

Persecuted and Paralysed:⁺ Climate Scepticism Between Greenhouse Physics and Populist Politics in Hungary

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abstract

This study explores the history and scientific foundations of the Hungarian climate change sceptic movement in the literature and media coverage to determine the movement's potential influence on national climate politics. We demonstrate how personal factors, relationships, motivations and anti-environmentalist attitudes have shaped the movement, and how an alternative greenhouse effect theory has influenced its rise. An analysis of this alternative theory reveals a lack of authentic debate, which fuels the sceptical movement; however, theory supporters find themselves in a peculiar position because neither international sceptics nor the Hungarian right-wing, populist government has promoted the theory. These circumstances reveal a particular science-policy relationship that demonstrates the heterogeneous character of populism. Although the government did not explicitly use climate change scepticism as propaganda to dominate public discourse or attack the EU, there were signs that they viewed this as a possibility. The situation could have been further changed but they lost the parliamentary elections in April 2026.

keywords: *climate sceptic movement, Hungary, climate policy, greenhouse effect, right-wing populism*

1 . Introduction

Climate change first became a political topic in Hungary during the 2019 European Union elections; however, it failed to become a significant political agenda issue. Introduced by a weak Green party, it stood little chance of gaining traction against the anti-migration campaign the ruling government fomented during the unfolding migration crisis. That was the time when the governing FIDESZ party, similar to other rightist populist forces in Europe (Vachudova 2021), had become increasingly right-wing and populist; however, its position towards climate change has remained ambiguous and vague.

+ Credit: Pink Floyd. 1994. 'Lost for Words', *The Division Bell* (Columbia, [Album Reference]) [on CD].

The rise of populist parties renewed interest in the anti-scientific movement (Collins and Evans 2019; Mede and Schäfer 2020), and new perspectives for the study of climate change scepticism opened (Brown 2014; Schaller and Cariu 2019; Huber 2020; Buzogány and Mohamad-Klotzbach 2021; Vihma et al. 2021; Huber et al. 2022; Sconfienza 2022). Relatedly, the Hungarian government's anti-scientific stance and environmental and climate policies are under scrutiny (Szabados 2019; Antal 2021; Ganga 2023; Éltető and Ricz 2024; Gonda and Bori 2025). However, the historic origins, scientific background, and development of Hungarian climate change scepticism in relation to the populist government have not been studied. Hence, this study provides a non-Western European case study of how a climate-sceptic theory, an alternative greenhouse effect theory by Ferenc Miskolczi, performs and how the actors involved have attempted, and failed, to connect with the Anglo-American mainstream. Also, we elucidate the interaction between sceptical climate science and populist politics in Hungary to shed more light on this heterogeneous relationship by examining how sceptics and the Miskolczi theory fared in sceptical climate policy in Hungary and abroad.

We downloaded and investigated hundreds of articles from the Hungarian digital periodical database ($n = 286$) using the names of the main actors as search keywords to map the story (Digitheca <https://adt.arcanum.com/en/>). Only the most relevant are referenced below. The study also utilises scientific literature, other online sources (e.g., blogs, downloaded pages, $n=86$), and an oral history interview with Ferenc Miskolczi. Further interview materials were available in an MA thesis (Petz 2018).

2. Research context

Climate change scepticism, which opposes climate science and policy, has been a research focus for decades (Dryzek 2004; Radkau 2011). Some studies have identified distinct types of deniers (McCright and Dunlap 2000; Rahmstorf 2004; Hoffman 2011),

including politicians and scientists, who, from a historical perspective, generally lead the movement (Lahsen 2008; Oreskes and Conway 2010; Lahsen 2013; De Pryck and Gemenne 2017). Climate sceptics partly comprise scientists who are not climate experts or professionals, and civil ‘lay experts’ also play a role (Ruser 2022). The oil industry has been scrutinised globally for its sceptical role in the climate debate; however, companies and corporations generally do not participate in climate scepticism in Hungary (van den Hoyer et al. 2002; Supran and Oreskes 2021). Other studies have investigated American climate change sceptic think tanks, the inner workings of the movement (Dunlap and Jacques 2013; Jankó et al. 2014, 2020; Moreno-Soldevila 2022), and how sceptics employ social media platforms (Dunlap 2013; Liang 2018; Adam et al. 2019, Liang et al. 2019; Treen et al. 2020).

Studying climate change media and communication traits is a related and vital research avenue that is also highly relevant to the current paper (Björnberg et al. 2017). Studies have researched the creation and promulgation of climate change uncertainty (Dunlap 2013; Schmid-Petri 2017), balanced media coverage (Brüggemann and Engesser 2017; Petersen et al. 2019; McAllister et al. 2021), or blogosphere debates (Nerlich 2010; Sharman 2014; Elgesem et al. 2015; van Eck et al. 2019). Linguistic and language studies have identified variances in the rhetorical character of climate-sceptic arguments, which focus primarily on certainty, receptibility and emotionality rather than formality to persuade laypeople (Jankó et al. 2014; Medimorec and Pennycook 2015; Paliewicz and McHendry 2017; but cf. Nordensvard and Ketola 2022).

Research on sceptical movements initially focused on the US, but the new populist wave led by well-known populist leaders also needs attention, as it is increasingly manifesting globally in climate politics (Marquardt and Lederer 2022). European studies have examined the link between right-wing populism and climate change scepticism, which posits pro-economy and anti-elitist arguments (Lockwood 2018) or a lack of trust in political institutions and climate science (Boecher et al. 2022; Huber et al. 2022). Right-wing populist governments embrace national environmental issues such as coal mines

in Poland and Czechia. Whether such stances induce environmental and climate policy scepticism is significant from an East-Central-European perspective (Riedel 2021; Durdovic et al. 2025).

Studies have also addressed science-related populism in general and its sociological background. Collins and Evans (2019) highlighted the role science plays in defending democracy and the rise of populism in the absence of such scientific defence. Mede and Schäfer (2020) explained the advent of science-related populism in connection with the participatory turn and the appearance of alternative epistemologies that challenge the decision-making and truth authority of science. Contrary to global generalisations, case studies showed that national populist parties vary in their rejection or support of environmental or climate politics (Schaller and Carius 2019; Szabados 2019; Ruser 2022; Ganga 2023; Bettini and Casaglia 2024; Mihai and Ungureanu 2024; Schwörer and Fernández-García 2024). Research also found that political polarisation is not always a significant driver in public climate change concern, i.e., that support for right-wing populist parties is an unreliable predictor of climate change scepticism (Duijndam and van Beukering 2021; Kulin et al. 2021; Smith et al. 2024). Relatedly, the scientific judgment of the Hungarian governing party is equivocal; hence, this paper attempts to provide a clearer picture in this regard (Lockwood 2018; Schaller and Carius 2019; Szabados 2019; Antal 2021; Ganga 2023).

3. The origins of Hungarian climate change scepticism

Similar to other East-Central European countries, environmentalism blossomed during the political transition in Hungary around 1989 (Corry 2013). Environmental protests arose when Czechoslovakia and Hungary planned the joint hydropower utilisation of the Danube River. These protests contributed to the foundation of an emerging political opposition. As financial and economic difficulties arose, the Hungarian government abandoned the bilateral contract and withdrew its part in the investment. The Czechoslovaks, later the

Slovaks alone, finalised the project as evidence of national viability and diverted most of the Danube's water into a bypass channel, causing notable ecological damage to Hungary (Jankó and Hafenscher 2023). The Hungarian supporters of the Gabčíkovo-Nagymaros barrage system, mainly engineers, were among the founders of the so-called Realist Greens Club (*Realis Zöldek Klub*) in 1992, which was a continuous advocate of the Hungarian revival of the hydropower project in the 1990s and formed an alternative, wise, 'realist' voice among the civic environmental organisations (Vit 1993). Chaired by energy engineer László Juhos, the Realist Greens recruited honorary members from the Hungarian Academy of Sciences (HAS) and began to support other topics, such as nuclear energy, GMO agriculture and, later, climate change scepticism, envisioning an 'environmental nationalist agenda' (cf. climate nationalism by Ruser and Machin 2019).

Climate scepticism did not become an organised movement until the 2010s in Hungary, coinciding with the international events surrounding Climategate, but the latter did not directly affect Hungarian developments. Instead, things began to change after Ferenc Miskolczi published his ideas about greenhouse physics. Miskolczi stated that further CO₂ emissions do not influence the greenhouse effect and global warming. Based on the media analysis, we have identified and highlighted three leading actors below within the landscape of Hungarian climate scepticism. They turned towards scepticism, primarily under the influence of Miskolczi's work, and illustrate not only the colourful background of the movement. The discourse, with its significant role, around Miskolczi also shows how a scientific theory could be used in nationalist narratives, as a researcher from the socialist bloc did a career at the American NASA, and had the potential to influence global climate politics.

4. Three Hungarian climate sceptics

Normally, scientists become professionals in a field after publishing numerous peer-reviewed articles in respected and relevant

journals. Our actors, examined below, demonstrate the fluid nature of expertise, the democratisation of science, i.e., alternative ways in which they engaged with climate change and became experts in the light of their activities in and around science and the media.

The first, Miklós Zágoni, a physicist and philosopher at the Eötvös Loránd University in Budapest, published over 100 popular science articles in daily newspapers about the environment between 1996 and 2007 (e.g., Zágoni 1996, the first article). The opinions Zágoni expressed in his articles covered a wide range of topics, including ecological economics, overpopulation, sustainable development, unsustainable economic growth, and global warming. Some of his articles argued for public attitude changes and political action. Zágoni also became a member of *Védegylet*, a Hungarian environmentalist association, and protested in favour of Lake Balaton water replenishment or against felling trees in the heart of Budapest. He also launched a pioneering website about climate change around 2001. Based on this reputation, he participated in the VAHAVA (change-impact-answer) climate change research review project of the Hungarian Academy of Sciences (HAS), which resulted in the first comprehensive climate change report in the country (Faragó et al. 2010).

However, Zágoni shuttered his web page and stopped writing for years after encountering Ferenc Miskolczi's theory in 2006 (Zágoni 2007). Zágoni 'had fallen in love' with Miskolczi's theory when both participated in the International Conference on Climate Change in New York, organised by The Heartland Institute, a well-known think tank that promotes climate scepticism (Asher 2008). Consequently, Zágoni began lecturing about Miskolczi's idea shortly afterwards and, as a reviewer, unsuccessfully proposed including it in the IPCC AR4 (Zágoni 2011). Meanwhile, Zágoni began working at the Ministry for Environment and Water in 2009, but his emerging controversial opinions precipitated his eventual departure (Árvay 2010).

László Szarka, the second actor, is a geophysicist and expert on Earth's electromagnetism. He also began his career in science journalism as an environmentalist by expressing his concern about climate change and poor environmental culture. He also revived ideas on the Gabčíkovo–Nagymaros barrage system (Szarka 2004). Szarka

reviewed Al Gore's book, *An Inconvenient Truth*, and complained that the publisher omitted a paragraph warning about Earth's future from the Hungarian edition (Szarka 2007). A year later, he reported on the UN International Year of Planet Earth as the secretary of the related Hungarian national committee (Szarka 2008).

After reading Václav Klaus's book criticising leftist environmentalism, Szarka reinterpreted Klaus's thoughts as an antithesis of Al Gore's arguments. Consequently, his mindset began to shift (Szarka 2009). Szarka attended the American Geophysical Union meeting and organised a local conference on climate research under the umbrella of the HAS in his hometown of Sopron. There, he encountered alternative views on carbon dioxide (e.g. Willie Soon) and met with Ferenc Miskolczi (Szarka 2010). Szarka became a corresponding member of the HAS in 2013 and a full member in 2019. He addressed global climate change and energy use in his inaugural lectures, becoming the most notable climate change sceptic scientist in Hungary.

The third actor, István Héjjas, completed industrial research as a mechanical engineer until 2000. He spent a decade in higher education after retiring, where he focused on popular science, as well as ancient Chinese and Indian philosophies. Combining these interests around 1990, he examined the relationship between Asian philosophy, science, esotericism, and paganism and conveyed his ideas in oral lectures and books. He became a prolific and popular science author, writing dozens of books and increasingly applying an alternative voice to topics partly interlinked with global environmental problems (Héjjas 2008a, Héjjas 2008b; Héjjas 2013). He began to criticise the green lobby and the flawed climate and energy policy in Hungary and beyond, joining the circles of the association of Energy Policy 2000 (*Energiapolitika Társulat 2000*) or the Realist Greens. He launched a climate sceptic site, which he ran alone, and began focusing on climate change, using the Miskolczi theory and other sceptic theories in his arguments (Héjjas 2015). In addition, the Realist Greens Club also launched a climate 'realist' site later in 2019.

Beyond the three actors described, the Hungarian climate sceptic movement also received impetus through the Hungarian editions of

Björn Lomborg's book *Cool it...*, or Wolfgang Behringer's volume on the cultural history of climate (Lomborg 2008; Behringer 2010), and publications of other notable Hungarian scientists and HAS members who referenced the Miskolczi theory (e.g., Koppány 2007; Reményi 2010, Berényi 2011; Petz 2013).

5. The Miskolczi theory: A science studies perspective

From a science studies perspective, the Miskolczi case is particularly a good example to demonstrate how science and expertise could be practised by various actors using different tools, techniques, forums and strategies during the debate.

Ferenc Miskolczi graduated as a physicist at ELTE Eötvös Loránd University in 1975 and worked for the Central Institute for Atmospheric Physics. Although he had specialised in nuclear physics, he focused on remote sensing and radiation monitoring. He co-authored his first papers on the greenhouse effect and anthropogenic CO₂ emissions (Marx and Miskolczi 1981; Haszpra and Miskolczi 1981), obtained university lecturer status in Nigeria, and worked as a research fellow with a scholarship in Italy during the 1980s. In 1991, after the termination of his institute, he left Hungary for good and worked at the University of Maryland before joining Raytheon STX in 1999 and Analytical Services & Materials, a NASA contractor, in 2001. (The Hungarian media referred to NASA as Miskolczi's workplace following that.) This indicates a common career in the late-socialist–post-socialist Hungary when socialist countries marketized their expertise in the Global South, in parallel with narrowing opportunities in and beyond academia (Interview 2018).

Miskolczi theorised his ideas on the workings of the atmosphere and the greenhouse effect. His theory stipulates that the optical depth of the Earth's atmosphere is constant and that the decrease in atmospheric water vapour balances the increase in optical depth

caused by the rising concentration of CO_2 .¹ As a result, the upper limit of the greenhouse effect is reached, allowing the highest surface temperature to be achieved with the available energy. The theory maintains that it is impossible to increase this absorption by changing the amount of trace gases in the atmosphere. Thus, increasing the greenhouse effect in such a manner is also impossible (Miskolczi 2007). However, he claimed he was prevented from publishing his results. Hence, his relationship with his supervisors at NASA Langley Research Centre deteriorated and he resigned.

Miskolczi became increasingly marginalised from mainstream science. Although he applied for positions afterwards, he failed to secure employment so he retired. Also, he only managed to publish his ideas in less prestigious journals, like the English language journal of the Hungarian Meteorological Service, *Időjárás* (Miskolczi and Mlynczak 2004; Miskolczi 2007), the well-known climate sceptic journal *Energy & Environment* and an obscure journal, *Development in Earth Science*. Referring to the story with the journal *Időjárás*, Miskolczi admitted that ‘if they [the editors] had known the paper’s conclusions, they would not have published the article’ (Interview 2018).

Miskolczi first lectured about his theory in Hungary in 2005. Afterwards, a small Hungarian network emerged and provided forums for the theory via conferences and workshops. The first half of the 2010s brought the most intensive debates and media coverage of Miskolczi’s ideas in Hungary and abroad (e.g., Molnár 2012; Petz 2018). Interestingly, Miklós Zágoni worked as a self-appointed spokesperson for Miskolczi’s ideas in Hungary, created a website dedicated to the theory and often argued and commented in support. The Institute of Geodesy and Geophysics at HAS hosted a

¹ Optical depth (τ) is a dimensionless parameter in radiative transfer that measures the cumulative infrared absorptivity of the atmosphere and thus controls the strength of the greenhouse effect. Miskolczi’s theory argues that the Earth’s atmosphere tends toward a quasi-stable longwave optical depth, derived from radiative transfer calculations constrained by radiosonde humidity and temperature profiles and satellite radiation data. His work builds on classical radiative transfer theory (e.g. Schwarzschild’s equation, Elsasser’s treatment of atmospheric opacity, and semi-grey greenhouse models developed by Goody and others).

reviewer project proposed by Miklós Zágoni and László Szarka from 2010 to 2011 (Szarka 2021). As noted above, Zágoni, without scientific authority, assumed the reviewer's role and endorsed Miskolczi's calculations. However, Zágoni's partial mainstreaming of Miskolczi's conclusions – i.e., that it is still vital to reduce greenhouse gas emissions – led to a rift between the two men. Although Zágoni retired and disappeared from the scene a few years later, he remains the only Hungarian listed in the climate disinformation database of the DeSmog site (Zágoni 2011; Miskolczi 2012).

Alongside the Hungarian review project, the European Climate Foundation commissioned Rob van Dorland, chief researcher at the Dutch Royal Meteorological Institute, to review the Miskolczi theory. The conclusion in the online rebuttal was that 'both observations and calculations with physically sound radiative transfer models show that Miskolczi's theory does not stand up to scrutiny' (van Dorland and Forster, 2010: 4). Another scientist, de Bruin, a researcher at Wageningen University & Research, also reviewed the theory and concluded with profound criticism that 'several relationships derived in Miskolczi (2007) are debatable and ... based on untenable physics' (de Bruin 2010: 319).

Beyond Zágoni, Noor van Andel (a former physicist in the Netherlands) supported the theory and responded to the critics of Van Dorland and Henk de Bruin (van Andel 2010). Zágoni explained that reviewers had misunderstood the theory. He concluded that the proposal of Rob van Dorland and Piers M. Forster shows no improprieties in the Miskolczi theory and that their input is, at most, a matter of debate, not a refutation. Zágoni also responded to claims by Henk de Bruin but admitted that the derivations of Miskolczi could have been clearer and needed reformulation in some cases (Zágoni 2011).

Due to the publication difficulties, various international online forums, such as Climate Etc. (<https://judithcurry.com/>), Roy W. Spencer (<https://www.drroyspencer.com/>) and The Science of Doom (<https://scienceofdoom.com/>) worked as 'extended peer communities' (Ravetz 2004) for the scrutiny of the Miskolczi theory. During these online discussions, the expertise and competence of the oppos-

ing parties were interrogated. Prominent scientists expressed their opinions on the theory, questioned the correctness of the physical laws used in constructing the theoretical idea, or highlighted the spatially limited validity of the theory's foundations. For example, Andrew A. Lacis, a researcher at the NASA Goddard Institute for Space Studies (GISS), shared the following thoughts on the Climate Etc. thread:

Aside from the outdated and erroneous formulations, he [Miskolczi] has also developed an erroneous understanding of Kirchhoff's Law, which compounds his erroneous understanding and formulation of his greenhouse effect parameterisations – which inevitably leads to his erroneous global warming and greenhouse effect conclusions (Web1).

Roy W. Spencer, a climate sceptic and principal research scientist at the University of Alabama in Huntsville, also criticised the Miskolczi theory, stating that it does not add anything new to the accepted greenhouse gas theory. According to him, if the two radiation quantities wrongly considered to be the same by Miskolczi, i.e. the infrared radiation directed toward the Earth's surface and the infrared radiation directed upwards from the surface and absorbed by the atmosphere, are not exactly equal then the theory fails. Spencer also stressed that the 'radiative exchange equilibrium' Miskolczi defines is non-existent, entailing the errant conclusion that the temperature is unaffected by infrared radiation and, thus, the non-existence of the greenhouse effect (Web2). Besides Zágóni's supportive comments, Miskolczi commented in frustration below Spencer's post and analogously recalled the case in his interview: 'Roy Spencer cannot do the math I can because he has not learned and does not understand the basics' (Interview 2018).

The Science of Doom blog published a series of six articles criticising the work of Ferenc Miskolczi (Web3) referring to several flaws in the theory, including the irregular use of Kirchhoff's law and problems in calculating the optical depth of the atmosphere. Although Miskolczi and Zágóni responded to some of the issues raised, there has been no considerable progress in understanding the matter. In his response, Miskolczi suggested that the other parties must calculate their optical depth and its changes over time to facilitate a

meaningful discussion. However, the theory description was also problematic, as noted by one of the blog contributors also highlighting Zágoni's role:

Zagoni still goes about various sites defending Miskolczi's results, but the fact remains that the simplest and most effective strategy for doing that, providing a comprehensible rewrite of the entirety, has never been done. Zagoni's own PowerPoint presentation fails to clarify the very many conceptual questions people have raised in trying to understand the original Miskolczi papers. In it, he now claims that some points that Miskolczi originally seemed to derive as theoretical results were actually extracted from observations; of course, this makes an incoherent mess out of the argumentation (Web4).

I believe there is very little that is clear in Miskolczi's papers, which is why the discussion has never come to a satisfactory conclusion (Web5).

'I will not join the sceptics; I am a physicist', stated Miskolczi, expressing his role as a 'pure scientist' (Pielke 2007) and criticising some claims of the sceptical community. However, he employed typical sceptical arguments in the interview. He was also willingly or unwillingly featured on the Heartland Institute's website as a sceptic expert. However, he has not received real support from the sceptics; he is not referenced in Heartland's climate sceptic report, nor later in the report of the Climate Intelligence Foundation, a Dutch climate sceptic think tank. This puzzled Miskolczi, who could not comprehend why the reports did not reference his papers (Idso et al. 2013; Crok and May 2023). 'Heartland does not want revolutionary changes either,' he noted in the interview (Interview 2018). Nevertheless, Miskolczi refuses to yield and trusts in the younger generations. 'This whole story is not closed. My equations are perhaps a start, on which we can get very far ... The equation will be there in 100 years (Interview 2018).

6. Populist politics and sceptical science

Officially, the right-wing regime in Hungary maintained a mainstream climate policy. Climate change was a visible but not an urgent matter, primarily because there has been no environmental ministry since the FIDESZ government took power in 2010 (Lock-

wood 2018; Antal 2021; Kovács et al. 2024). Some pro-governmental or seemingly neutral think tanks supported the mainstream climate policy in Hungary, namely the Climate Policy Institute at the government-funded Mathias Corvinus Collegium (MCC) and the Green Policy Centre. However, the MCC Brussels branch intended to reconsider the climate consensus in the EU by organising panel discussions with the well-known sceptic Richard Lindzen and other activities (Di Sario 2024). The Hungarian government was thus a cautious player in international climate politics, although it increasingly represented a populist viewpoint that large emitters should cover the costs of climate mitigation, not citizens. At COP29 in Baku, Prime Minister Viktor Orbán claimed that Hungary was in a green transition but still required oil, gas and nuclear energy, and that the country could not sacrifice its agriculture and industry (Weise 2024). Moreover, the government's energy policy advocated utility (energy, water) bill cuts, mostly to maintain its power, while tactically opposing European climate policy and maintaining Russian energy dependency (Ganga 2023; Éltető and Ricz 2024).

Orbán's populist regime labelled the globalist, liberal-leftist political forces as its chief opponents. Climate change should have been an issue that the government opposed; however, it was barely used as a means to identify political enemies. Right-wing circles celebrated the work of Scruton (2014), who argues for conservative, bottom-up environmentalism; however, the anti-migration, anti-liberal, anti-EU, or pro-Russian and pro-family (anti-gender or woke) features of populist propaganda was enough to keep the voters in motion. But the latter issue could also raise questions about climate change. In 2023, Katalin Novák, former president of Hungary and former minister of family affairs, raised her voice against the demographic decline. Arguing that there is no future without children, she dismissed the notion of having fewer children to address climate concerns. She also created an impressive phrase – 'the demographic ice age' – by rhetorically combining the two issues.

Instead of explicit climate change scepticism, silence or the relativisation of the climate problem was much more common in pro-governmental discourses (Surányi and Krekó 2024), while signs of

domestication or eco-bordering of the issue were hardly visible (cf. Bettini and Casaglia 2024, Hanson 2024). Only a few opinion leaders and advisors have expressed sceptical ideas in public speeches and writings.

For instance, the opinion column of *Magyar Hírlap* – a leading, government-friendly newspaper that has been exclusively online since 2022 – has regularly featured István Héjjas, László Szarka, and the economist Károly Lóránt (e.g. Héjjas 2020, Lóránt 2020 and 2021). They and others continued to celebrate and promote the Miskolczi theory by echoing the main findings and messages despite the lingering debates (e.g. Hetesi 2020). The publication of the aforementioned Miskolczi book, *The Self-regulation of Climate*, exemplifies Szarka's (foreword) and Héjjas's (lay public summary) late supportive activities of Hungarian sceptical science (Miskolczi and Héjjas 2021). Recently, László Szarka has been the most active in press appearances, discussing the latest climate and energy issues mostly beyond the Miskolczi case (e.g. Szarka 2021b), and organising events and workshops. However, his talks featured only in radical right-wing tabloid TV talk shows or media outlets, implying that he has been unable to penetrate the mainstream right-wing media (Kutasiné Molnár 2023). Szarka also organised a Hungarian scientific working group on energy, became a Climate Intelligence Foundation ambassador (Moreno-Soldevila 2022) and is a member of a climate sceptic author team (e.g. Connolly et al. 2021), but his breakthrough is still pending. As the Orbán government surprisingly lost the parliamentary elections on 12 April 2026, climate sceptics' perspectives are thus likely to narrow further in the coming period.

Apart from that, climate scepticism and disinformation are also visible in social media (Neuberger 2022; Teczár 2023). Here, the situation is similar to how government-related media managed the COVID-19 vaccination. Pro-vaccination saturated the mainstream, while anti-vax propaganda and misinformation spread on social media (Molnár et al. 2023).²

² The media representation of the war in Ukraine is already beyond that; pro-Russian propaganda has begun to dominate the mainstream.

If we look beyond climate for context, there was a particular landscape of Hungarian environmental politics. The government significantly weakened and partly demolished the institutional system of environmental protection and conservancy, and general criticism and attacks on leftist environmentalists were much more common, which did not leave the climate issue untouched either. Although there were also elements of a populist green agenda in the country, such as boosting ecotourism, supporting electric mobility and the related industry, which also strengthened the country's geo-economic dependence on Chinese capital. As a consequence, the Hungarian government increasingly faced local environmental and anti-governmental protests against large-scale real estate investments in tourism regions and dozens of battery plants with high ecological risks (Antal 2021; Pál 2022; Ganga 2023; Éltető and Ricz 2024). The government also subsidised the spread of solar energy in the countryside. This policy, together with a pro-energy-transition discourse and a populist pro-countryside propaganda, concealed the dark side of a nationalist agricultural policy controlling rural areas by strengthening politico-economic dependencies and land grabbing by the crony elite (Bori and Gonda 2022; Gonda and Bori 2025). Furthermore, the agricultural policy responses to the severe droughts in recent years, such as promoting irrigation without significant water management reforms, did not represent long-term sustainability thinking.

7. Discussion and conclusion

Recruited predominantly from the conservative scientific elite, the Hungarian right-wing climate sceptic community has a particular position in a global context. They share and support a greenhouse theory that is unique but lacks support internationally. Although the retired (persecuted) Miskolczi insisted upon his credibility, he was dropped from the scene following his break with NASA, his publication struggles and the general rejection of his theory. The boundary works (Ramírez-i-Ollé 2015) of mainstream climate science have

virtually expelled him from the field (Petz 2018). His theory was regularly published only in peripheral journals and discussed almost exclusively in online forums and climate sceptic blogs. He found supporters mainly in his home country. Hungarian climate sceptics maintain that the future will recognise and redeem Miskolczi and his theory (cf. Marx et al. 2017).

Similarly, Hungarian sceptics were waiting for the populist right-wing Orbán government to recognise and redeem them. Currently, they only have access to radical right-wing, conspiracy theorist opinion bubbles or social media echo chambers (Falkenberg et al. 2022). However, Eurobarometer data show that climate change awareness is not changing significantly in Hungary (SEB 2023).

Four factors may explain the outgoing Hungarian regime's resistance to climate scepticism, underscoring the heterogeneous character of populism. Firstly, the global climate sceptic community's rejection of the Miskolczi theory is likely an insignificant but not negligible factor. Additionally, an excessive amount of sceptical science (cf. Collins and Evans 2019) contradicts the populist, anti-elitist logic, and too much science in the Miskolczi theory, however simplified its conclusion may be, can make it difficult to make decisions based on it. Though the Orban government seemingly based its decisions on scientific advice during the pandemic, as a sample for climate policy, its political and economic interests increasingly override the expert-driven decision-making claims (Bradford and Cullen 2022; cf. Mede and Schäfer 2020). Furthermore, as mainstream climate policy offered financial incentives to the government and its cronies, it had no interest in seriously opposing the pro-EU policy direction. Finally, the Hungarian government did not utilise climate change in its communications, primarily because it did not regard climate change as a decisive issue; the discourse around energy security and utility bill cuts properly served its interests. But this does not imply that it would not have been harnessed the issue to dominate domestic public discourses if it might have served its agenda of vociferously opposing the EU or global liberals.

Hence, Hungary's climate sceptics are in a state of paralysis, but they likely regard their stance as a backup plan, waiting for the poten-

tial implementation of counter-climate policies in the country. Eventually, the growing poly-crisis character of the present world and the rising populist forces, most recently the second Trump presidency, may create such conditions. But now without the Orbán regime.

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