

Beyond Net-Zero: Societal Transformations towards Climate Positive Futures

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EDITORIAL

“Addressing the climate challenge presents a golden opportunity to promote prosperity, security and a brighter future for all.”

Ban Ki-Moon, Former Secretary-General of the United Nations.

Humanity is pushing the earth system beyond its natural limits. Rapid population growth and exponential consumption exert synergistic and compounded strains on our planet. Evidence of the untenable nature of this strain abounds, in the form of accelerated, widespread and intensifying climate change (United Nations, 2021), drastic reduction in biodiversity, overexploitation and depletion of natural resources, and degradation of ecosystems. Calculated by the Global Footprint Network, the Earth Overshoot Day (EOD) succinctly and illustratively captures this divergence between humanity’s ecological footprint and earth’s biocapacity. The EOD marks the point in the year when humanity’s demand for resources in a given year exceeds what the earth can replenish in that same year, and has come earlier and earlier since first calculated in 1971. In 2023, it fell on August 2 (Global Footprint Network), leaving us in an ecological deficit for the remaining part of the year. The science-based planetary boundaries framework developed by the Stockholm Resilience Centre is another powerful visualisation of the state of our planetary systems. Their 2023 assessment reports that six of the nine planetary boundaries (e.g. freshwater change, biosphere integrity, biogeochemical flows, novel entities such as plastics, etc) have been transgressed, thereby heightening the risk of large-scale, abrupt, and irreversible environmental changes.

The world is grappling with constantly growing climate disasters, with significant impacts on the natural world, human life and populations, businesses, communities and territories. In 2023, record-breaking heatwaves, prolonged extreme droughts and floods, massive wildfires, extreme glacier melt and record ocean heat levels triggered further sea-level rises, caused stress on food systems, amplified food prices spikes and famines, threatened coastal cities, and caused countless premature deaths (World Meteorological Organization, 2023). The catastrophic nature of those events, their occurrence, severity, and unpredictability, reinforce the urgency and emergency of tackling human-induced climate change, recognising it as “the biggest threat to security that modern humans have ever faced” (Naturalist David Attenborough), echoing the depiction of

climate change as a “crisis multiplier” made by UN Secretary General António Guterres (United Nations, 2021).

Housing, mobility, nutrition and consumption account for over 70% of greenhouse gas emissions globally (Dubois et al., 2019). Accordingly, radical shifts in how we cater for those human needs are needed. Technological innovation has a central role to play in these shifts, but a wider, multi-stakeholder and multi-level perspective is needed, as they require changes in behaviours, practices, public policies, infrastructures, business models and markets, also referred to as socio-technical transitions (e.g. Geels, 2019).

While the transition to low-carbon energy systems emerges as an obvious way forward, the journey since the first World Climate Conference in 1979 (United Nations Framework Convention on Climate Change), has been paved with many hoops and hurdles, not the least of which misinformation and disinformation. The inception of the International Panel on Climate Change in 1988, and the inaugural Conference of the Parties (COP1) in Berlin in 1995, with delegates from 117 countries and 53 observer states, kick-started global initiatives to reduce greenhouse gas emissions. The 28th edition of the COP recently took place (December 2023), and while global consensus on a full phase-out of oil, coal and gas, is yet to be reached, Nations at COP28 have sketched and agreed on a roadmap to transition away from fossil fuels, committing to triple renewable energy capacity by 2030 as well as putting climate justice and equity front and centre (United Nations, 2023).

Awareness for sustainability issues has also drastically progressed in the business sector, reinforced by regulatory requirements, such as the European Union’s Corporate Sustainability Reporting Directive (European Commission, 2022). According to the 2022 CxO Sustainability report (Deloitte, 2022) surveying over 2,000 executives across 21 countries, 97% of companies have already experienced negative consequences of climate change, with disruptions to their operations and supply chains due to climate-related disasters. Over a third of the respondents further indicate that climate change is affecting the physical and mental health of their employees.

Arguably, the conventional understanding of sustainability, underpinned by environmental preservation, economic viability and social equity considerations, falls short of addressing the worsening, persistent and looming climate cataclysm. Bolder action is needed, and the pursuit of sustainability, understood as the avoidance of environmental harm or damage while maintaining some form of status quo in meeting current societal needs, increasingly appears to be missing the mark, in that it would fail to deliver on its basic premise of not “compromising the ability of future generations to meet their own needs” (United Nations Brundtland Commission 1987). Fundamentally, the narrative and subsequent actions need to depart from a passive stance to fully embrace a proactive, positive impact approach. Change, and de facto, innovation needs to be concomitantly driven by adequate policies, regulations, and institutional frameworks, as well as by bottom-up approaches, by individuals, communities, organisations, and grassroots initiatives.

Solutions exist – and when “there is a will, there is a way”. Countless individuals, organisational, national and supranational endeavours and initiatives are already contributing to creating positive impact. Launched in the COVID recovery phase, the European Green Deal provides a comprehensive set of measures, instruments and mechanisms to transform Europe into a modern, resource-efficient and competitive economy, making it the first climate-neutral continent by 2050, where green talent drives the future. Similarly, the Inflation Reduction Act, enacted mid-2022, offers tax credits and incentives for renewable energy, alternative fuels, carbon capture and other green transition endeavours. The UNDP’s #PeoplePowered campaign celebrates grassroots innovations for clean and universal energy access, showcasing a range of frugal, yet deployable and scalable solutions (Lucarelli, 2023).

Since its early days, JIM's publications have contributed to the debate on energy transitions, circularity, resilience, and regeneration (e.g. Beckett, 2023; Bergset & Fichter, 2015; Clausen et al., 2017; Franco et al., 2022; Sankaran, 2019; Shakeel, 2019; Singh et al., 2021), and our first Special Issue "Innovation Paradigm in the face of just Earth Systems Governance" will unpack the interconnectedness and coexistence of sustainability and growth, with a line up of thought provoking letters, and research contributions deepening our understanding of these complex dynamics. JIM will also proudly host a series of letters from the Circular Innovation Special Interest Group of the International Society for Professional Innovation Management (ISPIM). We invite our readers to delve into the first Letter entitled "A Perspective on Circular Innovation: Dynamics, Strategies, and Implications", by Cherrington et al. released in this issue.

We call for further contributions to comprehend the various facets (i.e. antecedents, contingencies, consequences, impacts) of the societal transformations needed to build "climate positive futures", envisioned as a regenerating world. We particularly welcome submissions exploring the role of technological and social innovations in building resilience (i.e. ability to withstand and recover from disruptions, stressors and adversity), enabling restoration (i.e. ability to repair or rehabilitate degraded ecosystems) and fostering regeneration (i.e. supporting the renewal, revitalization and replenishment of ecosystems, communities, or economies in a way that enhances their resilience, productivity, and sustainability). We further encourage submissions contemplating the role of circularity and sufficiency (Suski et al., 2023), as well as those taking a critical stance on new challenges (e.g. recycling of batteries for electric vehicles, increased demand for critical raw materials such as rare earth minerals).

Climate-related challenges such as affordability, performance, reliability and accessibility of decarbonisation technologies and infrastructures, social acceptability of low-carbon transitions, fairness, equity and climate justice, market distortions and financial disincentives for green technologies and practices, lack of support and consensus for a planetary commons framework, and planetary accountability mechanisms, call for inter-disciplinary research, intersectoral collaboration and systemic, holistic and global approaches fostering regenerative innovation. Such research has no better home than JIM!

Innovatively yours,

Anne-Laure Mention, Marko Torkkeli, João José Pinto Ferreira
Founding Editors

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