Editorial

Planetary health impairments and the myopia pandemic

Martin Dodman, Ramsey Affifi, Jean-Louis Aillon, Osman Arrobbio, Matteo Calabrese, Elena Camino, Laura Colucci-Gray, Enzo Ferrara, Silvano Folco, Giuseppe Barbiero

Published: 21 December 2025

The Rockefeller Foundation–*Lancet* Commission defines planetary health as:

> the achievement of the highest attainable standard of health, wellbeing, and equity worldwide through judicious attention to the human systems—political, economic, and social—that shape the future of humanity *and* the Earth's natural systems that define the safe environmental limits within which humanity can flourish. Put simply, planetary health is the health of human civilisation and the state of the natural systems on which it depends (Whitmee et al., 2015, p.1978).

While this definition clearly demonstrates what is at stake for human systems if the state of natural systems is disrupted, putting emphasis first on humanity and the consequences for human civilisation of such disruption rather than on the equilibria of natural systems as the basis for planetary health, still places the analysis within an anthropocentric perspective. Inverting the emphasis to give priority to natural systems and humanity's ecological niches and roles (together with all the other species that are currently present in the biosphere) within these systems establishes an ecocentric perspective. This enables clearer vision for understanding and addressing complex, interrelated causes of planetary health impairment such as climate change, biodiversity loss, urbanisation and its effects, damage to coastal areas, wetlands loss and damage, land degradation and desertification, forest clearance and land cover change, freshwater depletion and

contamination, and numerous others, and the reciprocal interactions these have with human systems.

A recurring myopic focus on climate change

At this time of the year, as the dust settles on the latest edition of the annual COP meeting, particular attention is paid to climate change, both in terms of published scientific research and media coverage. The outcome of the recent COP 30 exemplifies various aspects of how myopia is a condition that afflicts humanity at two levels, both of which have complex multiple intersecting causes and effects.

At the literal level, as a result of the rapid global rise of myopia, or near-sightedness, it is estimated that by 2050 more than half the world's population will suffer from distance vision impairment (Lee et al., 2025). The result of this will be a massive increase in public health costs due to a need for treatment related to vision correction and the increased risk of numerous associated chronic pathologic visual changes.

Moreover, although myopia and other eye conditions are the result of many interconnected phenomena, an increasing body of research shows how climate change is having an increasing negative impact on ocular health and that implementing strategies for mitigating climate change and its effects is imperative in order to counter this (Wong et al., 2024). At the same time, it is paradoxical that another significant cause of myopia is the lack of contact with nature, with all the benefits this brings, as humans young and old spend less time in the open air, thereby reducing the capacity of one of the principal organs through which they can acquaint themselves with their ecological surroundings (Clark et al., 2023).

This leads to the increasing figurative myopia we currently suffer from as short-sightedness, having a limited capacity to foresee, an inability to assume a long-term perspective on the relationship between planetary crises and human trajectories. This may be because we are literally unequipped, biologically, historically, and politically, to foresee the long-term consequences that our actions now produce. For most of human history, limited impacts unfolded over short temporal and spatial scales. Only in the Anthropocene have our technologies generated massive lasting effects. This creates a structural mismatch between the unprecedented reach of our technological power and the limited temporal horizon of human cognition. At the same time, such myopia may also

be an unwillingness to acknowledge the consequences of our actions, manifesting itself as a focus only on specific short-term interests while ignoring the catastrophic future consequences of triggering tipping points and the incalculable ensuing human and planetary health costs.

At both levels myopia has long reached pandemic levels and shows few signs of slowing its exponential growth. However, while the consequences of myopia as a medical condition are serious and impact negatively on individuals and societies in numerous ways, the consequences of myopia as a psychological condition hamper our ability to understand the temporal and spatial dimensions of vital issues related to planetary health that are devastating for the entire biosphere as we know it. Moving from an anthropocentric to an ecocentric perspective is essential to be able to see things from a distance and act to avoid these consequences, reducing our impacts and the reach and intensity of technological systems whose effects exceed our capacity to anticipate or control them.

As we look back on COP 30, we can only conclude that, despite overwhelming scientific evidence of future catastrophes, at international level there is still a total lack of a long-term and planet-wide perspective in line with science and the necessary legislative and regulatory frameworks able to bring about action to change human trajectories and thereby mitigate and adapt behaviours and outcomes at environmental, economic, social and political levels. There is no explicit commitment to phasing out fossil fuels. Around 80 countries have not submitted any national climate plans to cut greenhouse gas emissions, while the others have submitted vague and inadequate plans. Given the gravity of our predicament, many scientists now project that the world is heading for at least 2.6° C of warming by 2100 (Climate Action Tracker, November, 2025), a scenario that can only mean global biotic disaster.

Nevertheless, scientific research continues to increase our knowledge of specific issues such as climate change and the multiple questions and challenges posed concerning diverse aspects of mitigation and adaptation strategies. Moreover, scientific research must necessarily continue to render this knowledge available in the effort to counter the myopia pandemic that encompasses large numbers of the current human population, creating literal or wilful ignorance of what is at stake and thereby endangering the very existence of humanity itself. This issue of *Visions for Sustainability* is part of our ongoing endeavour to contribute to this, and, in particular, continue to provide a platform for research from the Global South so as to ensure a truly planetary vision.

Climate change, economic growth and technological innovation

In recent decades a vast body of research has studied the complex relationship between climate change, economic growth and technological innovation from multiple perspectives such as causes, impacts, mitigation and adaptation (Bousina et al., 2025), and also increasingly of the necessity of assuming a post-growth or degrowth perspective (Kallis et al., 2025).

In "Are we on the right track for mitigating climate change?", La et al. assesses global climate mitigation efforts in terms of what they consider both achievements and persistent shortcomings. Despite growth in renewable energy, international agreements, and technological innovation, as well as a carbon market, greenhouse gas emissions remain at record highs, and climate impacts continue to accelerate. The ongoing hegemonic growth-oriented paradigm and belief in technological solutions reinforce existing exploitation paradigms rather than transforming them. They propose transitioning from an eco-deficit to an eco-surplus culture, where ecological restoration and protection are fundamental for socio-economic well-being and development.

In "Towards an eco-surplus culture. From market failures to vulnerabilities and logical flaws of 'artificial' environmental protection systems" Vuong et al. continue their analysis of mainstream economics' growth-oriented and technology-centric paradigms. They show how these perpetuate the illusion that continuous economic growth is compatible with environmental protection through prioritizing investment in technological solutions. As an alternative paradigm they propose the adoption of the semiconducting principle of monetary and environmental value exchange. This requires the cultivation of Nature Quotient (NQ) across society and a broader socio-cultural shift toward an eco-surplus culture, in which environmental protection, restoration, and regeneration are foundational preconditions for long-term economic resilience, political stability, and social well-being.

There is an intimate connection between climate change and rural health and resilience. By 2050, an estimated 70% of the human population is expected to live in urban areas. If an increasing majority of people becomes urban dwellers, they still totally depend on those that live in rural areas and the rural ecologies they are a part of, many of which are particularly vulnerable and at risk.

In "Climate resilience to floods on rural roads in Cambodia" Ly & Yeom examine the vulnerability of rural roads in Cambodia to flooding and ways of enhancing climate resilience through spatial and hydrological analysis. The study utilizes

Geographic Information Systems (GIS) and a Rational Method to assess flood risks and identify infrastructure vulnerabilities in Siem Reap Province. To mitigate the risks of the growing impact of climate variability, they recommend infrastructure improvements such as enhanced drainage systems, road elevation, and the use of permeable materials. They argue that the results of their study offer valuable insights for policymakers and engineers to prioritize investments and develop climate-resilient infrastructure strategies and foster sustainable rural development.

In "Ecosystem-based adaptation as a strategy to increase climate resilience of small island communities in Indonesia" Sekarwulan & Rachmawati examine communities on small islands are more vulnerable to the impacts of climate change. Through a literature review of 31 key studies they consider the potential of the ecosystem-based climate change adaptation model (Ecosystem-Based Adaptation) to increase climate resilience in small island communities. They identify gaps that need to be filled in current research and argue that for Ecosystem-Based Adaptation to be effective, it needs to be community-led alongside empowerment, integrative-collaborative, and adaptive.

Circularity visions and discourses

Circularity thinking is linked to a global economic model that decouples economic growth and development from the consumption of finite resources. This has led to a range of visions and discourses related to circular economy systems that focus on extraction, production, consumption and waste processes in the context of R-frameworks or hierarchies and a regenerative vision (Kopnina et al., 2025).

In "Circular economy in action. Co-creating shared value in the tapioca industry of Indonesia" Istanto et al. argue that previous studies on Circular Economy (CE) and its correlation with Creating Shared Value (CSV) predominantly focus on developed nations. Their research aims to fill the gap by showing an empirical investigation of the implementation of a circular business model in the tapioca industry of Indonesia. Their study employs the Triple Bottom Line (TBL) framework and analyses 132 survey responses from tapioca business managers and owners in Indonesia using a quantitative approach with SmartPLS 4. The findings indicate that CE and CSV practices positively influence TBL performance and reveal a strong association between CE practices and CSV opportunities, demonstrating the transformative potential of CE and CSV

practices in driving sustainability, profitability, and social equity in the global agroindustry.

In "The sustainability lag. A cross-regional analysis of techno-dependency and e-waste outcomes in Africa and Asia" Chisika & Yeom argue that while digital technologies are expanding rapidly in developing countries, their environmental consequences—particularly electronic waste (e-waste)—remain poorly integrated into digital development discourse, leading to limited empirical evidence on how digital infrastructure impacts waste management,

They introduce the concept of a "sustainability lag" to explain why rising digital access does not automatically translate into improved environmental outcomes in the Global South. They propose a series of measures whereby policymakers and international development actors can ensure that digital expansion is accompanied by capacity building, not just connectivity, to prevent the externalization of environmental harms to the most vulnerable countries.

In "Land use conflicts. Urban expansion vs. mangrove conservation in the Portoviejo River estuary, Ecuador" Zambrano Ureta et al. examine the paradox of how territories prioritize economic development over the conservation of the very environmental resources that sustain their economy. Their study of the Mangrove Community Reserve of the Portoviejo River Estuary shows how the ecosystem has been affected since 1950 by the expansion of urban boundaries, intensive agricultural practices, and, most notably, aquaculture activities, which have deforested approximately 86% of the original mangrove cover. Their findings demonstrate that the urban footprint has increased by 146% since 2006, the population is growing around the mangrove reserve, and their socio-productive activities have fragmented the ecosystem and transformed the natural landscape.

In "Theories and models for sustainable agroecology business networks. Lessons for agroecology business networks and markets in Eastern Uganda-Teso region" Namanji et al. examine problems involved in transitioning from conventional market-driven agriculture to agroecology-based systems. They analyse various theories and models for sustainable agroecological business networks in the attempt to identify interventions that catalyse the transitioning and sustainability of agroecological business networks through enhanced marketing. Their analysis leads them to propose a model called EquiAgro: A gender-inclusive Agroecological Business Model for Agroecology Business Networks and Markets, together with strategies for co-creating sustainable, resilient and socially

inclusive agricultural systems that prioritize environmental stewardship and community well-being.

In "Rethinking sustainability. When social conformity and identity transform students' consumption" Mulyono et al. argue that although environmental education is widely endorsed as a key driver of pro-environmental behaviour, its real-world impact often remains limited when psychosocial dynamics are overlooked. They investigate how conformity, social environment, and self-concept function as moderating factors that enhance the impacts of environmental education on sustainable consumption behaviour. Their study aims to contribute to sustainable consumption literature by integrating educational, social, and psychological constructs within a cohesive theoretical framework for designing transformative educational interventions that cultivate social influence, internalized norms, and environmentally responsible identities among students.

An ecocentric nature-human dialogue

Cultivating environmental responsibility involves recognizing the massive debt we owe to natural systems and understanding that the further we continue in the myopic enterprise of plundering resources and exploiting other forms of life in the name of economic growth, and the supposed contribution this makes to a particular idea of human well-being and sustainable development goals, the more we will multiply the extent to which we are a threat to and live in conflict with those systems.

In "Peace with nature as the new nature of peace" Vuong et al. examine the relationship between ecological crises that act as "threat multipliers" and violent conflict. They argue that peace in the twenty-first century must extend beyond the absence of armed conflict to encompass harmony between humanity and the natural environment and that promoting lasting peace requires reinvestment in ecosystems as critical foundations for resilience, prosperity, and stability. Cultivating Nature Quotient (NQ) - the capacity to perceive and act upon ecological interdependence - is a prerequisite for leaders and societies to secure peace with nature and safeguard civilization's continuity.

Cultivating NQ means developing ecological wisdom, the basis of knowing "how to live on Earth enjoying and respecting the full richness and diversity of life-forms of the ecosphere" (Naess, 1989, p.185). This requires a combination of both exospection and introspection in an ecocentric nature-human dialogue unhampered by near-sightedness or short-sightedness.

In "Green Mindfulness: A systematic review of the literature" Ghezzi et al. present a systematic review designed to ascertain whether Nature-based mindfulness (Green Mindfulness) is synergistic, neutral, or antagonistic compared to indoor mindfulness or Nature exposure considered separately. They show how the field of Nature-based mindfulness is still emerging and highly heterogeneous in activity design and reporting and suggest that the lack of superior efficacy in some studies suggests that formal, introspective mindfulness may impede the necessary sensory relationship with the environment. They propose an ecopsychological perspective for future research together with an ecocentric green mindfulness model that includes the locus Naturae (the place as a living presence) and an ecotuner (a specialized facilitator) to better capture and maximize the bi-directional, restorative effects of the human-Nature relationship.

Taken together, the contributions to this issue illuminate how planetary health challenges manifest across interconnected domains: climate dynamics, economic models, resource circularity, behavioural and cultural patterns, rural and coastal vulnerabilities, and the evolving relationship between humanity and the wider ecosphere. Although they differ in scale and method, each study exposes in its own way the limitations of prevailing growth oriented, technologically centred, or socially narrow perspectives that reflect the figurative myopia shaping contemporary human systems. At the same time, they collectively point toward directions for addressing and attempting to overcome this short-sightedness: through more ecologically grounded economic paradigms; through infrastructural and ecosystem-based approaches sensitive to local contexts; through attention to social and psychological dimensions of consumption and identity; all through renewed understandings of nature-human interdependence.

References

Bousnina, R., Lajnaf, R., Mnif, S. & Gabsi, F.B. (2025). Economic growth, technological innovation and CO_2 emissions in developed countries: Is there an inverted U-shaped relationship? *Management of Environmental Quality: An International Journal* 36 (8) 2106-2016. https://doi.org/10.1108/MEQ-12-2024-0555

Clark, R., Kneepkens, S. C. M., Plotnikov, D., Shah, R. L., Huang, Y., Tideman, J. W. L., Klaver, C. C. W., Atan, D., Williams, C., Guggenheim, J. A., & UK Biobank Eye and Vision Consortium. (2023). Time Spent Outdoors Partly Accounts for the Effect of Education on Myopia. *Investigative ophthalmology & visual science*, *64*(14), 38. https://pmc.ncbi.nlm.nih.gov/articles/PMC10683767/

Climate Action Tracker. (November, 2025). Warming Projections Global Update. https://climateactiontracker.org/documents/1348/CAT_2025-11-13_GlobalUpdate_COP30.pdf

Kallis, G., Hickel, J., O'Neill, D.W., Jackson, T. Victor, P.A., Ranworth, K., Schor, J.B., Steinberger, J.K., & Ürge-Vorsatz, D. (2025). Post-growth: the science of wellbeing within planetary boundaries. *Lancet Planetary Health*, 9 e:62-69 https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(24)00310-3/fulltext

Kopnina, H., Fellinger, E., de Jong, J., & Bowden, A. (2025). Bridging ESGand the Circular Economy. Advancing corporate sustainability through the updated R-Hierarchy and Circularity Scoring Model. *Visions for Sustainability*, 23. https://ojs.unito.it/index.php/visions/article/view/11829/9765

Lee L, De Angelis L, Barclay E, Tahhan N, Saunders K, McConnell E, Ghorbani-Mojarrad, N., Dahlmann-Noor, A., Jaselsky, A. Leveziel, N., Bremond-Gignac, D., Resnikoff, S., & Fricke, T.R. (2025). Factors affecting the lifetime cost of myopia and the impact of active myopia treatments in Europe. *American Journal of Ophthalmology*. 278: 212–221. https://www.ajo.com/article/S0002-9394(25)00336-8/pdf

Whitmee, S., Haines, A, Beyrer, C., Boltz, F., Capon, A.G., de Souza Dias, B.F., Ezeh, A., Frumkin, H., Gong, P., Head, P., Horton, R.., Mace, G.M., Marten, R., Myers, S.S., Nishtar, s., Osofsky, S.A., Pattanayak, S.K., Pongsiri, M.J., Romanelli, C., Soucat, A., Vega, J., & Yach, D. (2015) Safeguarding human health in the Anthropocene epoch: report of The Rockefeller Foundation–*Lancet* Commission on planetary health. *Lancet*. http://dx.doi.org/10.1016/S0140-6736(15)60901-1

Wong, Y.L., Wong,S.W., Ting, D.S.J. Muralidhar, A., Sen, S., Schaff, O., Istre-Wilz, H., Erny, B. (2024). Impacts of climate change on ocular health: A scoping review. *The Journal of Climate Change and Health*, 15 https://doi.org/10.1016/j.joclim.2023.100296

Citation

Dodman, M. Affifi, R., Aillon, J.-L., Arrobbio, O., Calabrese, M., Camino, E., Colucci-Gray, L., Ferrara, E., Folco, S., & Barbiero, G. (2025). Planetary health impairments and the myopia pandemic. *Visions for Sustainability*, 24, 13028, 3-11. http://dx.doi.org/10.13135/2384-8677/13028