

Voices

Agency and values for transformative change

Social tipping points are moments when targeted interventions in collective behavior can trigger transformative shifts across society. Embedded in complex social-ecological systems, these tipping points have the potential to drive rapid, systemic change, addressing urgent challenges such as climate change, biodiversity loss, and social inequality but also leading to negative or unintended consequences if not carefully guided. This Voices asks: how can we leverage social tipping points for good?



Túlio Andrade
COP30

When collective agency tips minds and systems

Climate change has emerged as a planetary challenge marked by cascading risks of irreversible tipping points in [Earth systems](#), alongside worsening extreme weather events. Confronting such chain reactions requires more than incremental responses. It calls for social tipping points, moments when collective action, cultural change, and shared purpose combine to drive resilience and exponential transformation across society.

The *mutirão*—a Brazilian social technology inherited from Indigenous traditions—offers a powerful example. Rooted in communities' capacity to self-organize to address shared needs, the *mutirão* has long been mobilized for harvests, disaster response, preparedness, and mutual care. As a form of collective action, it illustrates how social tipping points can mobilize communities, strengthen social cohesion, and activate collective agency in territories. Through chains of local action, such dynamics can propagate change across sectors and scales, while also providing policymakers with the legitimacy and mandate to act decisively.

Beyond mobilization, social tipping points signal deeper shifts in values, behaviors, and relationships—from individualism and short-termism toward belonging, meaning, and purpose grounded in interdependence within the wider ecology of life. The climate transition in the material world will never be complete unless we also transition ideas, mindsets, and models of coexistence. Through dignity, justice, and solidarity, humanity can move from a paradigm of extraction—of nature and of one another—to one of integration. This is not only a political or economic shift but an epistemic one: a recognition that humans are deeply interdependent with each other and the planet as the greater organism that are embedded in.



Xuemei Bai
Australian National University

Maximize transformative agency of cities

Imagine a society as a system consisting of various actors and their complex interactions. System-level changes occur when some of these actors or their interactions divert from the status quo and exhibit disruptive behavior, affecting other actors in the system and becoming a nucleus of change. When powerful enough, this effect can reach a social tipping point and “flip” the system.

Cities can act as such nuclei. The worldwide movement of Climate Emergency Declaration started from the City of Darebin in Australia. By committing to net-zero targets ahead of national governments, cities brought about a tipping point, leading national governments to commit in turn.

Cities can have an even stronger role in bringing about positive changes by acting as [transformative agents](#), not only striving to do better themselves but also reaching out proactively to influence and help other cities change their trajectories and striving to enhance their wider system performance, e.g., through [building networked resilience](#). It is high time that we pay closer attention, both in research and practice, to the agency of cities.

While still rare, elements of transformative agency of cities do exist. Kitakyushu City in Japan recently adopted its [Next Horizon Sustainable Cities](#) vision, aiming to become

a transformative agent underpinned by an [altruistic](#), regenerative, and collaborative approach.

A positive social tipping point will arrive when there is a sufficient number of cities acting as transformative agents. For now, we need to work with and convert one city at a time.



Sander van der Linden
University of Cambridge

To fight misinformation, we need herd immunity

The power of misinformation lies in its ability to spread as a social contagion. Indeed, models from epidemiology are [increasingly](#) used to study how misinformation diffuses in the population, “infecting” users following single or multiple exposures, and spreading quickly throughout a social network often outpacing the flow of credible news. Psychological “[inoculation](#)” has emerged as a potential safeguard and draws on the medical analogy: preemptive exposure to severely weakened doses of the techniques used to produce misinformation—along with clear tips on how to spot them—can help people gain immunity to misinformation in the future. [Meta-analyses](#) and real-world field experiments have shown the efficacy of this approach with millions of users, for example, by placing short “[prebunking](#)” videos in the ad spaces on YouTube before exposure to harmful content or through free interactive browser [games](#) that simulate a social media feed. At the same time, one of the main open questions revolves around the potential for herd immunity. Unlike biological vaccination, psychological vaccination has the advantage of potentially being transmitted socially from one peer to the next. But in order to force social tipping points large enough to confer community-level protection, critical segments of the population need to be immunized. Once a sufficient number of people are “vaccinated,” misinformation will no longer have a chance to spread. Yet in order to better understand these social dynamics, future research will need to model and incorporate cognitive inoculation as part of larger multi-level social systems in which misinformation emerges and spreads to help us understand what percentage of a community needs to be “inoculated” in order to achieve herd immunity against misinformation.



Viktoria Spaiser
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Climate activists can seed positive social tipping dynamics

Social tipping can occur through complex contagion processes, where a new idea, behavior, or practice can diffuse non-linearly along a social network of interconnected actors, and once the diffusion process has reached a certain threshold, it becomes self-reinforcing. Climate activists and campaigners could exploit this mechanism to change societies, e.g., [ensuring that phasing-out fossil fuels to mitigate climate change becomes mainstream, changing policies, social norms, and behaviors](#). Through strategically seeding certain narratives within a social network, persuading influential champions to further spread these narratives, they can initiate processes that could result in tipping. There are a number of enabling conditions and agency choices: narratives need to be clear and resonate with the wider public (e.g., [Fridays for Future](#) was successful because people care about children), activists must exercise a strict messaging discipline and be persistent (repeat the message over and over again). To reach the wider public, they also need to pick tactics that ensure visibility, they need to walk the talk to ensure credibility and they need to be pragmatic about building a wide network of sympathizers and champions, extending beyond those already agreeing with them. And if their opponents are employing [AI to spread counter-narratives](#) faster and more effectively, then activists better [reclaim these technologies to fight back](#). [Increasing anti-fossil fuel sentiments](#) provide an early signal that societies might be moving toward a potential tipping point. Climate activists can exploit this momentum to try to tip the social system, using a deliberate complex contagion strategy to facilitate transformative whole-of-society change.



Ramit Debnath
University of Cambridge

Unlocking positive tipping using social listening

Achieving a sustainable transition demands activating [positive social tipping points](#), where localized behavioral shifts cascade into widespread societal changes. Computational social sciences offer powerful tools for such [social listening](#) that uses social media, big data, news, and online forums to reveal deep insights into public sentiments and behavioral patterns for [climate action](#).

Advanced network analysis and machine learning models identify emerging pro-climate behavior clusters and predict communities nearing thresholds of tipping points. For example, dense subgraphs of EV owners in a city suburb indicate that EV adopters are strongly connected to each other. High-density networks represent [positive tipping thresholds](#) and facilitate the rapid spread of information that minimizes risk perceptions, generating [social proof](#). Agent-based simulations optimize intervention timing and targeting for information campaigns, maximizing [cascade effects](#) like rising social proof and dropping of risk perception for pro-climate behavior.

Real-time monitoring builds [information feedback loops](#) that amplify emerging behaviors of climate action. Natural language processing tracks discourse shifts, signaling when sustainable practices become mainstream. By harnessing social dynamics, we can identify climate-positive behavior emerging in real time, tailor interventions to local communities, amplify visible success stories, and provide social proof that make choices feel more attractive and achievable. This enables a shift from one-size-fits-all climate campaigns to precise, locally tailored interventions that accelerate climate action.



Sibel Eker
International Institute for Applied Systems Analysis (IIASA)

Social dynamics in modeling tipping points

Current work on social tipping dynamics leans heavily—and appropriately—on [systems thinking](#). A fundamental principle of systems thinking is that structure creates behavior: feedback mechanisms shape how system dynamics evolve over time, for instance, whether they show rapid decarbonization or not. Much of the current social tipping literature is conceptual, drawing on historical case studies, or relying on conceptual models of reinforcing and balancing feedbacks to hypothesize how future tipping dynamics might emerge.

This approach is valuable but limited. Given the complexity of interacting positive and negative, desired and undesired feedback loops, it is not possible to explore the future using conceptual models alone. Quantitative models are needed to produce more informed estimates and scenarios, even though they are inevitably subject to deep uncertainty. As in broader climate and sustainability modeling, these models tend to successfully operate in a techno-economic space, e.g., capturing the tipping dynamics in [solar PV deployment or EV adoption](#), but fall short on social aspects.

Models that include human behavior are often either highly conceptual or tightly bound to specific local contexts. The obstacles for more generalizable and policy-relevant behavioral models are the limited availability of large-scale data, lack of consolidated theories, and perhaps more importantly, attitude in the scientific and policy communities toward modeling human behavior. Overcoming these challenges could involve consolidating data into accessible databases, fostering concerted efforts around data collection and modeling, iterative collaboration with theorists, and cultivating a more open mindset toward modeling human behavior in more realistic and policy-relevant contexts.



Berta Martín-López
Leuphana University of Lüneburg

What we do matters, how we do it matters

“What we do matters, how we respond matters; we are not in the world but of the world, and our intra-actions are integral to the always emergent making of the world.”

Social tipping points, or those changes in a system that trigger fundamental transformations, should be embedded in the (in)visible processes that we, scientists, enact through research. In transformative research, we aim to catalyze changes that address pressing social-ecological challenges by not only understanding those changes but also engaging in the processes of change. We go beyond asking how we can leverage transformations and ask how we can *transform* the ways we do science. What if instead of acting merely as accountants of biodiversity loss, climate change, and social injustices, scientists account for their own part in the transformations they help enact?

By persisting in scientific approaches that perpetuate dichotomies, present knowledge as neutral and objective, and prioritize quantitative and measurable outputs, we may only learn about changes embedded within the same system dynamics that created socio-environmental crises. By contrast, transformative research can be guided by an **ethos for caring knowledge production**: embracing the notion of **interbeing**; recognizing science as a political daily practice driven by emotions of care, love, or hope; and focusing on the **embodied, situated practice** and the changes unfolding through inclusive, transdisciplinary collaborations. This can lead to narratives, discourses, and practices that are not only solution oriented but also ethical.

Sustainable and just transformations emerge from the everyday responsibility and **response-ability** of individuals (including scientists), communities, and institutions (including academia), which, through a **caring ethos**, contribute to re-pair* the broken relationships in the **fabric of life**.

**reparation as the act of re-pair or mending broken relationships with each other, including between humans and more-than- and other-than-human.*



James Patterson
Utrecht University

Bolstering social tipping through politics

The idea of social tipping has energized debates about how to understand and enable transformative changes for sustainability. Examples of positive nonlinear changes are growing, such as rapid uptake of **electric vehicles in Norway** and **rooftop solar in Australia**, and **coal phase-out in UK electricity production**. However, jarring experiences of **political backlash** (i.e., abrupt and forceful pushback from people, organizations, and politicians) and resulting policy reversals have also occurred, such as over carbon pricing in **Australia, Canada, France, and Mexico**, **heat pumps in Germany**, and **nitrogen policy in The Netherlands**. More broadly, there is a growing risk of backsliding on climate and sustainability ambition in many countries, especially as geopolitical developments capture political attention. This challenges our understanding of social tipping processes and actions in two key ways. (1) We should be careful assuming that self-reinforcing dynamics will take hold and lead to irreversible changes in social systems, even past an apparent threshold. Pushback against transformative change is always possible (even likely) as tipping processes unfold, leading to complex and unpredictable outcomes. (2) At the same time, fear of backlash and backsliding is also itself a risk. Moderating ambition in anticipation of pushback may close off transformative possibilities or limit imagination. Hence, **politics is central to social tipping**. Enabling tipping processes requires ongoing political work. Strategies for social tipping should be ambitious but also respond to changing political coalitions, public support, institutions, and meanings of transformative change. Doing so can help bolster social tipping under complex and shifting societal conditions that may otherwise impede it.



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Nurture systems that support just and sustainable “seeds” of change

Given the enormity and urgency of the environmental and justice challenges facing humanity, there is a temptation to think of social tipping points as “silver bullets” for transforming our systems and solving our problems. While social tipping points can drive rapid and far-reaching change, durable and positive outcomes for nature and diverse groups of people are more likely when changes occur within a supportive context that favors just and sustainable outcomes and that bolster and support one another to bring about system-wide **transformative changes**. This implies that leveraging social tipping points for good requires nurturing conditions where shifts and innovations toward greater justice and sustainability can emerge and combine to create reinforcing cascades of lasting change.

The **Seeds of Good Anthropocenes** initiative builds on this understanding. It identifies innovations or “seeds” that foster more just and sustainable outcomes and can contribute to reinforcing systemic change. Over **500 examples** have been identified, from alternative land ownership models and community currencies to rewilding initiatives and smart renewable energy grids. Central to the work is understanding the key features of these “seeds” (what motivated their formation, what activities do they undertake, how are they managed, what are their ecological and social impacts, and who benefits or loses?), as well as their “soil and climate” (the conditions that enabled them to form, the opportunities and constraints they face such as gender and power inequalities, funding, networks, and skills). This understanding helps identify interventions that can support the emergence and development of diverse innovations that can help drive tipping processes while also starting to build and create a more just and sustainable future alternative world to “tip into.”



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Care as lever of social tipping points for good

Opportunities for shifts toward common good lie in sustainability-aligned values that function as deep leverage points, reorienting socio-ecological dynamics and enabling collective action to cascade into **transformative change**. Care for others, as a **foundational sustainability-aligned value**, has supported the emergence of societies, cultures, and cooperative institutions, particularly under conditions of scarcity, violence, and oppression. Across regions, strategies to nurture life, govern shared resources, and coordinate collective resistance have been grounded in such values, exemplified in Capulálpam de Méndez, Oaxaca in Mexico, where **celo—a deep sense of care, responsibility, and attachment to place**—underpins communal forest governance and resistance to mining. Yet imperial expansion, Cartesian materialism, and neoliberal political economy have systematically marginalized these relational ethics, facilitating dispossession, extraction, and dominance.

Sustainability-aligned values are increasingly critical levers for tipping points toward collective good, as multilateral institutions and shared moral commitments fracture under unilateral agendas that privilege domination over cooperation. Rapid responses to societal and environmental threats—such as those mobilized by Capulálpam when confronting violence—are most effective where these values have been cultivated across generations. Everyday collective practices, including cooking, planting, walking, celebrating, or peaceful protest, ground these values in place and inclusive ways of inhabiting the world. When intensifying threats activate these otherwise marginalized values, individual agency can rapidly scale through networks, amplifying feedbacks and reshaping collective action, institutions, and trajectories toward more just and sustainable futures.

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DECLARATION OF INTERESTS

T.A. serves as Chief Strategy and Alignment Officer at the COP30 Presidency, within the Presidency of the Republic of Brazil; X.B. is an advisor to Kitakyushu City's Next Horizon Sustainable Cities initiative, is on the Board of Trustees, Institute for Global Environmental Strategies, Japan, is a Member of the Earth Commission, and a Co-Chair of Governing Council at Future Earth; S.v.d.L. serves on the advisory board of the Council for Countering Online Disinformation and the Centre for Digital Literacy in Schools, has advised governments and technology companies for his research on psychological inoculation against misinformation and has written books on the topic; R.B. co-founded and continues to co-lead the Seeds of Good Anthropocenes initiative; B.M.-L. is an advisory board member at *One Earth*.