Policy Brief on the international dimension of sufficiency concepts with a focus on India

Fundamental decarbonisation
through sufficiency by lifestyle changes

Policy Brief

FULFILL Deliverable D 2.4 long version

Place: Milano

Status: Final

Fundamental decarbonisation through sufficiency by lifestyle changes

GA#: 101003656

Deliverable number (relative in WP)	**D 2.4 long version**
Deliverable name:	Policy Brief: Policy Brief on the international dimension of sufficiency concepts with a focus on India
WP / WP number:	WP 2
Delivery due date:	30.06.2024
Actual date of completion:	25.06.2024
Place	Milano
Status	Final
Dissemination level:	Public
Lead beneficiary:	Politecnico di Milano
Authors:	Riccardo Mastini, Tonny Nowshin (consultant)
Contributor(s):	Lorenzo Pagliano, Andrea Roscetti
Internal reviewer(s):	Gunnar Boye Olesen, Judit Szoleczky, Fiona Breucker

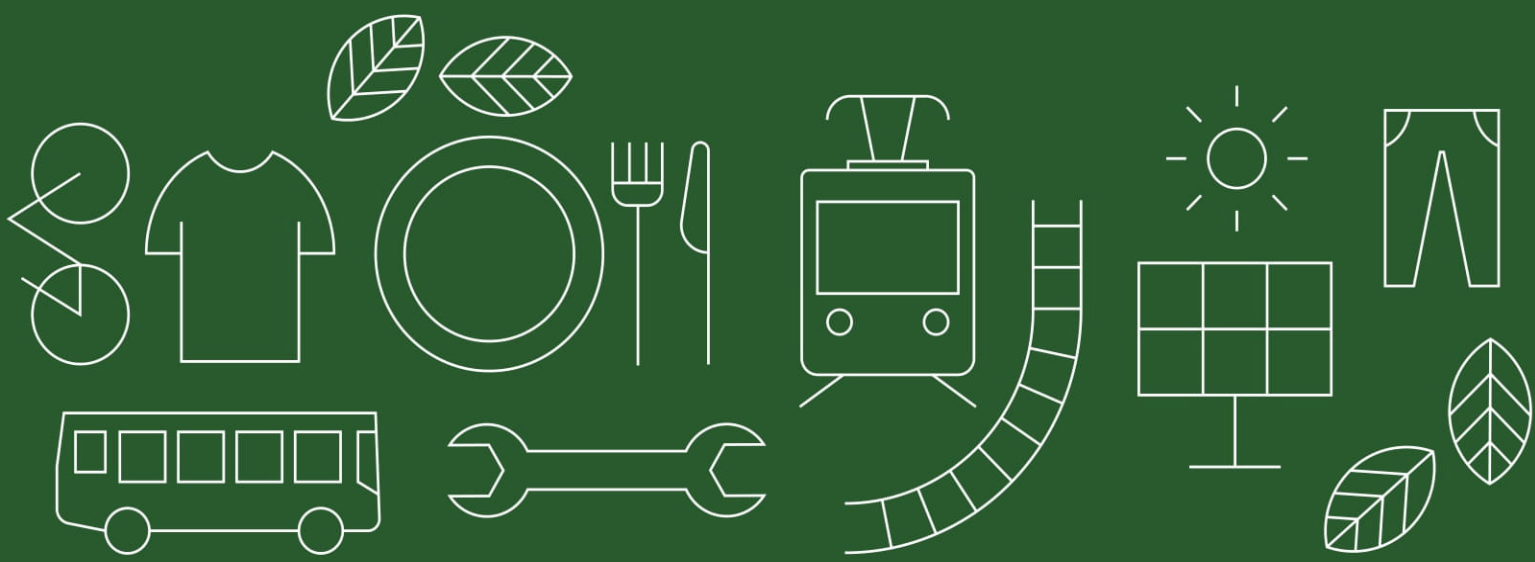
FULFILL has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101003656.

Project Partners

No	Participant name	Short Name	Country code	Partners' logos
1	**Fraunhofer Institute for Systems and Innovation Research ISI**	FH ISI	DE	
2	**Wuppertal Institut für Klima, Umwelt, Energie GGMBH**	WI	DE	
3	**Accademia Europea di Bolzano**	EURAC	IT	
4	**Notre Europe - Institut Jacques Delors**	JDI	FR	
5	**Association négaWatt**	NW	FR	
6	**Politecnico di Milano**	POLIMI	IT	
7	**International Network for Sustainable Energy-Europe**	INFORSE	DK	
8	**Zala Briviba Biedriba SA**	ZB	LV	

Acknowledgement

FULFILL has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101003656.
This document reflects only the author's view and the Agency is not responsible for any use that may be made of the information it contains.



Content

List of Abbreviations

EU	European Union
NDC	Nationally Determined Contributions
SSH	Social Sciences and Humanities
MS	Microsoft

List of Figures

Abstract / Summary

This policy brief summarizes policy-relevant conclusions from work package 2 (WP2) of the FULFILL project, which analyzed international sufficiency initiatives through the lens of environmental justice.

The first chapter presents what WP2 found out about environmental inequalities between countries at the international level. While the ongoing ecological breakdown is a global problem affecting all countries, the burden of responsibility for causing it is heavily skewed towards the Global North. Overall, the Global North has exceeded its fair share of the atmosphere by 121%, while overall the Global South is still below its fair share by 12%. Looking beyond CO2 emission, we observe that the ecological debt that the Global North owes to the Global South extends to also other dimensions of biophysical throughput. Overall, high-income countries are responsible for the majority of excess global resource use, with an average material footprint of 28 tons per capita per year—four times over the sustainable level. Hence, Economic growth in the North relies on patterns of colonization: the appropriation of atmospheric commons, and the appropriation of Southern resources and labour. In terms of both emissions and resource use, the global ecological crisis is playing out along colonial lines. Southern countries should be free to organize their resources and labour around meeting human needs rather than around servicing growth in the Global North. To address the historical debt of the Global North towards the Global South, we propose a set of six interlinked policies in line with sufficiency principles.

The second chapter presents what WP2 found out about environmental inequalities between social classes at the international level. While discussing environmental inequalities at the level of nations has merits given the dynamics of ecologically unequal exchange, national statistics conceal differences between social classes. Focusing on carbon inequalities, inequality between countries has decreased over the last three decades, meaning that the average carbon footprint in a Global North country is more similar to the one in a Global South country today than it was in 1990. This is the direct consequence of the rise of the middle class in BRICS countries. However, in the same period, carbon inequalities among social classes have increased, meaning that the gap in the average carbon footprint of a citizen in the top 10% and one in the bottom 10% of the global distribution of wealth has widened. Drawing on the work done in WPs 4 and 5 of the FULFILL project, we discuss policy proposals for transforming consumption patterns of the social classes at the top of the wealth distribution pyramid that have unsustainable ecological footprints.

Introduction and Overview

Purpose of this Document

This policy brief summarizes main conclusions from work package 2 of the FULFILL project, which aimed at analyzing international sufficiency initiatives, their relation to governance and their multiple effects. Our conclusions are preliminary and are not meant to express final conclusions of the project. As a policy brief, this document is concise and describes complex issues as simple as possible. The referencing to literature is reduced. More detail can be found in the deliverables of work package 2:

- D2.1: FULFILL FULFILL Deliverable D 2.1 Place: Milan Status: Final Literature review for analysis of lifestyle change
- D2.2: Operative Definition and Indicators for Energy Sufficiency
- D2.3: Refinement of Research Design

Project Summary

The project FULFILL takes up the concept of sufficiency to study the contribution of lifestyle changes and citizen engagement in decarbonising Europe and fulfilling the goals of the Paris Agreement. FULFILL understands the sufficiency principle as creating the social, infrastructural, and regulatory conditions for changing individual and collective lifestyles in a way that reduces energy demand and greenhouse gas emissions to an extent that they are within planetary boundaries, and simultaneously contributes to societal well-being. The choice of the sufficiency principle is justified by the increasing discussion around it underlining it as a potentially powerful opportunity to actually achieve progress in climate change mitigation. Furthermore, it enables us to go be-yond strategies that focus on single behaviours or certain domains and instead to look into life-styles in the socio-technical transition as a whole. The critical and systemic application of the sufficiency principle to lifestyle changes and the assessment of its potential contributions to decarbonisation as well as its further intended or unintended consequences are therefore at the heart of this project. The sufficiency principle and sufficient lifestyles lie at the heart of FULFILL, and thus constitute the guiding principle of all work packages and deliverables.

Project Aim and Objectives

- To achieve this overarching project aim, FULFILL has the following objectives:
- Characterise the concept of lifestyle change based on the current literature and extend this characterisation by combining it with the sufficiency concept.
- Develop a measurable and quantifiable definition of sufficiency to make it applicable as a concept to study lifestyle changes in relation to decarbonisation strategies.
- Generate a multidisciplinary systemic research approach that integrates micro-, meso-, and macro-level perspectives on lifestyle changes building on latest achievements from research into social science and humanities (SSH), i.e. psychological, sociological, economic, and political sciences, for the empirical work as well as Prospective Studies, i.e. techno-economic energy and climate research.
- Study lifestyle change mechanisms empirically through SSH research methods on the micro- (individual, household) and the meso-level (community, municipal):
    - achieve an in-depth analysis of existing and potential sufficiency lifestyles, their intended and unintended consequences (incl. rebound and spillover effects), enablers and barriers (incl. incentives and existing structures) as well as impacts (incl. on health and gender) on the micro level across diverse cultural, political, and economic conditions in Europe and in comparison to India as a

country with a wide range of economic conditions and lifestyles, an history which encompasses simple-living movements, and a large potential growth of emissions.

- assess the dynamics of lifestyle change mechanisms towards sufficiency on the meso-level by looking into current activities of municipalities, selected intentional communities and initiatives as well as analysing their level of success and persisting limitations in contributing to decarbonisation.

- Integrate the findings from the micro and meso-level into a macro, i.e. national and European, level assessment of the systemic implications of sufficiency lifestyles and explore potential pathways for the further diffusion of promising sufficiency lifestyles.
- Implement a qualitative and quantitative assessment of the systemic impact of sufficiency lifestyles which in addition to a contribution to decarbonisation and economic impacts includes the analysis of further intended and unintended consequences (incl. rebound and spillover effects), enablers and barriers (incl. incentives and existing structures) as well as impacts (incl. on health and gender).
- Combine the research findings with citizen science activities to develop sound and valid policy recommendations contributing to the development of promising pathways towards lifestyle
- Generate findings that are relevant to the preparation of countries' and the EU's next NDCs and NDC updates to be submitted in 2025 and validate and disseminate these findings to the relevant stakeholders and institutions for exploitation.
- Consider the relevance and potential impacts of sufficiency lifestyles beyond the EU.

1. Environmental inequalities between countries

1.1. The climate debt of the Global North

While the ongoing ecological breakdown is a global problem affecting all countries, the burden of responsibility in causing it is heavily skewed towards the Global North. Hickel (2020)[1] calculates every country's responsibility in generating excessive emissions, namely the emissions that exceed the safe planetary boundary of 350 ppm atmospheric CO_2. By this approach, the USA is responsible for 40% of 'overshoot emissions', the EU-27 for 29%, Russia for 8%, the UK for 7%, and Japan for 5%. These figures are significantly higher than earlier estimates, and suggest a greater degree of responsibility among high-income nations than previously thought. Overall, the Global North has exceeded its fair-share of the atmosphere by 121%, while overall the Global South is still below its fair-share by 12%. Even China is still within its boundary fair share (by 3%), although emissions rates are expected to exceed it significantly in the coming years.

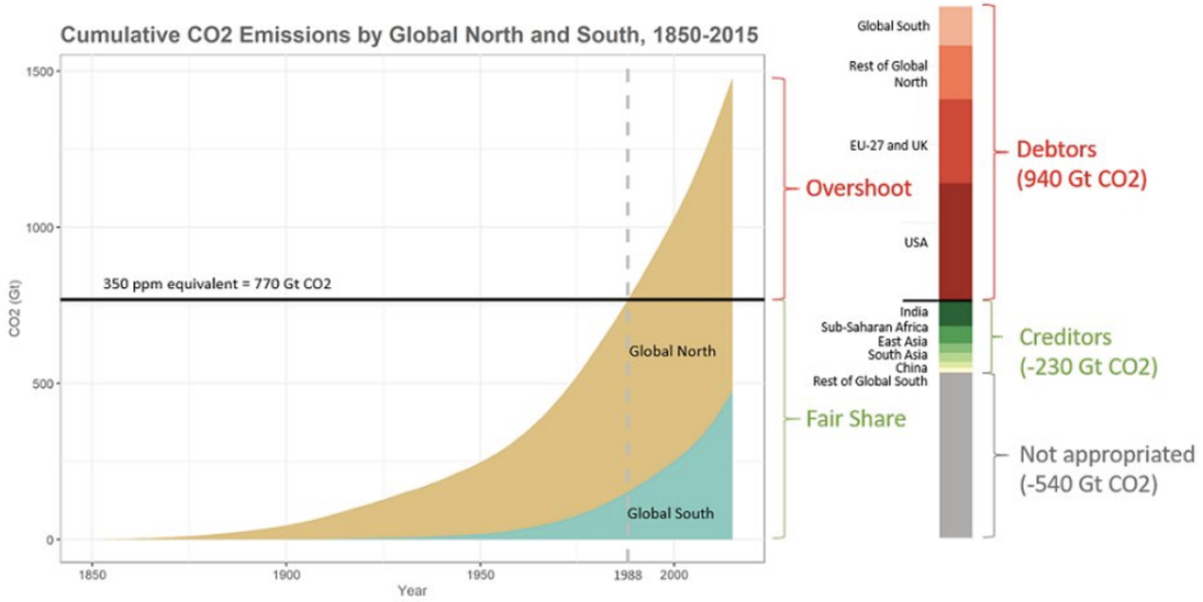


Figure 1. Quantifying national responsibility for climate breakdown

In his analysis, Hickel (2020) uses data on consumption-based emissions, rather than on production-based ones. Consumption-based accounting (CBA) of CO_2 emissions differs from traditional, production-based accounting (PBA) because it factors in imports and exports of goods and services that, either directly or indirectly, involve CO_2 emissions. In the context of climate negotiations aimed at setting decarbonization targets for nations, the argument that CBA should replace PBA is progressively gaining support.[2] Arguably, consumers—rather than producers—should be held responsible for enjoying the benefits of emissions caused by the production of goods. Calculating the difference between PBA and CBA reveals CO_2 emissions embedded in trade and, consequently, the degree to which the climate record of each nation is altered by the off-shoring of factories that commenced in the 1990s. Most countries in the Global North register

[1] *Hickel, J. (2020). Quantifying national responsibility for climate breakdown: an equality-based attribution approach for carbon dioxide emissions in excess of the planetary boundary. The Lancet Planetary Health, 4(9), e399-e404.*

[2] *Tukker, A., Pollitt, H., & Henkemans, M. (2020). Consumption-based carbon accounting: sense and sensibility. Climate Policy, 20(sup1), S1-S13.*

higher levels of emissions under CBA rather than under PBA, while the reverse is observed in Global South countries. By way of illustration, according to figures by Our World In Data[3], CBA is 3% higher than PBA in the case of Turkey, 6% in the case of the US, and 15% in the case of Japan. Whereas CBA is 2% lower than PBA in the case of Egypt, 10% in the case of China, and 30% in the case of South Africa.

If we zoom in on the EU, we discover that its climate record is 28% higher under CBA than under PBA.[5] Such data cast a shadow on the triumphalist narrative of the EU with regard to the supposedly successful greening of its economy in recent years: the truth is that while the EU reduced its territorial emissions of 21% from 1990 to 2017, if emissions embedded in trade are taken in consideration the reduction is limited to just 5%. However, the difference between CBA and PBA differs markedly among EU member states: for instance, while the gap for the Netherlands amount to just 5%, it amounts to 46% for Italy, and to 70% for Belgium.[4] In light of these data, we can conclude that since the 90s the EU has delocalized its carbon footprint to a higher degree than it has reduced it.

1.2. The ecological debt of the Global North

Looking beyond CO_2 emission, we observe that the ecological debt that the Global North owes to the Global South extends to also other dimensions of biophysical throughput. In the period between 1990 and 2015, countries of the Global North appropriated 200 billion tons of raw materials, 550 exajoules of energy, and 30 billion hectares of agricultural land through trade flows from the Global South.[5] Overall, high-income countries are responsible for the majority of excess global resource use, with an average material footprint of 28 tons per capita per year—four times over the sustainable level.[6] Hickel et al. (2022)[7] propose a novel method for quantifying national responsibility for ecological breakdown by assessing nations' cumulative material use in excess of equitable and sustainable boundaries. They derived national fair shares of a sustainable resource corridor. These fair shares were then subtracted from countries' actual resource use to determine the extent to which each country has overshot its fair share over the period 1970–2017. Through this approach, each country's share of responsibility for global excess resource use was calculated. High-income nations are responsible for 74% of global excess material use, driven primarily by the USA (27%) and the EU-28 high-income countries (25%). China is responsible for 15% of global excess material use, and the rest of the Global South (i.e. the low-income and middle-income countries of Latin America and the Caribbean, Africa, the Middle East, and Asia) is responsible for only 8%. Overshoot in higher-income nations is driven disproportionately by the use of abiotic materials, whereas in lower-income nations it is driven disproportionately by the use of biomass. These results show that high-income nations are the primary drivers of global ecological breakdown.

[3] *https://ourworldindata.org/grapher/production-vs-consumption-co2-emissions*

[4] *Steininger, K. W., Munoz, P., Karstensen, J., Peters, G. P., Strohmaier, R., & Velázquez, E. (2018). Austria's consumption-based greenhouse gas emissions: Identifying sectoral sources and destinations. Global environmental change, 48, 226-242.*

[5] *Dorninger, C., Hornborg, A., Abson, D. J., Von Wehrden, H., Schaffartzik, A., Giljum, S., ... & Wieland, H. (2021). Global patterns of ecologically unequal exchange: Implications for sustainability in the 21st century. Ecological economics, 179, 106824.*

[6] *Bringezu, S. (2015). Possible target corridor for sustainable use of global material resources. Resources, 4(1), 25-54.*

[7] *Hickel, J., O'Neill, D. W., Fanning, A. L., & Zoomkawala, H. (2022). National responsibility for ecological breakdown: a fair-shares assessment of resource use, 1970–2017. The Lancet Planetary Health, 6(4), e342-e349.*

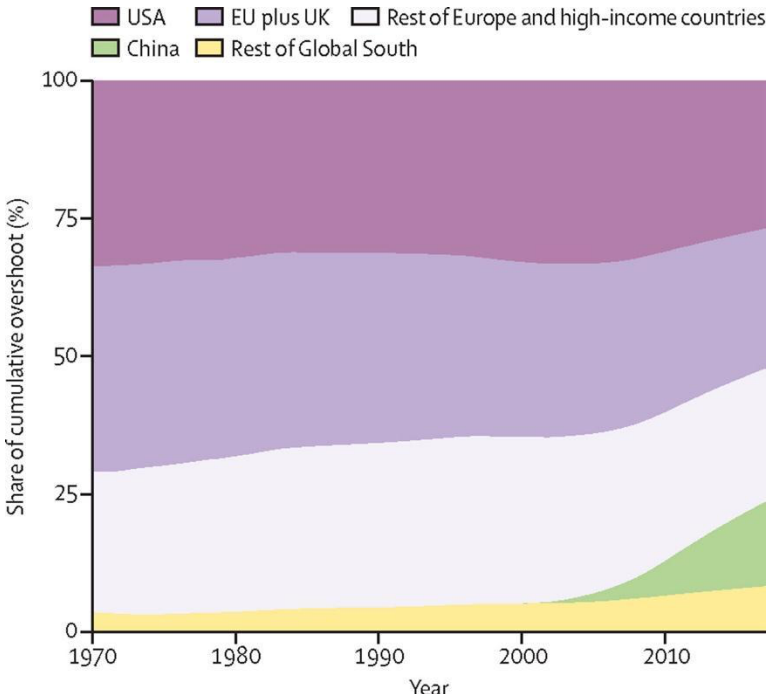


Figure 2. Share of responsibility for excess resource use by region, 1970–2017

Global trade, therefore, allows countries of the Global North to ensure to their citizens a lifestyle that would be unsustainable for their national ecosystems. Hence, instead of speaking of the "Western lifestyle", Brand and Wissen (2013)[8] suggest that we speak of "imperial lifestyle". The lifestyle of the majority of citizens of the global North depends on the hoarding of resources that belong to other peoples. In other words, economic growth in the North relies on patterns of colonization: the appropriation of atmospheric commons, and the appropriation of Southern resources and labour. In terms of both emissions and resource use, the global ecological crisis is playing out along colonial lines. Continued growth in the North means rising final energy demand, which will in turn require rising levels of extractivism. Aggravating matters further, decarbonization cannot be accomplished fast enough to respect Paris targets as long as energy use in the global North remains so high[9]. Sufficiency requires rich nations to scale down throughput to sustainable levels, reducing aggregate energy use to enable a sufficiently rapid transition to renewables, and reducing aggregate resource use to reverse ecological breakdown. This demand is not just about ecology; rather, it is rooted in anti-colonial principles. Southern countries should be free to organize their resources and labour around meeting human needs rather than around servicing growth in the Global North.

1.3. An internationalist sufficiency agenda for environmental justice

To address the historical debt of the Global North towards the Global South discussed in the previous section, we propose a set of six interlinked policies (Figure 3) in line with sufficiency principles drawn from the

[8] *Brand, U., & Wissen, M. (2013). Crisis and continuity of capitalist society-nature relationships: The imperial mode of living and the limits to environmental governance. Review of International Political Economy, 20(4), 687-711.*

[9] *Hickel, J., & Kallis, G. (2020). Is green growth possible?. New political economy, 25(4), 469-486.*

work of Schmelzer and Nowshin (2023)[10]. We are proposing that sufficiency—in addition to focusing on the social-ecological transformation in the Global North—also develops an explicit engagement with a global justice agenda. What could this internationalist sufficiency agenda look like?

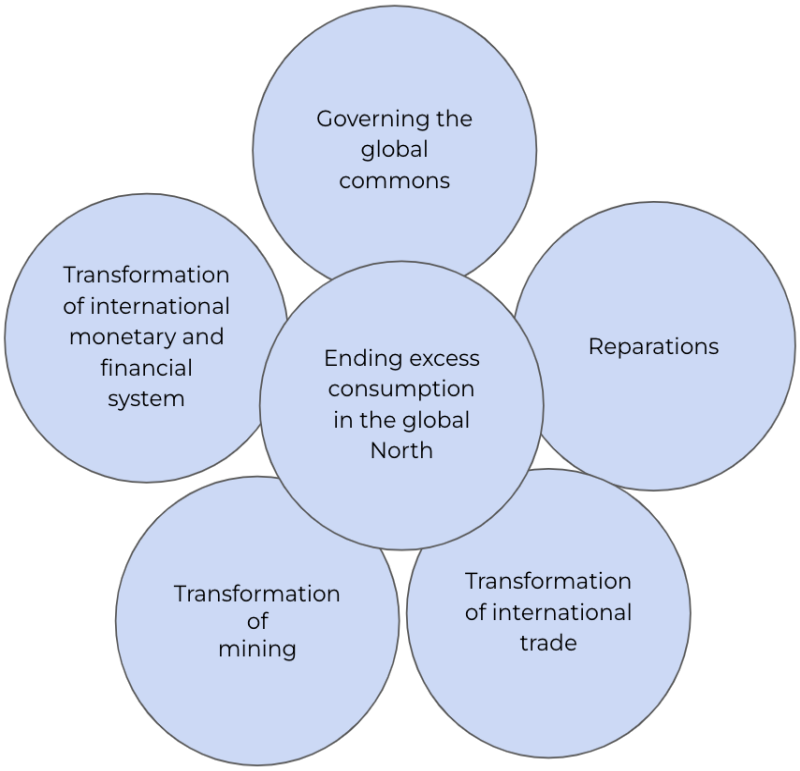


Figure 3. Six interlinked policy proposals for international environmental justice

To begin with, the overall sufficiency objective about the geopolitical changes of world-making can be summarized as downshifting the economies of the Global North. This brings to the fore some of the policies aimed at stopping the harm, e.g., through the setting of 'societal boundaries' as 'collectively defined self-limitation (Brand & Wissen, 2021)[11]. Many prominent sufficiency policies try to achieve this—from moratoria on green extractivism, caps on resource and energy use, work time reduction, degrowing of fossil fuel and resource intensive sectors etc. However, only relying on these policies of ending the Global North's externalization could have serious side-effects. For example, a shift towards Unconditional Basic Services, as well as ecological taxation and a localization of needs-oriented production, will likely lead to less consumption overall and less reliance on resource extraction from the Global South, but could possibly also heavily damage the economies of the Global South that rely on exporting resources and consumer goods, or on tourism, as was evidenced by the effects of the COVID-19 lockdown (Gräbner-Radkowitsch & Strunk, 2023)[12]. That is why any policy to reverse the accumulation process towards the Global North would need

[10] *Schmelzer, M., & Nowshin, T. (2023). Ecological Reparations and Degrowth: Towards a Convergence of Alternatives Around World-making After Growth. Development, 66(1), 15-22.*

[11] *Brand, U., Wissen, M. (2021). The Imperial Mode of Living: Everyday Life and the Ecological Crisis of Capitalism. New York: Verso.*

[12] *Gräbner-Radkowitsch, C, Strunk, B. (2023). Degrowth and the Global South: The Twin Problem of Global Dependencies. ICAE Working Paper 142. https://www.jku.at/fileadmin/gruppen/ 108/ICAE_Working_Papers/wp142.pdf.*

a supporting set of policies to ensure global justice. That is why any policy to reverse the accumulation process towards the Global North would need a supporting set of policies to ensure global justice.

Secondly, sufficiency should focus on policies of ecological reparations. As a first step towards full reparations, this includes debt cancellation for the Global South. As an internationalist addition to proposals for often implicitly 'national' universal basic incomes, sufficiency should also focus on global 'unconditional cash transfers' to individuals, ideally weighed by accumulated disadvantages—something like a global climate justice UBI (Warren, 2017)[13]. Also, the Global North needs to massively step up its funding for climate adaptation—ideally formulated from an intersectional justice perspective, both in the North but also in the South, and as part of a transformative adaptation agenda. Furthermore, this could also involve efforts—financed by the Global North—to clean up the ecological havoc through rewilding, drawing down carbon, and restoring Indigenous and community land rights (Hickel, 2020)[14].

Third, such an internationalist sufficiency agenda must also involve proposals for the transformation of international trade. The restructuring of the economy coherent with sufficiency principles implies a 'de-globalization' of economic relations or a 'de-linking' of the Global South from neoliberal globalization and the exploitative trade and financial system dominated by the North (Bello, 2005)[15]. The aim is to limit trade in goods and services that are problematic in ecological and human rights terms, largely driven by corporations taking advantage of international wage and price differentials, and often not necessary at all. While an international sufficiency agenda should aim to restrict the international free movement of capital searching for the most profitable investments—a policy that could play a key role in the transition phase to stabilize international markets—it should also pursue the expansion of trade that is beneficial (in particular to the Global South), cultural exchange and slow travel. It is therefore a matter of regionally anchored but interconnected and open economic relationships and a much more localized production (Liegey & Nelson, 2020)[16].

Fourth, reversing the accumulation, localizing the production, and correcting for trade relationships and production have to be underpinned by reorganization of the extractive and other mining activities. Transforming the current extractive practices of gathering minerals from Earth which goes hand in hand with human rights violation, Indigenous land rights violation, environmental pollution and degradation have to stop immediately. Rebuilding mining has to include ownership and governance of the community, localization of value-added production, shifting the current relation with the Earth as the source of raw material and abolish corporate control over mining rights and profiteering (Táíwò, 2022)[17].

Fifth, an internationalist sufficiency agenda must also discuss the transformation of the international monetary and financial system. Possible measures in this context include global taxes on finance and capital, the creation of a democratic international monetary system (such as the one based on the international currency 'bancor' originally proposed by John Maynard Keynes), equitable market access for public-interest companies, reforming or abolishing international organizations like the World Bank and the International

[13] *Warren, T. (2017). Reparations and Basic Income. Boston Review. https://bostonreview.net/forum_response/dorian-t-war- ren-reparations-and-basic-income/.*

[14] *Hickel, J. (2020). Quantifying National Responsibility for Climate Breakdown: An Equality-Based Attribution Approach for Carbon Dioxide Emissions in Excess of the Planetary Boundary. The Lan- cet Planetary Health 4 (9): e399–404. https://doi.org/10.1016/ S2542-5196(20)30196-0.*

[15] *Bello, W. (2005). Deglobalization: Ideas for a New World Economy. Dhaka: Zed Books.*

[16] *Liegey, V., Nelson, A. (2020). Exploring Degrowth: A Critical Guide. London: Pluto Press.*

[17] *Táíwò, O. (2022). Reconsidering Reparations: Worldmaking in the Case of Climate Crisis. New York: Oxford University Press.*

Monetary Fund, and democratically negotiated financial and technological transfers to offset climate debt (Gadha et al. 2021)[18].

A final area of internationalist sufficiency policies should revolve around the reprioritization of global governance and the global commons to build a subsidiary and democratic institutional framework that enables global justice-oriented governance around human and non-human needs. Governing the local commons involves prioritizing international policies that foster the rebuilding and rebalancing of relationships with the planet, including respecting the Rights of Nature as well as ensuring global justice. As outlined in the Cochabamba declaration, this would mean to 'restore to developing countries the atmospheric space that is occupied by Global North greenhouse gas emissions', implying the 'decolonization of the atmosphere through the reduction and absorption of their emissions' (World People's Conference on Climate Change and the Rights of Mother Earth, 2010)[19]. The necessary rewiring of international relations involves municipalities (including rural towns) and cities as key actors of change—a vision often labelled 'radical municipalism' (Burkhart et al. 2020)[20].

[18] *Gadha, M., Kaboub, F., Koddenbrock, K., Mahmoud, I. (2021). Economic and Monetary Sovereignty in 21st Century Africa. London: Pluto Press.*

[19] *World People's Conference on Climate Change and the Rights of Mother Earth. 2010. People's Agreement of Cochabamba. https:// pwccc.wordpress.com/2010/04/24/peoples-agreement/.*

[20] *Burkhart, C, Schmelzer, M., Treu, N. (2020). Degrowth in Movement(s): Exploring pathways for transformation. Winchester: Zero.*

2. Environmental inequalities between social classes

2.1. Wealth concentration causes unsustainable consumption patterns

While discussing environmental inequalities at the level of nations has merits given the dynamics of ecologically unequal exchange (Hornborg & Martinez-Alier, 2016)[21], national statistics conceal differences among social classes as highlighted in FULFILL report D3.1[22]. Focusing on carbon inequalities, Chancel et al. (2024)[23] find that inequality between countries has decreased over the last three decades, meaning that the average carbon footprint in a rich country is more similar to the one in a developing country today than it was in 1990. This is the direct consequence of the rise of the middle class in BRICS countries. However, in the same period, carbon inequalities among social classes has increased, meaning that the gap in the average carbon footprint of a citizen in the top 10% and one in the bottom 10% of the global distribution of wealth has widened.

In the period 1990-2020, the richest 10% at the global level (i.e. circa 600 million individuals) cumulatively generated 52% of emissions, the middle 40% was responsible for 41%, and the poorest 50% (i.e. circa 3 billion individuals) for just 7% (Gore, 2020)[24]. Currently, the average carbon footprint of an individual belonging to the richest 1% at the global level can be up to 175 times bigger than the one of an individual belonging to the poorest 10% (Otto et al., 2019). But even more striking from an environmental justice perspective is the fact that in recent decades the rich have increased their emissions more than the poor have. In the period 1990-2015, the richest 10% posted emissions growth of 46%, while the poorest 50% of just 6% (Gore, 2020).

The dynamics of unequal appropriation of the remaining carbon budget for 1.5°C previously discussed at the level of nations can be observed also at the level of social classes at the global level. In the period 1990-2015, the richest 10% appropriated 31% of the remaining carbon budget, while the middle 40% appropriated 25%, and the poorest 50% only 4% (Gore, 2020). The exorbitant emission levels of the rich makes it also difficult for them to achieve the 2030 climate target proposed by the IPCC amounting to 2.1tCO2/year. The average per capita carbon footprint of the richest 1% is currently around 35 times higher than the target for 2030 and the one of the richest 10% is 10 times higher (Gore, 2020). To add insult to injury, the carbon footprint of the global poorest 50% is already today below the 2.1tCO2/year target. Thus, when policy makers and commentators state that humanity is far from achieving the necessary carbon emission reductions, it would be wise to specify which social class they are referring to.

While wealthy individuals (i.e. the richest 10% at the global level) make up a higher share of the population of countries in the Global North than of countries in the Global South, it should be borne in mind that a sizable number of them live in the latter. It is estimated (Milanovic, 2016)[25] that half of the richest 10% at the global level live in Europe and North America, while 20% of them live in India and China. However, if we zero in on the richest 1% at the global level, we discover that 1/3 of them live respectively in North America, China, and in the MENA region (Milanovic, 2016). Hence, there are more super-rich individuals in

[21] *Hornborg, A., & Martinez-Alier, J. (2016). Ecologically unequal exchange and ecological debt. Journal of Political Ecology, 23(1), 328-333.*

[22] *https://fulfill-sufficiency.eu/wp-content/uploads/2024/03/D3.1-Entwurf-EU-and-India_FINAL_v2.0.pdf*

[23] *Chancel, L., Bothe, P., & Voituriez, T. (2024). The potential of wealth taxation to address the triple climate inequality crisis. Nature Climate Change, 14(1), 5-7.*

[24] *Gore, T. (2020). Confronting Carbon Inequality: Putting climate justice at the heart of the COVID-19 recovery. Oxfam International. Accessible at: https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621052/mb-confronting-carbon-inequality-210920-en.pdf*

[25] *Milanovic, B. (2016). Global inequality. Harvard University Press.*

China than there are in Europe. This consideration makes us better understand that the problem of the carbon footprint of the rich and super-rich is transnational: it is not European citizens as a whole who must reduce their emissions, just as it is not Indian citizens as a whole who must increase their emissions to achieve a decent lifestyle. Rather, it is the rich and the super-rich in every country who must be held responsible for excessive emissions. It is, therefore, time for the rich and super-rich in the Global South to stop "hiding behind their poor" (Chakravarty & Ramana, 2012)[26]. In the pursuit of fair climate policy making, it would make more sense to overcome the dichotomy between Global North and South—that has often led to an impasse in international climate negotiations—and focus instead on citizens who have a high carbon footprint regarding of the country they live in.

Box 1. Carbon Inequalities in India

If we focus on India as a case study, we discover that the top 10% of the Indian population holds 77% of the total national wealth. 73% of the wealth generated in 2017 went to the richest 1%, while 670 million Indians who comprise the poorest half of the population saw only a 1% increase in their wealth. There are 119 billionaires in India. Their number has increased from only 9 in 2000 to 101 in 2017. Between 2018 and 2022, India is estimated to produce 70 new millionaires every day. Billionaires' fortunes increased by almost 10 times over a decade and their total wealth is higher than the entire Union budget of India for the fiscal year 2018-19, which was at INR 24422 billion. Many ordinary Indians are not able to access the health care they need. 63 million of them are pushed into poverty because of healthcare costs every year – almost two people every second. It would take 941 years for a minimum wage worker in rural India to earn what the top-paid executive at a leading Indian garment company earns in a year (Oxfam, 2023)[27].

The stark economic inequalities are reflected also in the unequal distribution of responsibility for CO2 emissions. The national average per person emission in India is currently 2.2 tonnes of CO_2, however the bottom 50 percent emits on average only 1 tCO2 per capita while the top 10 percent 8.8 tCO2 per capita (Bhattacharya, 2020)[28]. These findings provide a vital policy insight. The synergistic emission-inequality relationship in post-liberalization India implies that controlling for the scale and composition of economic activities and population, economic inequality and CO2 emission can be jointly mitigated. In other words, India has the potential opportunity to utilize the synergistic relationship between CO2 emission and economic inequality to jointly address the environmental and socio-economic sustainability challenges. Most of the emission reduction in India to meet the targets of the Paris Agreement must come from the top 10 percent of India's population whose emissions are higher than the world average emissions. Compared to 2019 levels, Indian emissions can on average increase by 70 percent or by 1.5 tCO2 per person until 2030. In the spirit of a convergence of average per capita emissions among social classes those of the bottom 50 percent can increase by 281 percent to 2.7 tCO2 per person by 2030 while those of the middle 40 percent can increase by 83 percent to 1.7 tCO2 per person. However, emissions of the top 10 percent must fall by 58 percent to 5.1 tCO2 per person to meet the targets of the Paris Agreement (Bhattacharya, 2020)[11].

[26] Chakravarty, S., & Ramana, M. V. (2012). The hiding behind the poor debate: A synthetic overview. Handbook of climate change and India, 218-229.

[27] Oxfam (2023), Tackling Extreme Inequality in India: https://policy-practice.oxfam.org/resources/tackling-extreme-inequality-in-india-620196/

[28] Bhattacharya, H. (2020). Environmental and socio-economic sustainability in India: evidence from CO_2 emission and economic inequality relationship. Journal of Environmental Economics and Policy, 9(1), 57-76.

2.2. Sufficiency policies for social-environmental justice

Drawing on the findings of other work packages within the FULFILL project, in this section we integrate the international dimension of sufficiency policies with domestic ones to address within countries unsustainable consumption patterns and environmental injustice.

FULFILL policy brief D4.5[29] analyses options for supporting sufficiency initiatives and identified four areas of strategic niche management where municipalities can support local sufficiency initiatives:

Resources and competences

Sufficiency initiatives rely on voluntary work. Cities can offer financial support and training especially in financial, administrative, and legal matters, which are usually not a core competence of local sufficiency initiatives.

Infrastructure and legal conditions

Physical infrastructures, economic and legal frameworks usually promote material and energy-intensive production and consumption patterns (e.g. roads for cars, regulations on food hygiene, expansive land-use planning). Municipalities can adapt urban transport infrastructures and sometimes have scope for developing flexible responses to sufficiency objectives in other areas such as food processing and end-of-life use, planning of the built environment or land-use.

Formal support, venues, and networking

Sufficiency initiatives are usually valuable organizations of benefit for the public and should be officially recognized and treated as such. They should have central contact persons and guidance when dealing with local administrations. Ideally, local networking and mutual learning among the initiatives also in cooperation with municipal staff could be encouraged, e.g., by offering venues, communication, and training facilities. Furthermore, municipalities can offer space and venues for meetings and public engagement, including collaborations with local housing cooperatives and neighbourhood associations.

Political legitimation and communicative support

Many sufficiency initiatives struggle to survive. A continuous challenge is the recruiting of a voluntary and active membership. Sufficiency initiatives often indicated difficulties reaching the general public. In that context, they would welcome public recognition and support. Municipalities could directly inform citizens about existing initiatives in their community, but they could also be a mediator between sufficiency initiatives and potential donors. Eventually, sufficiency initiatives could become partners in the planning and development of cities and towns. Sufficiency principles could be integrated in municipal strategies and planning. There is evidence that especially, the introduction of concrete targets and timetables seem to motivate cooperation, e.g., with the introducing carbon budgets at municipal level. Regional food cooperatives as well as repair and sharing initiatives could make valuable contributions not only to meeting climate change mitigation targets, but also to improving neighbourhoods, citizenship and social cohesion.

You can't manage what you can't measure

The sufficiency debate has inherited from the broader societal sustainability discourse substantial conceptual deficits concerning the operationalisation in terms of metrics and indicators. In the medium-term this will inhibit the development of evidence-based policies because this would require the ability to measure their effectiveness. So far, the state of the art of the scientific literature defines sufficiency as the ability to satisfy human needs within planetary boundaries, however, neither the satisfaction of human needs nor planetary boundaries (beyond climate change) are sufficiently defined to allow measurement to a degree that would be needed for making informed decisions in the multi-level governance system within the

[29] *https://fulfill-sufficiency.eu/wp-content/uploads/2023/10/D4.5_policy-brief.pdf*

European Union and beyond. Thus, the relations between planetary boundaries and local activities need to be better understood and better defined in ways that allow operationalisation in policies. Where the relations are reasonably well understood, as for example, in the case of climate change mitigation, they need to inform multi-level policies. Climate change mitigation could be a frontrunner of evidence-based policy designs aiming at the limitation of environmental impacts within planetary boundaries in partnership with the rich diversity of local sufficiency initiatives.

System dynamics

In the long term, it would be desirable to shift the prevailing dynamics of exploration, exploitation, and expansion of urban systems. Ideally, the evolutionary process of variation, selection and stabilization within urban societies should favour the development of sufficient solutions rather than goods and services which require increasing amounts of energy and material. In the long term these systems dynamics might only be realized by a smart policy-mix consisting of the right price signals and infrastructures in combination with adequate legal and social norms. However, this would require a considerable acceleration of evidence-based policy-learning. So far, policymaking lacks the necessary operational concepts, metrics and institutions which would allow a broad change of urban system dynamics towards sufficiency. More implementation-oriented research and development would be desirable for taking advantage of the rich potential which the multitude of local sufficiency initiatives offer at local level.

FULFILL deliverable 5.2[30] analyses sufficiency policy measures on food, housing, and mobility at the national level in five EU countries. Here below we offer a synthesis of the main findings to address within countries unsustainable consumption patterns and environmental injustice.

Dietary sufficiency policies

Eating less animal products is the single biggest lever to reduce a person's impact on the environment, given the large environmental impact of animal protein compared with plant protein. Governments can be important enablers or barriers to create the necessary sufficiency infrastructures and societal framework that enable more plant-based nutrition. Given the wider reach of national policies compared with local regulations, the potential of national governments to reduce the environmental footprint and improve people's health by regulating animal product consumption in public canteens is clear. In France, the EGALIM law for balanced trade relations in the agricultural sector and healthy, sustainable food, which has been implemented in 2018, provides an example of a national policy that constitutes an enabler for more sufficient diets that has a broad impact. The law bundles a variety of policy measures including a two-year pilot phase of one weekly vegetarian menu in schools as well as a daily vegetarian option in public institutions. Conversely, national governments' negative impact on the adoption of more sufficient diets can be significant as can be illustrated by a Latvian national government regulation, which prohibited children in schools to consume meals without meat up until 2012. Even now, vegetarian meals are only allowed if there is a written request from parents or legal guardians, limiting the consumption of vegetarian meals in schools all across Latvia.

Despite the greater reach of national policies, the influence of municipalities should not be underestimated in the implementation of dietary sufficiency policies. In both Germany and Denmark, implementing national solutions for more plant-based diets in public canteens have proven difficult whilst many sufficiency initiatives for more plant-based diets on municipal level exist. For example, a German city council decided to only serve vegetarian lunches to children in daycare centres and primary schools, going much further than the national legislative proposal for one vegetarian meal a week. This shows that municipalities can enact changes that might not be feasible on a national level. Likewise, municipalities need to be taken on board when national sufficiency policies are supposed to be implemented smoothly. To illustrate this, in France, the proposal to expand the provision of vegetarian meals in public canteens to more days has been opposed by powerful local authority networks that object to state intervention on their local level. This is in line with the findings from D4.4. that shows the importance of involving local stakeholders, such as

[30] *https://fulfill-sufficiency.eu/wp-content/uploads/2023/10/D5.2-Report-on-the-comparative-analysis-of-sufficiency-policies-0923-1.pdf*

members of municipalities, at the early stages of the decision-making process in order to favour a successful implementation of sufficiency policies. The work on the cooperation between municipalities and sufficiency initiatives conducted in WP4 further emphasises the positive effect of municipalities long-term planning and goals aligning with measurable results of the initiatives. In line with that, in Germany, the inclusion of environmental considerations of school meals in city monitoring reports has been identified to positively influence the implementation of measures that introduce more vegetarian meals in schools. It can be concluded that including sufficiency and related concepts in city's and region's strategies and monitoring guidelines can enable sufficiency policy implementation.

Housing and mobility sufficiency policies

Housing and transport account for approximately 70% of European households' carbon footprint, rendering sufficiency measures in these sectors a relevant object of study. The political will of national governments is an important enabler of sufficiency measures due to the regulatory, financial and technical power they usually hold. For example, the goal of improving cycling infrastructures in Denmark will be implemented at the local level, but municipalities' investments are constrained by national rules, and hence depend on national budgetary decisions. In Germany, lifting car parking space obligations at the regional level is dependent on a change in national federal law, which shows how reforms at the national level can be necessary to enable change on a more local level. As another example, the Latvian program of renovation for multi-housing apartments, which will particularly benefit the capital Riga, is co-financed by the EU Recovery Fund. This reflects the political will to make renovation a priority since the recovery plans were decided by national governments with limited engagement of other stakeholders. The steps taken towards the implementation of a low emission zone in Riga also show that the awareness of transport emissions among policy-makers at the national level is rising. Lastly, in Italy, decisions on water pricing policy are made at the national level. Municipalities can be strong advocates for greater sufficiency policies, act as early- movers and support policy change at the national level. The interest from local authorities to develop sufficiency policies is a key driver for adoption at the municipal level, as illustrated by the momentum for co-housing, especially with elders, and eco-communities in France, municipal support for renovation in Riga, Latvia, Milano's plan for the reuse of abandoned buildings which already allowed for the repurposing of 50 buildings, or the many Danish municipalities that ask for more national funding for cycling infrastructures. Many sufficiency policies will eventually depend on local implementation, such as the Riga low emission zone, which relies on targets and directions given in Riga's development programme for 2022-2027. The low-emission zone project also benefited from the local Energy Agency initiative to implement a "Sustainable Energy and Climate Action Plan". Yet, municipalities have more limited resources than national governments to implement sufficiency policies. In Milano, the office responsible for the identification of unused buildings is overworked, and Danish municipalities that want to improve their cycling infrastructure to support the national objective of increased cycling share in mobility depend on national budgetary decisions.

3. Conclusions

This policy brief summarized policy-relevant conclusions from WP2 of the FULFILL project, which analyses international sufficiency initiatives through the lens of environmental justice.

The first chapter presented what WP2 found out about environmental inequalities between countries at the international level. From these findings, we conclude that economic growth in the North relies on patterns of colonization: the appropriation of atmospheric commons, and the appropriation of Southern resources and labour. In terms of both emissions and resource use, the global ecological crisis is playing out along colonial lines. Southern countries should be free to organize their resources and labour around meeting human needs rather than around servicing growth in the Global North. To address the historical debt of the Global North towards the Global South, we propose a set of six interlinked policies in line with sufficiency principles. Specifically, we discussed proposals in the following policy areas:

- Ending excess consumption in the Global North;
- Ecological reparations;
- Transformation of international trade;
- Transformation of mining;
- Transformation of international monetary and financial system;
- Governing the global commons.

The second chapter presents what WP2 found out about environmental inequalities between social classes at the international level. Drawing on the work done in WPs 4 and 5 of the FULFILL project, we discuss policy proposals for transforming consumption patterns of the social classes at the top of the wealth distribution pyramid that have unsustainable ecological footprints. Specifically, we discussed proposals in the following policy areas:

- Resources and competences;
- Infrastructure and legal conditions;
- Formal support, venues, and networking;
- Political legitimation and communicative support;
- System dynamics;
- Dietary sufficiency policies;
- Housing and mobility sufficiency policies.

References

Bhattacharya, H. (2020). *Environmental and socio-economic sustainability in India: evidence from CO_2 emission and economic inequality relationship*. Journal of Environmental Economics and Policy, 9(1), 57-76.

Bello, W. (2005). Deglobalization: Ideas for a New World Economy. Dhaka: Zed Books.

Burkhart, C, Schmelzer, M., Treu, N. (2020). Degrowth in Movement(s): Exploring pathways for transformation. Winchester: Zero.

Brand, U., & Wissen, M. (2013). Crisis and continuity of capitalist society-nature relationships: The imperial mode of living and the limits to environmental governance. Review of International Political Economy, 20(4), 687-711.

Brand, U., Wissen, M. (2021). The Imperial Mode of Living: Everyday Life and the Ecological Crisis of Capitalism. New York: Verso.

Bringezu, S. (2015). Possible target corridor for sustainable use of global material resources. Resources, 4(1), 25-54.

Chancel, L., Bothe, P., & Voituriez, T. (2024). The potential of wealth taxation to address the triple climate inequality crisis. Nature Climate Change, 14(1), 5-7.

Chakravarty, S., & Ramana, M. V. (2012). The hiding behind the poor debate: A synthetic overview. Handbook of climate change and India, 218-229.

Dorninger, C., Hornborg, A., Abson, D. J., Von Wehrden, H., Schaffartzik, A., Giljum, S., ... & Wieland, H. (2021). Global patterns of ecologically unequal exchange: Implications for sustainability in the 21st century. Ecological economics, 179, 106824.

Gadha, M., Kaboub, F., Koddenbrock, K., Mahmoud, I. (2021). Economic and Monetary Sovereignty in 21st Century Africa. London: Pluto Press.

Gore, T. (2020). Confronting Carbon Inequality: Putting climate justice at the heart of the COVID-19 recovery. Oxfam International. Accessible at: https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621052/mb-confronting-carbon-inequality-210920-en.pdf

Gräbner-Radkowitsch, C, Strunk, B. (2023). Degrowth and the Global South: The Twin Problem of Global Dependencies. ICAE Working Paper 142. https://www.jku.at/fileadmin/gruppen/ 108/ICAE_Working_Papers/wp142.pdf.

Hickel, J. (2020). Quantifying national responsibility for climate breakdown: an equality-based attribution approach for carbon dioxide emissions in excess of the planetary boundary. The Lancet Planetary Health, 4(9), e399-e404.

Hickel, J., & Kallis, G. (2020). Is green growth possible?. New political economy, 25(4), 469-486.

Hickel, J., O'Neill, D. W., Fanning, A. L., & Zoomkawala, H. (2022). National responsibility for ecological breakdown: a fair-shares assessment of resource use, 1970–2017. The Lancet Planetary Health, 6(4), e342-e349.

Hornborg, A., & Martinez-Alier, J. (2016). Ecologically unequal exchange and ecological debt. Journal of Political Ecology, 23(1), 328-333.

Liegey, V., Nelson, A. (2020). Exploring Degrowth: A Critical Guide. London: Pluto Press.

Milanovic, B. (2016). Global Inequality. Harvard University Press.

Oxfam (2023), Tackling Extreme Inequality in India: https://policy-practice.oxfam.org/resources/tackling-extreme-inequality-in-india-620196/

Schmelzer, M., & Nowshin, T. (2023). Ecological Reparations and Degrowth: Towards a Convergence of Alternatives Around World-making After Growth. *Development*, 66(1), 15-22.

Steininger, K. W., Munoz, P., Karstensen, J., Peters, G. P., Strohmaier, R., & Velázquez, E. (2018). Austria's consumption-based greenhouse gas emissions: Identifying sectoral sources and destinations. Global environmental change, 48, 226-242.

Táíwò, O. (2022). Reconsidering Reparations: Worldmaking in the Case of Climate Crisis. New York: Oxford University Press.

Tukker, A., Pollitt, H., & Henkemans, M. (2020). Consumption-based carbon accounting: sense and sensibility. Climate Policy, 20(sup1), S1-S13.

Warren, T. (2017). Reparations and Basic Income. Boston Review. https://bostonreview.net/forum_response/dorian-t-warren-reparations-and-basic-income/.

World People's Conference on Climate Change and the Rights of Mother Earth. 2010. People's Agreement of Cochabamba. https:// pwccc.wordpress.com/2010/04/24/peoples-agreement/.

FULFILL