific theories. Instead, a highly individualised plot perspective (rather than collective action) is favoured, underpinned by concepts such as the mythic structure or character arc.³² Dynamic, tightly-knit plots promote clearly marked protagonists and antagonists. By contrast, CC is a fairly abstract and elaborate scientific notion, since the human-induced changes do not happen quickly but unfold incrementally over long periods of time. CC is not limited to any location; it happens globally; it does not produce immediate moral outrage (unlike, for instance, paedophile priests, greedy bankers or psychopathic murderers). As Eva

³⁰ Gill Branston, "The Planet at the End of the World," *New Review of Film and Television Studies*, Vol. 5, No. 2 (2007), pp. 211–229, p. 217.

³¹ Branston, "The Planet at the End of the World," p. 217.

³² Stuart Voytilla, *Myth and the Movies: Discovering the Mythic Structure of 50 Unforgettable Films* (Studio City, CA: Michael Wiese Productions, 1999), p. 15.

Horn puts it, CC is a catastrophe without event.³³ It is also a catastrophe without a villain because we are all responsible for the detrimental changes to both our immediate and global environment.

In our discussion of the examples of the cinematic representations of CC one film deserves a particular distinction. Roland Emmerich’s *The Day after Tomorrow* (2004) is not only the first major production directly addressing CC but also the most successful CC film to date. The scriptwriters, Roland Emmerich and Jeffrey Nachmanoff, have managed to overcome most of the narrative challenges mentioned earlier. *DAT* gives CC an individual perspective, that of a paleoclimatologist named Jack Hall (Dennis Quaid), and traces his desperate but ultimately successful attempts to save his estranged family. The protagonist’s most dramatic efforts concern his son Sam (Jake Gyllenhaal) whom he rescues from the flooded and frozen New York area. Emmerich and Nachmanoff use the convention of a disaster movie with CC-induced extreme weather events as the chief destructive agent. Although the science motif propelling the script was denounced as implausible, the scientific community, on the whole, greeted the film with praise.³⁴ Suppressing their earlier reservations, many scientists underlined the film’s popularising and awareness-rising capacity.

In a comprehensive study of *DAT*’s effects on the audience conducted by Lowe et al., the authors observed a clear rise in the viewers’ personal motivation to act on CC. Moreover, the initial fears of the negative effects of the simplified rendering of science in the film did not find confirmation. Most importantly, however, the positive impact on the audience achieved by the film was diagnosed as highly transient and requiring backing by more concrete efforts, particularly practical guidance on what people could do to mitigate climate change.³⁵

Judging by those results, *DAT* can be safely described as an exemplary CC film: not only did it return spectacular profits (more than \$500 million worldwide against \$120 million production costs), but it kept CC concerns about the future at the forefront of media agenda for months.³⁶ Nevertheless,

³³ Eva Horn, *The Future as Catastrophe: Imagining Disaster in the Modern Age* (New York: Columbia University Press, 2018) ebook, chap. 2.

³⁴ Branston, “The Planet at the End of the World,” p. 225.

³⁵ Thomas Lowe, Katrina Brown, Suraje Dessai, Miguel de França Doria, Kat Haynes, Katharine Vincent, “Does Tomorrow Ever Come? Disaster Narrative and Public Perceptions of Climate Change,” *Public Understanding of Science*, Vol. 15, No. 4 (2006), pp 435–457, pp. 453–454.

³⁶ The interest in CC sank again dramatically following the financial crisis of 2008.

the film's case also reveals serious limitations of the disaster move formula in sustaining interest and mobilization. As Lowe et al. indicate, the disaster genre may initially deliver a strong galvanising effect, but at the same time it is extremely prone to creative exhaustion and inflation. It cannot be redeployed each time the interest in CC flags. Although several successful disaster movies were released after *DAT* (including Emmerich's *2012* from 2009), they all evoked alternative sources of destruction to the human-induced changes in climate. Because of those fears and limitations, it seems that contemporary cinema prefers to engage CC topics in a somehow deferred manner. Rather than staged explicitly, the looming climate disaster becomes an unacknowledged background presence.³⁷

We can recognise this tendency most clearly in the current propensity for dystopian settings and barren landscapes. In countless popular movies, such as *Wall-E* (2008, dir. A. Stanton), *Elysium* (2013, dir. N. Blomkamp), *Mad Max Fury Road* (2015, dir. G. Miller) or *Blade Runner 2049* (2017, dir. Ch. Villeneuve), to give just a few examples, the background of the ruined planet is one of the most distinct aspects of the mise-en-scène. Such polluted and depleted landscapes are now an integral part of the modern imaginary. Naturally, the domination of dystopias creates a risk of introducing a sense of resignation instead of mobilization. Indeed, such films may amplify a negative environmental message, effectively undermining any proactive initiatives by suggesting that the struggle for the planet is futile.

Yet another cinematic trend that undoubtedly merits attention concerns the recently proliferating techno-optimistic narratives. However, unlike the frivolous techno-optimism sometimes expounded on some media platforms that propagate geoengineering, its cinematic variant appears doused with a much greater degree of self-awareness and even criticism. A good example is Alexander Payne's *Downsizing* (2017). Starring Matt Damon (Paul Safranek) and Hong Chau (Ngoc Lan Tran), the film ridicules some current attempts to combat CC through genetic engineering to preserve the intemperate habits of consumption and resource extraction, albeit at a smaller scale. The characters in Payne's film find it easier to undergo ridiculously draconian medical procedures than to

³⁷ Maciej Jemioł's already mentioned study screens 250 Anglophone dystopian and apocalyptic films released in 2018, and indicates that only a handful (3) refer directly to CC while most of them feature irreparably degraded natural environments.

abandon their inflated dreams of material opulence. The film also provides an ingenuous critique of the market solutions to CC problems. It shows how a technology originally developed to mitigate consumption is quickly taken over by the corporate world and aggressively marketed back to the people as allowing for even greater consumerist indulgence. Moreover, it quickly turns out that the social injustices and divisions plaguing neoliberal societies are reconstructed in the Lilliput utopias presented in *Downsizing*.

Probably the greatest paradox of the majority of the techno-optimistic movies produced today is their ultimate pessimism regarding the future of the human race. Most of them adopt what Eva Horn terms “Lifeboat Earth Scenarios.”³⁸ Faced with some ultimate threat, humans scramble to put up a technological solution, but the price they pay is usually exorbitant. Typically, the Earth as we know it cannot be saved and only a handful of people are allowed to survive. The majority must perish (usually in a spectacular way, engulfed by giant waves or firestorms) or sacrifice their lives for the select few (who in turn need to dwell permanently in underground bunkers or seek survival opportunities on new planets). This perverse pessimistic optimism and biopolitical expedience mark not only the already mentioned *Downsizing* but underpin such motion pictures as *Interstellar* (2007, dir. Ch. Nolan), *Geostorm* (2017, dir. D. Devlin) or *The Wandering Earth* (2019, dir. F. Guo). Thus the paradox in showing that the unreflective embrace of technologies might bring unwanted consequences and lead to the demise of civilization is both a reflection of the dystopic convention and the manufacturing of narrative drama aimed at captivating viewers. The paradox is a result of the need to constantly oscillate between hope for a solution and distrust of technology to keep viewers’ attention, as with any unresolved controversy.³⁹

What is encouraging in those narratives is that they do not condone CC scepticism, denial or doubt in any form. Also, the relative scarcity of the CC-related fiction films in the first decade of this century appeared to be a transient phenomenon. The recent growth of the so-called climate fiction (or cli-fi for short) may be a crucial tell-tale sign. Cinema has always trailed and fed on literature in search of inspiration and fresh ideas and so far there have been few reasons to believe it will be different this time.

³⁸ Horn, *The Future as Catastrophe*, chap. 2.

³⁹ Eric Jensen, “Scientific Sensationalism in American and British Press Coverage of Therapeutic Cloning,” *Journalism and Mass Communication Quarterly*, Vol. 89, No 1 (2012), pp. 40–54.

Further evidence is coming from the world of politics and social activism. Such phenomena as school strikes for climate, Extinction Rebellion, or the surge in support for the green parties across Europe in recent elections hint at changes in wider political preferences in the West. If the current wave maintains its momentum, eventually, the movie industry will jump at it. The prospects of profiting from the widely accepted noble cause will be too tempting for the industry to ignore.

Conclusion

Although recent highly-publicized scientific reports, dramatic appeals by interest groups and environmental organizations, as well as both social media initiatives and street demonstrations indicate a possible future shift in the public agenda to include more radical climate change remedy, it is still too early to say how the Western commercial media and film industry are going to react. We assume that it is unlikely that the dominant techno-optimistic narratives will give way to more problematizing, critical and thus alienating representations of climate-changed futures.⁴⁰ This conclusion is based on the recognition of the media industry's previous failures to raise public awareness of hard policy choices, and their entrenched interest in individualist, consumerist and capitalist frameworks of information production and dissemination.

To summarize the findings of our comparative review and analysis, it is useful to point to a certain paradox that might explain the media and film corporations' failure to produce a well-informed public that would be open to CC mitigation and adaptation policies, which could create more resilient post-carbon societies. The failure of the imaginative industries is mainly that of reluctance to make the connection between public and individual climate change concerns. Fixed on the successful individual disentangled from the fabric of the social, neoliberalism does not invest in the ideas of community, togetherness or solidarity. That is why most commercial movies produced by the profit-oriented mainstream "imaginative" industries perpetuate this logic by (1) dismissing the role of citizens and communities in reshaping the future and (2) avoiding the mention of social movements as proponents of alternative post-carbon solutions.

⁴⁰ Sheldon Ungar, "Knowledge, Ignorance and the Popular Culture: Climate Change versus the Ozone Hole," *Public Understanding of Science*, Vol. 9 (2000), pp. 297-312.

The movies tend to endorse the individualist endeavour and privilege the capitalist system, but we cannot claim here that they openly discourage viewers from collective action. Our argument is that the genres of dystopia or cli-fi and the medium of film are not conducive to mobilization mainly because they are consumed as fantasy and entertainment more than a public statement. We have demonstrated that commercial film industry is conservative regarding CC and if it happens to bring change in attitudes or behaviours, it is rather a by-product than an overt intention of directors or producers. Obviously, this would not be the case of some independent films and documentary films of which the most well-known would be Al Gore’s docudrama *An Inconvenient Truth* (2006, dir. D. Guggenheim) and BBC One science popularization production featuring David Attenborough *Climate Change – The Facts* (2019, dir. Serena Davies). These genres, however, are beyond the scope of the present study (even though they also involve some elements of individualism and techno-optimism).

While mainstream news media tend to be authoritative with respect to climate change science, their politicized nature and sole focus on carbon emission reductions cause individuals to disengage. With the editors’ techno-optimistic stances and agency ascribed mainly to governments and scientific institutions, the outlets fail to radically induce the public to take responsibility for their lifestyle choices. Stereotyping scientists and engineers as problem-solvers in both popular science and film certainly does not help. On the other hand, the film industry might be ideally posed to foreground CC as a global threat and visualize it through special-effects-enhanced images of weather anomalies or uninhabitable, barren landscapes. And yet, projecting incredible scientific scenarios and hero-based narratives culminating with an application of a technological solution is likewise counterproductive to mobilization. Even if the public had not been already desensitized by disaster formats, the very perception of film and cli-fi as speculative genres prevents deeper considerations of the consequences of our continued consumption and reproduce ideologies that entrench the current neo-liberal arrangements. Indeed, CC is often described in the literature as a crisis of imagination.⁴¹ It is no wonder that the general public has not risen to take up the challenge, as “governing

⁴¹ Geoff Mann and Joel Winewright, *Climate Leviathan: A Political Theory of our Planetary Future* (London: Verso, 2018).

the consequences of climate change relates to a time scale and societal transformations that are beyond the imagination essential to cope with everyday life.”⁴² The imaginative industries have not inspired the public to exercise their imagination to the point of catalyzing radical collective environmental action.

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Imagining a “post-carbon” future? Climate change as represented by media and film industries

This study explores current trends in representing and communicating climate change by media industries. It reviews the current literature on mainstream media narratives of climate change focusing on their naturalization of progress and their techno-optimism (e.g., as regards geoengineering). It provides insight on how the media industry’s commercial agenda is linked to the types of disseminated messages and dominant imaginaries. It compares respective codes inherent in news media and film/fictional representations of climate change on representative examples. It traces the evolution of disaster/dystopian genres that involve climate issues. It discusses the implications from such a comparative analysis in terms of the potential failure to mobilize the public – to first imagine the alternatives and then to act collectively for the sake of the “post-carbon” future.

Keywords: climate change, mobilization, techno-optimism, narrative, post-carbon future

Słowa kluczowe: zmiany klimatyczne, mobilizacja, technooptymizm, narracja, przyszłość powęglowa

⁴² Nico Stehr and Alexander Ruser, “Climate Change, Governance and Knowledge,” in: *Institutional Capacity for Climate Change Response. A New Approach to Climate Politics*, ed. Theresa Birgitta Brønnum Scavenius and Steve Rayner (London: Routledge, 2018), pp. 15-30, p. 17.