A more equal distribution of limited resources and ecological space

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Abstract

Restructuring our socio-economic systems is necessary to tackle both climate change and structural and procedural inequality. To avoid significant climate change, we need to move away from economic systems shaped by the dominant economic class and based on an extractive and exploitative use of natural resources. These same systems also exploit, exclude or oppress people on a global scale (i.e., between countries) and across different groups (i.e., within countries).

In this paper, we review the inequitable use of resources and ecological space and analyse how structural inequality and climate change are mutually reinforcing. When looking to set limits to resource use and ecological space we find that we must ask questions about who sets those limits and the ways in which different voices are excluded or ignored in these conversations. Failing to do so will result in solutions that reinforce the power imbalance between groups, ultimately making it harder to tackle climate change. We conclude by raising questions about the need to restructure our global environmental governance systems to make them more inclusive spaces.

Key messages

- Resource use is unequal within countries and between countries
- Inequality and climate change are bidirectionally linked. The unequal distribution of resource consumption drives the climate crises and the climate crises in turn exacerbates existing inequalities.
- Frameworks to limit resource use must explicitly tackle inequality.
- The responsibility of tackling the climate crisis must fall more on those countries and individuals that have benefited the most from systemic inequalities and contributed to the most to the climate crisis.
- We need to dismantle the historical power structures that perpetuate inequities so that we can set resource limits and redistribute resource use.

BACKGROUND PAPER

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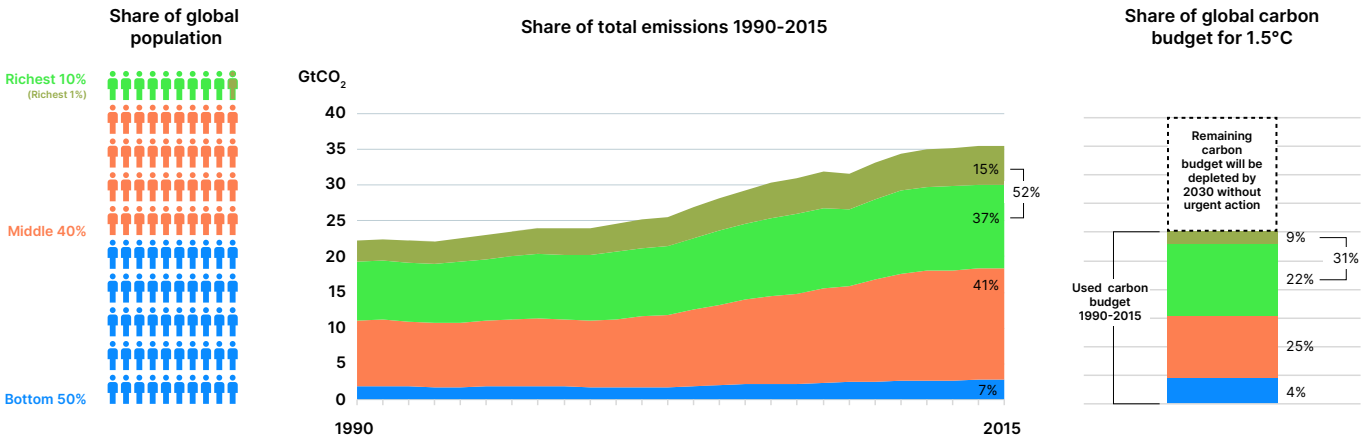
1. Historical share of natural resources and ecological space

The majority of the global carbon budget (Intergovernmental Panel on Climate Change, 2018) has been fuelling the lifestyle of a tiny wealthy minority of the world's population. As per the 2020 report from OXFAM and the Stockholm Environment Institute, The Carbon Inequality Era (Kartha et al., 2020), between 1990 and 2015, the richest 10% of the global population accounted for 52% of the cumulative carbon emissions, depleting the global carbon budget for the 1.5°C target by nearly a third (31%). The poorest 50% produced only 7% of emissions during the same time period. If emissions continue at the same rate, the world is at risk of exceeding the global carbon budget by 2030[1], largely due to the emissions of the richest individuals, and leaving little room for the poorest to increase emissions and improve their standards of living.



Per capita income threshold ($PPP2011) of richest 1%: $109k; richest 10%: 38k; middle 40%: $6k; and bottom 50%: less than $6k.
Global carbon budget from 1990 for 33% risk of exceeding 1.5°C: 1,205Gt

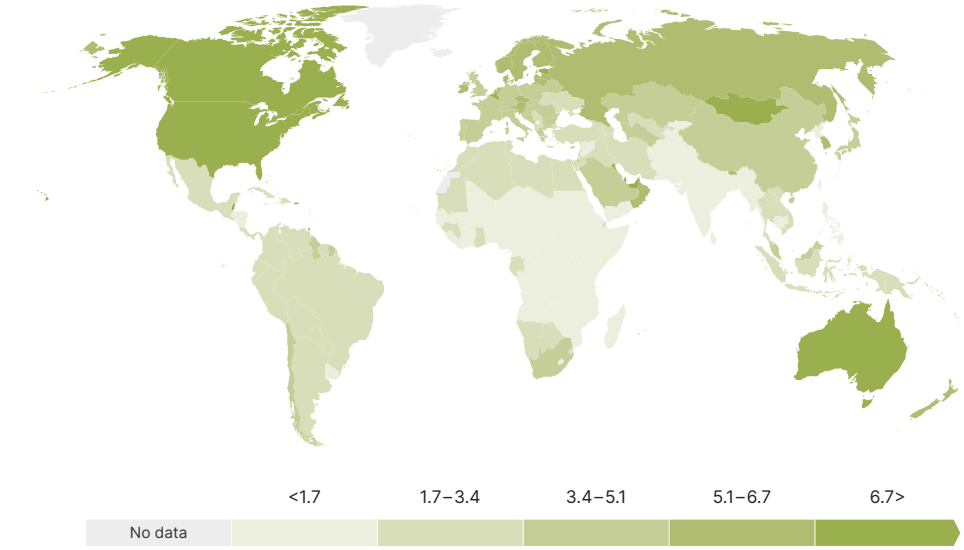
Figure 1: Share of cumulative emissions from 1990 to 2015 and global carbon budget for 1.5°C by consumption of different global income groups (Gore 2020; Kartha et al. 2020)

Geographically, while an increasing share of the emissions of the richest 1% and 10% are associated with emerging economies like China and India, the majority are from North America and Europe. Moreover, a large share of the poorest 50% of the global population are from China and India and are associated with very low per capita emissions. According to data from the Global Footprint Network (2021), while India and China (middle-income countries) have very high total ecological footprints[2] due to population size (see Figure 2, map 1), on average, high-income countries still have higher per capita ecological footprints (see Figure 2, map 2). Furthermore, around 50% of the resources

1. Remaining carbon budget is estimated to be 340 GtCO2 for a global temperature change of 1.5°C and risk of exceeding at 33% (IPCC 2018, Table 2.2, p. 108).

2. The ecological footprint measures the ecological assets that a given population or product requires to produce the natural resources it consumes.

used by the Global North[3] originate from the Global South (Dorninger et al., 2020). A recent study by Hickel et al. (2022) showed that, in 2015 alone, the net appropriation by the Global North from the Global South amounted to 242 trillion (constant 2010 USD). This value is inclusive of 12 billion tons of embodied raw material equivalents, 822 million hectares of embodied land, 21 exajoules of embodied energy and 188 million person-years of embodied labour (Hickel et al., 2022). Rather than using labour, land and resources for their own development, poorer countries are left to manage the ecological impacts of unequal exchange that is used to build the wealth of rich countries.



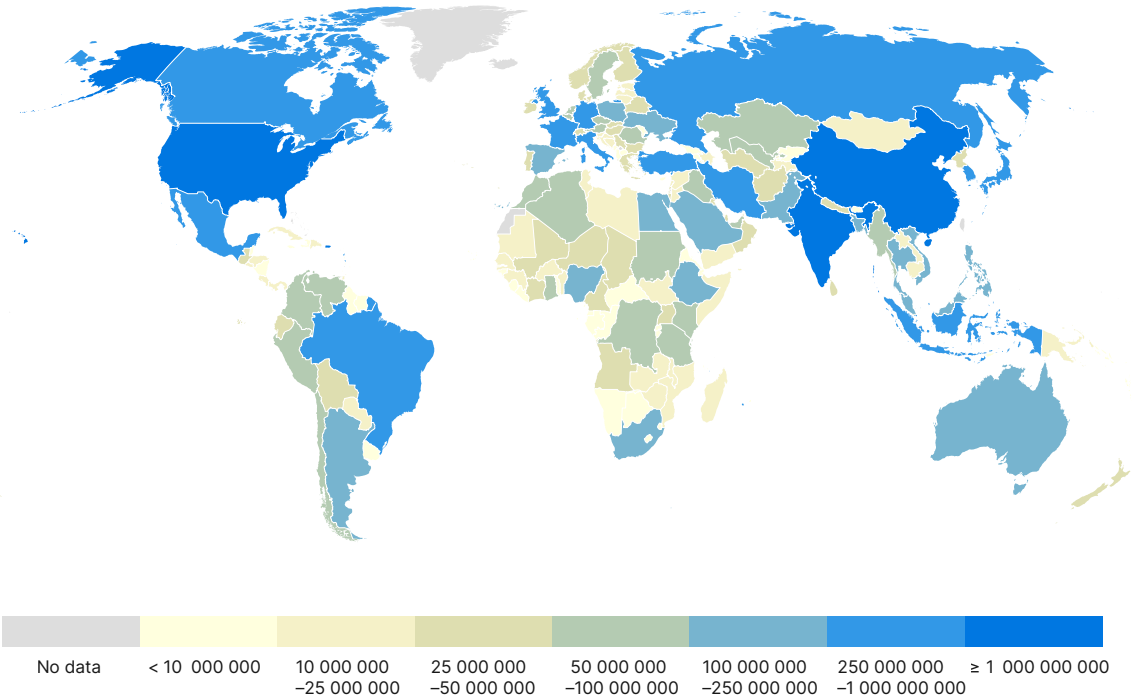


Figure 2: Above – Total ecological footprint of country's population in global hectares; Below – Ecological footprint per person of country's population in global hectares. The available biocapacity per person is currently 1.7 global hectares. (Global Footprint Network et al., 2021)

3. We refer to the Global South as 'a sociopolitical and epistemic space that extends beyond geographical lines and represents those who are at a disadvantage due to unjust sociopolitical and economic structures regardless of where they are placed in the world' (Albornoz et al., 2020; de Sousa Santos, 2016). This definition therefore includes marginalized communities and Indigenous populations based in the Global North.

Similarly, within countries, poor, minority and/or marginalized groups[4] typically do not have the same access to resources compared with those with economic, social and political power. Historical structural inequalities play a role in unequal resource distribution. Caste-oppressed communities in India are denied access to energy (Patnaik & Jha, 2020), food security (Sukhdeo & Lee, 2005), information (Krishna et al., 2019) and public services (Pal, 2016). Black and Hispanic communities in the US have less access to healthy food (Hilmers et al., 2012) and green spaces (Dai, 2011). In Latin America, East Africa, Southern Africa, the Middle East, the Mediterranean, South Asia, South East Asia and the Pacific there are documented examples of Indigenous communities that were forcefully removed from their lands and relocated to areas with fewer resources (Chatty & Colchester, 2002). Furthermore, in many parts of the world, women are formally excluded from economic power and property rights, which in turn impacts their access to resources (for example: Aluko, 2015; Zwarteveen & Meinzen-Dick, 2001).

2. The bidirectional nature of resource extraction/ emissions and inequality

Inequality, at both intra and international levels is bidirectionally linked to environmental pollution and climate change. The top 10% of humanity is depleting the carbon budget and consuming resources and ecological space in an unsustainable manner, which is exacerbating the rate of climate change. In addition, the existence of inequality and the need to improve the quality of life for the world's poorest citizens are often cited as reasons for delaying climate action (Lamb et al., 2020). However, the world's poorest and most oppressed communities are also those who are the most vulnerable to the impacts of environmental problems and climate change (Intergovernmental Panel on Climate Change, 2018) – which in turn exacerbate inequality between countries and communities.

Environmental issues and inequality are therefore mutually reinforcing. Inequality and climate change are both systemic problems. The current political and socio-economic structures and procedures are set up to serve the interests of continued economic growth and accumulation of wealth for richer populations and countries at the expense of the continued exploitation of natural resources and the poorest populations. Therefore, rather than putting aside progress on equality to address climate change urgently or throwing environmental issues aside to address the need for socio-economic development, environmental problems and social justice/ inequality issues must be tackled together.

4 The authors acknowledge that those who fall into a 'poor', 'minority' and/or 'marginalized' group are not homogenous and how they are defined can differ depending on the context.

3. Reviewing existing frameworks on safe and just limits for resource use

The safe and just limits for resource use should minimize environmental degradation while reducing inequality and maximizing societal welfare. There are frameworks that define global environmental limits and minimum social foundations (e.g. planetary boundaries, global carbon budget, Doughnut Economics) that are useful in informing 'safe' environmental limits on a global scale. However, these frameworks do not offer guidance on how to allocate responsibility between countries in a just and equitable manner.

The planetary boundaries framework, first developed by Rockström et al. (2009) and refined by Steffen et al. (2015), quantifies limits for nine critical Earth-system processes (Steffen et al., 2015). These planetary boundaries are known as the 'safe operating space for humanity' (Rockström et al., 2009, p. 32), which, if exceeded, could risk passing the threshold for initiating a catastrophic sequence of events causing destabilization at a planetary scale. The remaining carbon budget provides additional limits for various climate targets (Millar et al., 2017; Rogelj et al., 2016, 2019). While it is useful to have a sense of global environmental ceilings, authors of the planetary boundaries framework recognize that it does not attribute responsibility for the source of the boundary transgressions to specific regions, countries or social groups, or provide details on how to stay within the boundaries.

Frameworks do not offer guidance on how to allocate responsibility between countries in a just and equitable manner.

Building on the planetary boundaries framework, Doughnut Economics by Raworth (2017) uses a ring-shaped doughnut (see Figure 3) to illustrate the need to stay within the environmental ceilings posed by the planetary boundaries (the outer ring) while ensuring a minimum social foundation to maintain human well-being, including food, water, housing, health, energy, education, jobs and equality, justice and a political voice (the inner ring). In between the two rings is the 'safe and just operating space for humanity' (Raworth, 2017, p. 38). Unlike the environmental boundaries, which are absolute, the social boundaries are relative and can change over time (Scott, 2013). Some critics view Raworth's agnostic stance on growth (i.e., to not worry about growth and to focus on other ways to achieve social welfare) as problematic as it fails to address the systemic reasons behind social inequality and environmental challenges that are seen today (Spash, 2020). Doughnut Economics foresees the global economy as entering a 'more cooperative and gentler' phase, though it is unclear how this may come to fruition.

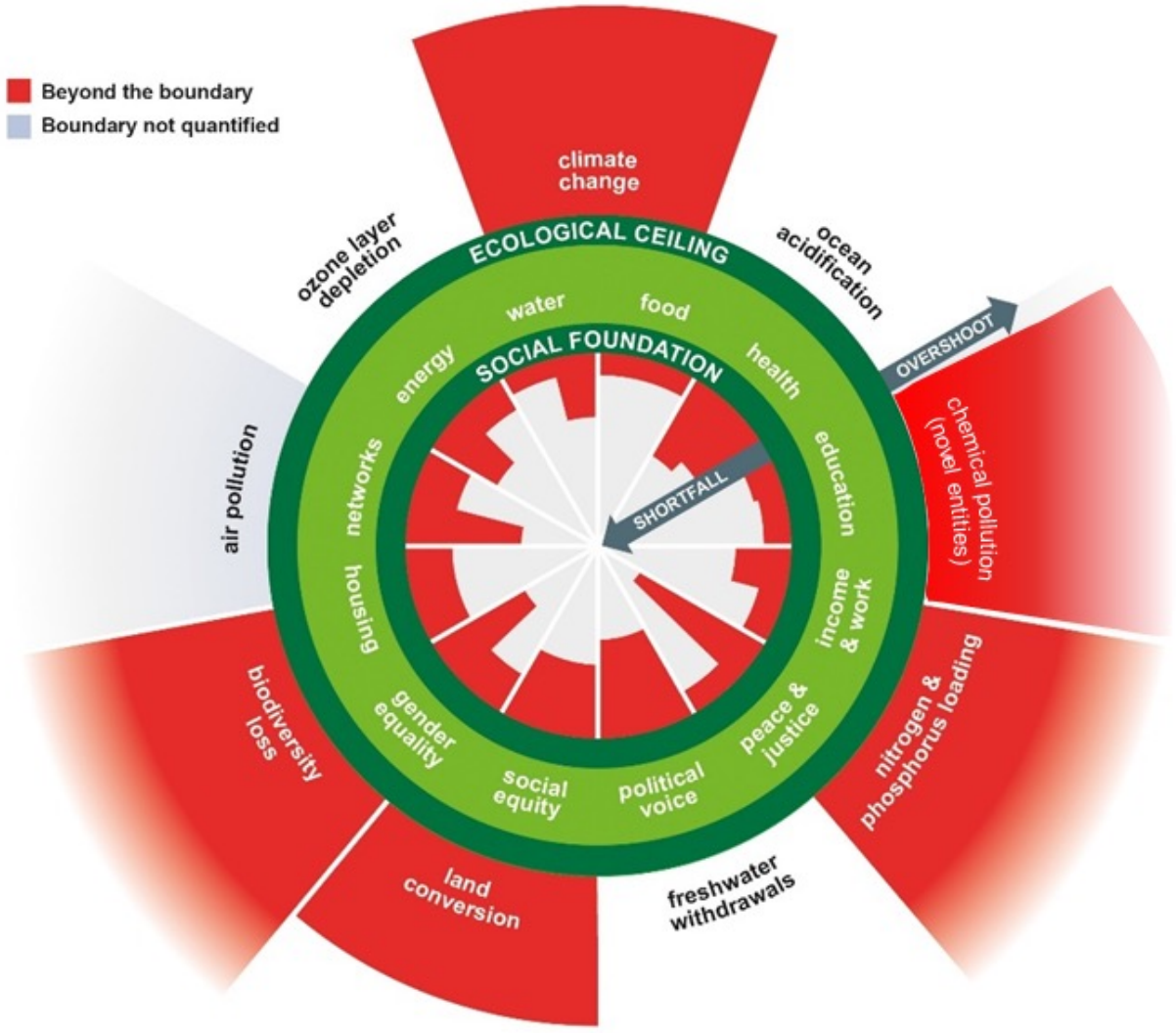


Figure 3: Doughnut Economics framework illustrating planetary boundaries (outer ring) and social boundaries (inner ring) (Raworth, 2017) updated by the authors to reflect the latest status of the planetary boundaries from Persson et al. (2022). Five planetary boundaries have been surpassed. Meanwhile, several social conditions are still unmet for much of the world's poorer populations (Raworth, 2017).

A similar balance between environmental protection, poverty reduction and social progress is reflected in the UN's Sustainable Development Goals (SDGs), which were adopted by 193 member countries in 2015. Currently, no country – including high-income countries – has achieved all SDGs (Sachs, 2021). While the SDGs establish targets for the environment and social welfare, they are not country-specific, nor do they set quantitative limits for specific environmental targets on a country level. Each country is responsible for determining an appropriate pathway to meet the targets given their country context. This is also the case for other global agreements that seek to minimize environmental risks, including the 2015 Paris Agreement on climate change. As a result of these environmental and societal concerns, traditional paths to industrialization and development cannot be followed. Now, many lower-income countries seek to industrialize alongside sustainable development, which involves managing resources sustainably, limiting carbon emissions and building resiliency against climate impacts, while also navigating through complex global power dynamics and addressing structural inequalities. These same environmental and social challenges were not faced by wealthier countries as they industrialized, enabling them to build their economies while polluting without the same limitations.

4. Defining the problem and setting just limits to resource use

While common but differentiated responsibilities and respective capabilities (CBDR-RC) is in principle supposed to guide nationally determined contributions (NDCs) to meet the goals of the Paris Agreement, high-income countries have yet to take full responsibility for their significantly higher contributions to carbon emissions. This includes providing the USD100 billion per year they pledged in climate finance to developing countries. This has led to inadequate NDC pledges and insufficient financial support well below what is needed to meet the climate commitments set out in the Paris Agreement (United Nations Framework Convention on Climate Change, 2021a, 2021b).

While high-income countries are mainly responsible for causing the climate and ecological damage that mainly impacts poor, marginalized communities and countries (Althor et al., 2016), the same high-income countries dominate climate negotiations and set climate research agendas (David-Chavez & Gavin, 2018). One of the outcomes of the Paris Agreement is that climate change has been problematized as quantities of carbon emissions to keep global temperature change below 1.5°C compared with pre-industrial levels. This frames the climate transition as one that is primarily a technological challenge – how can countries reduce their carbon emissions, rather than how can countries change unequal resource sharing and systems of power that led to environmental problems (like climate change) in the first place.

When it comes to high-priority solutions, structural issues with the economic system are largely ignored. The continued growth of carbon emissions and environmental pollution is enabled by the current economic system, which emerged during colonial times and was set up to enable a tiny wealthy minority to continue building their wealth through unsustainable patterns of consumption and production (Schulz, 2017). Even the SDGs promote the current economic system and focus on poverty reduction to reduce the inequality gap and fail to acknowledge the need to rein in wealth and the inheritance of wealth. To this day this economic system is supported through appropriation of resources from developing countries, representing present-day coloniality in the form of globalization, neoliberal capitalism and imperialism (Schulz,

2017). Developing countries are therefore left to address environmental and social problems within the limits imposed on them by an economic system entrenched in colonial legacies.

Furthermore, as Catney and Doyle (2011) observe, issues like climate change and pollution tend to be seen as a future problem by developed countries, when for many developing countries and frontline communities they are a problem now. Pollution, for example from mining, waste disposal or siting of power plants and industrial facilities, has ongoing environmental justice implications as it mainly occurs around poor communities, which bear the brunt of pollutant exposure. The global environmental limits, targets and timelines set out in the various frameworks do not acknowledge the environmental inequalities that currently exist and their implications for many poor and marginalized populations now.

5. Transforming economic systems and power structures to reduce inequality and increase sustainability

Acknowledging the uneven power balance between countries and within communities and how it plays out within the global economic system and governance regimes is important to distributing resources and ecological space according to the needs of the general human population instead of a small wealthy minority. Framing the problem more holistically requires significant effort to overcome the power disparities that systematically suppress the voices of poorer countries and marginalized populations. We need a better understanding of who is being left out of conversations on low-carbon transitions and why.

Ultimately, reducing inequality will benefit us all. Inequality and oppression hamper the ability of many marginalized communities to contribute fully and effectively to society (Andrijevic et al., 2020). Reducing inequality will allow global society to benefit from the more diverse knowledge systems currently silenced through oppression (Markkanen & Anger-Kraavi, 2019). Diversity of knowledge and perspectives enriches the space from which we select climate solutions (Djoudi et al., 2016). Additionally, building resilience in marginalized and vulnerable communities creates the framework for better human security (Fabinyi et al., 2014) and leaves us with global governance systems that are more responsive and proactive in dealing with oppression. That prompts the question – how can we transform our global environmental governance regimes and negotiation processes to take into account intra and international power disparities? Doing so will allow us to better capture the diversity of community relationships with the environment and to represent this complexity better when setting limits for resource use.

Policymakers need to go beyond short-term ‘development’ solutions and question the discourse that lies at the heart of them – a dependence on continuous growth, technological progress, anthropocentrism, patriarchy and the cultural dominance

of systems of knowledge originating in the Global North[5] (Kothari et al., 2019). The colonial attitudes to knowledge that are entrenched in the development discourse prompt solutions that seek to 'help' marginalized or vulnerable populations by bringing them into the current capitalistic economy (Smith, 2012). In the case of racial privilege this is referred to as a 'White Saviour Industrial Complex' by Nigerian-American novelist Teju Cole (2012), but the same attitude persists among many privileged communities. The intention behind this attitude may not be malice, but it stems from an intersectionality of systems of oppression – such as racism, sexism, colonialism. In the case of environmental problems, we need solutions that are rooted in cultural reflexivity and that embrace multiple social, political and economic knowledge systems. For example, among many Indigenous communities in North America, the study of their environment is intertwined with their cultural and spiritual practices (Manuel & Posluns, 2019). This enables them to recognize changes in their local environment and formulate unique strategies to adapt. However, David-Chavez and Gavin (2018) found that nearly 87% of climate research by outsiders used this Indigenous knowledge without acknowledging their active participation in research. These Indigenous communities need to be included in the climate discourse, not only as participants, but at its forefront, which means researchers in the Global North must make space for Indigenous research leaders (Latulippe & Klenk, 2020).

We need to find alternatives to the dominant unsustainable human lifestyles. Can we transform producer–consumer systems and global value chains so as to have happy and healthy communities without exceeding planetary boundaries? There are examples of lifestyles that do not depend on the extractive and exploitative use of natural resources. For example, Indigenous communities in Mexico avoid common modernization routes in forest management and yet achieve extremely successful tropical forest utilization that has high agricultural production and high biodiversity conservation (Toledo et al., 2003). Marginalized communities or social groups often possess tacit knowledge that is valuable to climate action in specific contexts (Meisch et al., 2022). This knowledge is often regarded as inferior to knowledge systems originating in the Global North (Meisch et al., 2022). Solutions to shift power need to acknowledge and build upon these valuable knowledge systems rather than seeking to replace them with universal modernity.

How can we learn from existing communities that are living sustainably while also ensuring that knowledge from marginalized communities is not simply taken but compensated? Compensation can come through traditional routes such as land rights, intellectual property rights, educational opportunities and job creation within these communities as well as involvement in advisory panels and expert committees. Non-traditional forms of compensation could be rooted in the socio-economic context of specific marginalized communities and have benefits that do not translate into the current capitalistic economy. In this way, the shift to sustainable development is also a form of reducing inequality and shifting power.

5 See note 3.

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