

The Role of Emerging Communities in Sustainability Transformations

An Anti-Essentialist Spatiality of Degrowth Cities

Benjamin Jabold

Master Thesis – MSc Philosophy of Science, Technology and Society - PSTS
University of Twente, Faculty of Behavioural, Management, and Social Sciences, Enschede, the
Netherlands

January 24, 2024

First Supervisor: Dr. Dominic Lenzi
Second Supervisor: Dr. Casey R. Lynch



Image generated with ChatGPT and Daly-3 by Benjamin Jabold

Abstract

Global scientific assessments and international institutions have pointed out the necessity to transform societies in the face of ecological disasters, rampant inequalities, and aggravating climate change which form a poly-crisis. There is an ongoing debate in the scholarly literature how to best understand and give shape to sustainability transformations of our societies. On the one hand, proponents of green growth argue that economic growth can be decoupled from environmental impacts through technological development and simultaneously end poverty and increase prosperity globally. On the other hand, proponents of degrowth argue that the kind of decoupling of economic growth from environmental impacts required to prevent ecological and climate collapse is not possible. Instead, they advocate equitable restructuring and downscaling of socioeconomic activity. On the smaller scale of the city, a similar debate is taking shape. Dominant approaches to sustainability transformations of cities are premised on continued economic growth while scholarly degrowth literature concentrating on cities is only emerging. In both degrowth and green growth literature communities are seen as possible enablers of change. Yet, given the wider debate between proponents of green growth and proponents of degrowth, it remains unclear whether communities should engage in growth-directed actions and how they could be a vehicle for change beyond the local scale in the wider societal sustainability transformations. Hence, in this master's thesis, I am aiming to fill these gaps in the scientific literature by answering the question: What should be the role of communities in sustainability transformations, and what do considerations of communities in cities reveal in the context of debates about the sustainability and economic growth? To answer these questions, I take an approach informed by critical theory. My approach encompasses both a theoretical reflection on the causes and scope of the polycrisis and a translation of those reflections into proposals for action. I elaborate the normative positions implicit or explicit in the literature on ecomodernism and degrowth and their places in the theoretical frameworks. I work under the assumption that both approaches subscribe to some version of sufficientarianism – a doctrine that what matters morally for the distribution of economic assets is only that everyone has enough. I draw on insights from a wide range of disciplines because sustainability transformations' complexity inherently requires an interdisciplinary understanding. By spatialising green growth, I demonstrate that the transformation pathway proposed by ecomodernism cannot realize ecomodernists' own normative ideal because actual green growth in one place severely harms human development in another. I develop a theoretical rebuttal of ecomodernist critiques of degrowth by deconstructing the notion of the economy and offering a non-localist conception of communities. Enacting counter hegemonic economic, communal praxes can theoretically address ecomodernists' critique of degrowth. I corroborate my theoretical arguments that communities offer a possible way to address the polycrisis by spatialising them in city contexts. I briefly outline a framework for transformation strategies that gives thrust to my argument: Degrowth might be feasible through a diverse understanding of economies that builds on *existing* practices that do or could go beyond localism.

List of Abbreviations

BHN – Basic Human Needs
CLT – Community Land Trust
DRC – the Democratic Republic of the Congo
FFPT – Fare-Free Public Transport
GDP – Gross Domestic Product
GHG – Green House Gase
GN – Global North
GS – Global South
IPCC – Intergovernmental Panel on Climate Change
ST – Sustainability Transformation
TNC – The New Commons
WTO – World Trade Organisation

Introduction

Global scientific assessments (IPCC, 2022: 6-7, 26, 30; Roy et al., 2018: 448) and international institutions (European Commission, 2019: 2) have pointed out the necessity to transform societies in the face of ecological disasters, rampant inequalities, and aggravating climate change which together form a *polycrisis*. There is an ongoing debate in the scholarly literature how to best understand and give shape to sustainability transformations (hereafter STs) of our societies. Proponents of green growth argue that economic growth can be decoupled from environmental impacts through technological development while simultaneously ending poverty and increasing prosperity globally (Moellendorf, 2022: 140-141). Such positions have been advocated by ecomodernists and influenced major international institutions (Hickel and Kallis, 2020: 469). This position is contained in central international conventions such as the 2030 Agenda for Sustainable Development of the United Nations (United Nations, 2015: 3-5) and the Paris Agreement (United Nations/Framework Convention on Climate Change, 2015: 14). In opposition, proponents of degrowth argue that the kind of decoupling of economic growth from environmental impacts required to prevent ecological and climate collapse is not possible (Kallis, 2018: 103-108). Instead, they advocate equitable restructuring and downscaling of socioeconomic activity (Kallis, 2018: 9). If their position is right, this has significant implications as international approaches to the polycrisis would have to be reordered.

A similar debate is taking shape in city contexts (Krähmer, 2022: 318). As in the international sphere, dominant STs approaches of cities are premised on continued technological economic growth (De Castro Mazarro et al., 2023: 10; Xu, 2022: 408), as advocated for examples by the International Resource Panel (IRP, 2018: 76-77) and OECD (Hammer et al., 2011: 29-33). Although some approaches to urban STs are compatible with degrowth principles, scholarly degrowth literature concentrating on cities is only recently emerging (De Castro Mazarro et al., 2023: 10; Kaika et al., 2023: 1192-1193; Xu, 2022: 406-407). Cities are necessarily a focal point of ST, as they concentrate much of societies' material throughput contributing to climate change and biodiversity loss and are projected to almost double in population until 2050 (IRP, 2018: 20-21). Given these impacts, should dominant approaches premised on continued economic growth be wrong, this would require reorganising efforts for urban STs. In turn, given cities' high global impacts, approaches to urban STs can inform broader theorizing about STs.

In both degrowth and green growth literature communities are seen as possible enablers of change. Within the degrowth literature, communities play a prominent role, because they are tightly linked to *the commons*, defined as resources which are taken care of and used by a community or network in accordance with rules, norms, and institutions (Helfrich and Boiler, 2015: 75). However, degrowth perspectives on the role of communities in STs have been critiqued for localism and lack of integration into larger spatial scales (Krähmer, 2022: 333). The relevance of community initiatives for STs is also recognized by proponents of green growth, albeit to a limited extent (Hamner, 2011: 39, 80; IRP, 2018: 204). For example, the European Union's new growth strategy The European Green

Deal (European Commission, 2019: 18) mentions the role of community when it affirms that conventional approaches will not be sufficient and that it will empower regional and local communities (European Commission, 2019: 23). Yet, given wider debates between proponents of green growth and degrowth, it remains unclear whether communities should engage in growth-directed actions and how they could be a vehicle for change beyond the local scale in wider STs.

I aim to fill these gaps in the literature on ecological economics and on degrowth in human geography as parts of the wider sustainability science literature by answering the question: What should be the role of communities in STs, and what do considerations of communities in cities reveal in the context of debates about the sustainability and economic growth? I will address this question by answering the following sub-questions which relate to its theoretical and practical dimensions: What does a critical elaboration of normative positions in the debate between green growth and degrowth reveal about requirements of global STs? What does spatialising critiques of theories on STs reveal about their feasibility? What can engagement with anti-essentialist thinking reveal about the roles communities could take in STs? What can community lead STs of cities in the Global North reveal about possible contributions of communities to global STs?

To answer these questions, I take an approach informed by critical theory (Fraser, 2022: 1-2; Milstein, 2023: 1). I aim to develop a theoretical understanding of requirements of STs which points to possible emancipatory pathways to address the polycrisis. My approach encompasses both a theoretical reflection on the causes and scope of the polycrisis and a translation of those reflections into proposals for action. Thus, I employ two complementary methods. First, I abstract from the complexities of reality and elaborate concepts that can help to understand it (Fraser, 1995: 70). I establish theoretically what an approach to STs requires and then reflect on competing approaches. STs theories must establish relationships between social, ecological, and economic aims (Mandelli, 2022: 335-338). I thus elaborate social, ecological, and economic problems and aims and their interrelations specified by STs approaches. Theoretical reflection requires an elaboration of normative positions of proposals for STs (Sandberg et al., 2019: 133-134). Any perspective on STs inevitably contains an account of what it is that should be transformed and how this transformation should be given shape, explicitly or implicitly. Appraisal of societal problems must be informed by a normativity that allows to understand them as problematic and envisioned aims of societal transformations and processes of change require normativity to be understood as desirable. Only by making these normative commitments explicit is it possible to judge if envisioned means are coherent with their goals. Thus, I elaborate normative positions relevant to the research question which STs scholars have made explicit and their place in their theoretical framework. Where normative commitments have not been made explicit, I elaborate them by drawing on scholarship that is referenced by authors advocating certain STs approaches. This way, I interpret and highlight normative ideals pursued by the competing STs approaches (Sandberg et al., 2019: 134).

Second, I spatialise theoretical STs approaches to assess and corroborate the possibility or impossibility to achieve their normative ideals through their proposals for action. From the perspective of human geography, I engage with material geographies and the potential of proposals for STs when considered in space by applying the multiscalar approach based on a relational conception of space outlined by Krähler (2022: 338-341) as analytical lens. Accordingly, *places* are conceived of as the specific intersection and intermingling of social and material relations across different scales, including the global. Those relations constitute and are contained in *spaces* of different scales which are the sum of the immense complexities of these relations. Simply stated, *places* are specific locations characterized by their many relations with other locations and *spaces* are the relations' results which at the same time influence these relations. A relational understanding of space provides an analytical lens suited for engagement with proposals for action which aim to address the polycrisis, because it considers space as open to change (Massey, 1999: 2, 8). Relations between locations are always embedded in material realities and performed practices. Thus, spaces are always made and remade and, hence, in the process of becoming. Practices make it possible to establish relations where there previously were none. Not yet existing relations and the process of becoming open the possibility of space becoming something different or new. This relational perspective makes it possible show how change can occur and what is required to bring it about. Adopted as an analytical lens, it can avoid the pitfalls of an excessive focus on local while disregarding larger scales, commonly associated with writing on communities (Krähler, 2022: 338-339). The global and the local constitute each other as (performed) relations in space which are in principle open to change (Krähler, 2022: 338-341). Likewise, it evades pitfalls of modernist conceptions of space which obscure power relations between places by considering them as separate units which have attained some level of development in time (Massey, 1999: 6-8). Characteristics of places result from relations of power in which they are embedded. Finally, a relational conception of space can complement the elaboration of normative positions of STs approaches. It makes visible relations between locations that are explicitly or implicitly judged as requiring change or not and it allows to assess whether envisioned relational changes are consistent with and sufficient to attain normative ideals.

In Chapter 1 I define STs and elaborate two highly debated STs approaches. These approaches are ecomodernism and degrowth. Ecomodernism presents a promising approach to green growth, as it acknowledges power structures at the core of fossil-fuel driven growth (Ossewaarde and Ossewaarde-Lowtoot, 2020: 9-13). The same is true for degrowth whose cultural critique side might be considered an anti-capitalist, broadly Marxist branch of the wider post-growth literature (Andreucci and McDonough, 2015: 60, 62; Kallis, 2018: 2-8). I elaborate the normative positions implicit or explicit in both STs approaches and their place in the theoretical framework. I work under the assumption that both approaches subscribe to some version of *sufficientarianism* – a doctrine that what matters morally for the distribution of economic assets is only that everyone has enough (Frankfurt, 1987: 21, 38), or,

more moderately, that it is extremely important to end deprivation (Casal, 2007: 299).¹ Since green growth is the hegemonic position contained in international agreements, most of the discussion is devoted to elaborating the counterhegemonic project of degrowth.

In Chapter 2, I outline ecomodernism's critique of degrowth and develop a degrowth critique of ecomodernism. I summarize ecomodernism's central arguments which pose both empirical and normative challenges for degrowth. Then, I synthesize empirical evidence and theoretical degrowth critiques of ecomodernism. I draw on insights from a wide range of disciplines because STs' complexity inherently requires an interdisciplinary understanding. By spatialising green growth, I demonstrate that the transformation pathway proposed by ecomodernism cannot realize ecomodernists' own normative ideal because actual green growth in one place severely harms human development in another. This way, I contribute to the ecological-economics literature which so far only provides generic arguments against the feasibility of green growth, not considering them in relation to the normative ideal striven for by ecomodernists. The chapter ends with a theoretical reflection on normativities and spatialities of ecomodernism and degrowth. I rule out the feasibility of ecomodernists' approach to STs. Considering ecomodernists critique, I conclude that establishing the feasibility of degrowth requires further argument.

In Chapter 3, I develop a theoretical rebuttal of ecomodernist critiques of degrowth. I deconstruct the notion of the economy and offer a non-localist conception of communities by drawing on research from economic geography in the congenial research program of post-capitalism studies. I contribute to the ecological-economics literature by arguing that a diverse conception of the economy reveals how human well-being can increase while total economic output and associated environmental pressures decrease. Enacting counter hegemonic economic, communal praxes can theoretically address ecomodernists' critique of degrowth. Contrary to the frequent criticism that degrowth would have to be limited to the Global North (GN), I argue that a relational understanding of global space reveals that degrowth in the GN necessarily entails changes for and in the Global South (GS). I propose the goal of a new communal global spaces sublating the North|South dualism. I argue that community practices in and across different places could be an important part of the degrowth project. Thus, I draw on economic geography to engage critically with the notion of the economy and with the spatiality of communities to offer a theoretical direction in which debates between advocates of ecomodernism and degrowth could be advanced.

In Chapter 4, I corroborate my theoretical arguments that communities offer a possible way to address the polycrisis by spatialising them in city contexts. I argue that degrowth might be feasible through a diverse understanding of economies that builds on *existing* practices that do or could go beyond localism. I briefly outline a framework for transformation strategies that gives thrust to my

¹ I do not make a normative all-things-considered argument but rather aim to make normative positions explicit by clarifying points of contention or agreement to help navigate the complexity of these debates.

argument. I illustrate potential roles city communities can play in STs and how changes in particular places can potentially contribute to reshaping global relations. I engage with city contexts primarily through the recent special issue in *Urban Studies* that aims to establish a dialogue between degrowth and critical urban scholarship (Kaika et al., 2023: 1192-1193). I conclude by highlight contributions of my master's thesis to the academic literature, considering their strengths and weaknesses, reflecting on implications for the initial theoretical discussion, and outlining avenues for future research.

Chapter 1: Avenues to Sustainability Transformations

Fundamental societal and systems transformations and rapid greenhouse gas (GHG) emissions reduction-measures are needed to limit global warming to 1.5°C above preindustrial level (Roy et al., 2018: 448). Limiting global warming to 1.5°C as compared to 2°C would reduce the number of people exposed to adverse climate impacts of various kinds and vulnerable to poverty significantly (Roy et al., 2018: 447). It would increase humanity's potential to eradicate poverty. Eradication of poverty is important on a sufficientarian conception of justice which argues that what matters morally for the distribution of economic assets is only that everyone has enough (Frankfurt, 1987: 21, 38), or, more moderately, that it is extremely important to end deprivation (Casal, 2007: 299). While there are other accounts of justice, and while sufficientarian accounts of justice disagree about what constitutes basic needs or human well-being and how to achieve meeting them (Doyal and Gough, 1984; Moellendorf, 2022: 73-77), most theorists of STs accept some form of sufficientarianism. This will be discussed in more detail below by elaborating implicit or explicit normative positions in accounts of ecomodernism and degrowth. I do not analyse the normative desirability of these positions. Rather, I elaborate their normative ideals to enable determination of the consistency between their proposals for STs and normative stances.

In so far as a sufficientarian account of justice is accepted (Doyal and Gough, 1984; Moellendorf, 2022: 73-77), there is reason to avoid adverse climate impacts that would subject humans to or prolong their poverty, and there is thus reason to limit global warming to 1.5°C. Nonetheless, compared to lower levels of global warming, a 1.5°C warmer world would pose risks to eradicating poverty, reducing inequalities, and ensuring human and eco-system well-being (Roy et al., 2018: 447). Regrettably, given that global temperature has already increased more than 1°C over preindustrial levels and that mitigation efforts are still in their infancy, limiting global warming to 1.5°C *might* be the lowest temperature increase sociotechnically feasible (Moellendorf, 2022: 22-25). Therefore, on a sufficientarian account, rapid GHG emission reductions should be pursued aiming to limit global warming to 1.5°C above pre-industrial levels at most. Such rapid reductions might be achieved through STs.

STs aim to bring about sustainability and are concerned with societal and systems transformations. All versions of sustainability attempt to integrate or prioritize environmental, social, and economic concerns (Mandelli, 2022, 335-338). According to Hopwood's and colleagues' (2005: 45-47) conception, the basis of transformations is a recognition that mounting problems of ecological degradation and social inequality are rooted in fundamental features of societal organization and its relationship with non-human environments. As Visseren-Hamakers and colleagues (2021: 20-21) elaborate, current technical, economic, and social structures form the indirect drivers –underpinned by societal values and behaviours – that cause the most important direct drivers of global ecosystem changes. However, their definition conceptualizes ecosystem change as the result of material processes superseded on societal values and behaviours and therefore, for consumerist societies, already implies

a critique of consumerism. However, ecomodernism refuses the rejection of consumerism common in green political theory (Symons, 2022: 62-36). Thus, this definition already excludes the possibility that ecomodernism could be a viable path for STs. An alternative is offered by the glossary of the IPCC (2019: no pagination) that defines transformative change as “a system-wide change that requires more than technological change through consideration of social and economic factors that, with technology, can bring about rapid change at scale” and societal transformation as “a change in the fundamental attributes of human systems advanced by societal actors.” This definition highlights the required pace and scale of change and the role of technologies for change whilst remaining neutral on questions of values and what constitutes fundamental attributes of human systems in need of change. However, it fails to highlight relations between human systems and non-human environments. STs require fundamental changes to features of human organization and its relationships with non-human environments to prevent ecological disaster or even eventual societal and ecological collapse (Hopwood et al., 2005). Transformations might be seen as successful if they change fundamental societal features in a way that overcome the polycrisis. Therefore, I define sustainability transformation as fundamental changes of features of sociotechnical systems and their relation to non-human environments in ways that addresses the polycrisis. What constitutes fundamental features of societal organization and its relations to non-human environments requiring transformations depends on the approach to STs. Theories of transformation must integrate or prioritize between ecological, social, and economic considerations in their approach to transforming these fundamental features (Mandelli, 2022: 335-338). Two prominent STs approaches that offer opposing views on the relation between social, ecological, and economic aims are ecomodernism and degrowth. These two approaches are presented in the remainder of this chapter.

Ecomodernism

Ecomodernism is a highly discussed approach to green growth. It reintegrates ecological concerns into the individualistic modernist project of development through technoscientific material progress (Symons, 2019: 53, 60; Locher and Fressoz, 2012: 597-598; Escobar, 2015a: 29). Ecomodernism aims to reconcile economic growth with ecological aims by absolutely decoupling environmental impacts from economic growth through state-led innovation and technological development (Mandelli, 2022: 337; Symons, 2019: 56). Understood this way, the position defended by Darrel Moellendorf (2022: 1-8) can be interpreted as a version of ecomodernism and represents an approach to sustainability transformation. Contrary to an analysis of the normative grounding of ecomodernism offered by Sandberg and colleagues (2019: 138) which views ecomodernism as a neo-liberal project, Moellendorf’s argument does not consider economic growth as an end for itself. Instead, in line with Jonathan Symons’ (2019: 58-60) argument concerning the mainstream of ecomodernist thinking, Moellendorf’s position is best understood as a social-democratic project seeking to channel capitalist productivity to end poverty and halt climate change. I focus on Moellendorf’s discussion of

ecomodernism, as, to my knowledge, it is the most extensive attempt at providing an explicit moral foundation for ecomodernism based on political philosophy.

Moellendorf's (2022: 24-30, 73-75, 83-84, 191) argument relevant to the present discussion rests on the sufficientarian axiom that there is a moral imperative to end poverty, and especially extreme forms of poverty. On his account, poverty is understood as a deficiency in health, education, or income. Moellendorf (2022: 76-77) argues that there are reasons to value health and education for their own sake as well as instrumentally, while income is only valued instrumentally to achieve these other ends. Moellendorf's sufficientarianism thus defines human well-being in terms of health and access to education. He advocates to end poverty through human development which is understood as increasing countries' average life expectancy, educational attainment, and income. Specifically, human development is measured by average life expectancy at birth, the mean year of schooling for adults combined with expected time in school for children starting school now, and per capita national income. Despite acknowledging several problems with this, Moellendorf (2022: 134) ultimately defends the use of the gross domestic product (GDP) as a rough proxy for human well-being. For Moellendorf, the obstacles for universalized high levels of human development posed by climate change give reasons to care about and specifically limiting global warming to 1.5°C above preindustrial levels to prevent dangerous climate change that avoidably would lead to involuntary poverty (Moellendorf, 2022: 27-28).²³

Moellendorf (2022: 7, 24-25, 81-85, 191) argues that dangerous climate change and its impacts must be avoided in a way that continues the human development project. Mitigation is required to secure human development from the severe consequences of unmitigated climate change and in a way that allows for continued human development. Furthermore, in the face of uncertainties of impacts of climate change and the effectiveness of specific adaptation policies on a regional scale, he argues pursuing human development policies is a sensible way to increase resilience of populations, as vulnerability to and readiness to adapt to climate impacts are largely determined by poverty (Moellendorf, 2022: 102-103). Human development outcomes in the past have been closely related to increased energy consumption (Moellendorf, 2022: 77-80).

Thus far, the energy to meet the increasing demand came predominantly from fossil fuels, leading drives of climate change. Therefore, reconciling the avoidance of climate change with the moral imperative to end poverty requires the expansion of renewable energy-sources. The expansion of renewable energy-sources necessarily will lead to economic growth and such economic growth is consistent with staying below 1.5°C global warming above preindustrial levels according to

² Holding on to the 1.5°C target sets Moellendorf apart from other ecomodernists like Symons (2019: 35-37) who favours zero GHG emission targets, because they think 1.5°C global warming above pre-industrial levels is not feasible and because every temperature target will ultimately require reaching net-zero carbon emissions.

³ Moellendorf's (2022: 36-38, 134, 142, 181-182) also discusses subjective dimensions of well-being. I am setting them aside here, as a comprehensive treatment of subjective well-being and its relation to objective well-being would go beyond the possible scope of this thesis.

Moellendorf (2022:131-150).⁴ Changing the base of the global energy supply from fossil fuels to renewable energy-sources while expanding its capacity in the time left to prevent dangerous climate change would require massive state investment in renewable-energy infrastructure, energy efficiency, and technological innovation. These investments would create new jobs because renewable energy-production is more labour intensive than fossil energy-production and the revenue it generates tends to stay within the domestic economy. These are the kind of transactions that are usually registered as economic growth and plausibly would outweigh the job losses and contraction of economic activities due the declining fossil-fuel industry. Technological innovations Moellendorf (2022:149-170) has in mind include renewable energy-sources, better batteries, new fuels for aviation and shipping, negative-emission technologies, and solar-radiation management technologies.⁵ The aim of these technologies is to absolutely decouple economic growth from GHG emissions (Mollendorf, 2022: 141). The kind of economic growth Moellendorf advocates thus assumes the possibility of absolutely decoupling the economy from GHG emissions and aims at realizing this absolute decoupling. In turn, economic growth aims to drive and protect efforts to eradicate poverty globally.

The vision of economic growth decoupled from GHG emissions and a promise of increasing material prosperity could form the basis for political mobilisation against the vested interests of the fossil-fuel industry (Mollendorf, 2022: 8-10, 30-31, 129-133). This kind of economic growth led by state investment would open possibilities for states to set labour standards, for expanding unionized work and work available to underrepresented groups. It could mobilize workers and young people on the promise of healthier environments, employment in a sustainable economy, full access to energy and prosperity globally, reduced international tensions about energy resources, and sustainable, egalitarian economic and social institutions. In turn, such a mobilization could counter the political influence bought by the fossil-fuel industry.⁶

Mollendorf's account of ecomodernism can be seen as STs approach. Moellendorf (2022: 82-86) subscribes to the sustainable-development agenda of the United Nations (2015: 1) which is also enshrined in the Paris Agreement (United Nations/Framework Convention on Climate Change, 2015: 2). His account tries to integrate environmental, social, and economic concerns and considers such an integration as desirable. It is transformative in that it aims at the "complete transformation of the energy basis of the global economy within the next three decades" (Mollendorf, 2022:30). Reliance on fossil fuels and particularly on oil has far reaching consequences for organizing political power, sociotechnical organization, and financial circulation (Mitchell, 2009). Moellendorf thus considers the

⁴ Moellendorf refers here to the summary for policy makers of the IPCC working group 3 report https://www.ipcc.ch/site/assets/uploads/2018/02/ipcc_wg3_ar5_summary-for-policymakers.pdf p.15. Whereas actually the scenario with 0.6% annual reduction of growth rate is only >66% likely (p.4 footnote 2) to stay below 2°C (p.10). In the figure Moellendorf (2022: 141) refers to (p.15), the lower limit of the estimated ppmCO₂ at the end of the century is 430 which is consistent with >50% likelihood of staying with 1.5°C by 2100, but taking the lower level of the range to be representative of the policy pathway is hardly a good interpretation of the science. This is biased to say the least.

⁵ Discussing the numerous ethical concerns related to NETs and SRM goes beyond the scope of this essay.

⁶ Note that Moellendorf does not elaborate what he means by egalitarian economic and social institutions.

fundamental features of societal organization that need to be changed to be the reliance of energy production on fossil fuels and the power structures resulting from it. Changing this reliance on fossil fuels would naturally curb environmental pollution and carbon emissions and thereby reshape the relationships of humans to their environment. Additionally, Moellendorf advocates for using the energy transformation to advance the political power of labour. Changing these features of societal organization would be accomplished through mass mobilization based on a vision of green prosperity and lead to economic growth driven by state investment in renewable energy-sources and infrastructure constructed by unionized labour. This economic growth would ultimately fuel the continuation of the human development project and universalize a sufficient level of human well-being understood in terms of human development.

Degrowth

Degrowth takes a Marxian approach to postgrowth which aims to improve social and environmental conditions by organizing societies' social and economic practices and their relationship with non-human environments differently (Kallis et al., 2015: 3-4; Kallis, 2018: 9).⁷ Degrowth fundamentally questions the supremacy and desirability of economic growth (Mandelli, 2022: 338). It establishes a hierarchical ordering that prioritizes social and environmental aims over economic growth and, more precisely, rejects the definition of economic aims in terms of growth (Kallis, 2018: 9). In the latter sense, degrowth is inherently transformative because it addresses the growth ideology deeply embedded in financial, political, and social structures (Raworth, 2022: 272-284). Reorganization of economic practices implies, for most scholars, that degrowth must be anti-capitalist because the process of appropriation and accumulation of surplus value at the heart of capitalist relations of production inevitably leads to economic growth under conditions of market competition (Andreucci and Terrence, 2015: 60-62). The degrowth literature is vast and it is impossible to cover all its themes here.⁸ Hence, the following discussion concentrates on the normative stances implicitly or explicitly underlying degrowth scholars' commitment to sufficient human well-being, social justice – including anti-colonialism – care, and the reduction of societal throughput to stay within ecological boundaries.

Basic Human Need Satisfaction

Degrowth scholars have conceptualised well-being in terms of basic human needs (hereafter BHNs; O'Neill et al., 2018: 88-92).⁹ On this account, the conditions of well-being are objective and universal. BHNs are satisfiable and non-substitutable for each other. What matters for human well-being is not an individual's mental state but that a list of objective conditions for well-being is satisfied (Brey,

⁷ Degrowth discourse has two sides, one heterodox economic and one cultural critique (Kallis, 2018: 2-8). The cultural critique side, with which this paper aligns, might be considered broadly Marxist branch of the wider post-growth literature, and questions the very conception of the economy of economic scholarship. In this sense, degrowth provides a non-economic theory of the economy. Reasons for rejecting the conception of the economy of economic scholarship are elaborated in the Chapter 3.

⁸ For an overview see the edited volume by D'Alisa, Demaria, and Kallis (2015).

⁹ Degrowth scholars like Kallis also discuss subjective aspects of well-being. As with ecomodernism, including the relation to objective conceptions of well-being would require going beyond the scope of this work.

2012: 19-21; Lamb and Steinberger, 2017: 2-4). A list of BHNs grounded in philosophical theory of the conditions of possibility of successful human action was proposed by Len Doyal and Ian Gough (1984: 14-21). Their theory can be read to contain a list which includes the *individual needs* for survival (mental and physical health) and for autonomy (education and social interaction); and the *societal needs* which form the precondition for achieving individual needs (production, reproduction, cultural communication, and a political system). In practice, the optimisation of attainment of BHNs requires satisfying *liberational needs* – the expansion, through social learning, of choices of ways to satisfy the objective list (Doyal and Gough, 1984: 21-25). Liberational needs, in turn, require the satisfaction of *communicational needs* through deliberative democratic institutions based on reason, maximum participation, that is the right and the capacity to deliberate, and the exclusion of vested interests; and it requires so-called *constitutional needs* by settling on societal rules best suited to meet individual needs (Doyal and Gough, 1984: 25-29). The satisfiers used to attain BHNs are culturally and historically determined (Doyal and Gough, 1984: 11-12), and thus plural. Finally, there are ecological limits to the level of BHNs that can be reached globally (Doyal and Gough, 1984: 30-31). Thus, the theory of BHNs is a sufficientarian theory which argues that justice demands that BHNs satisfaction is guaranteed *globally* above a threshold that can possibly be reached for *all* human within ecological limits (Doyal and Gough, 1984: 30-32).¹⁰

The level of human need satisfaction, or social outcomes, that can be achieved by using biophysical resources and the associated pressure on ecosystems depends on provisioning systems (O'Neill et al., 2018: 89-90). Provisioning systems have physical components consisting of networks of infrastructure, technologies, and their efficiencies; and social components consisting of governance institutions, communities, and systems for distributing goods and services. Under contemporary global capitalism, most countries exceed ecological limits while only few might be considered to achieve a decent level of BHN satisfaction (O'Neill et al., 2018: 89-90). Under the current system, indicators of social outcomes more closely associated with physical-health needs (nutrition, income, access to energy, sanitation) are tightly coupled with resource use and ecological pressures. On the other hand, except for secondary education which is tightly coupled to ecological pressures, indicators of social outcomes more closely associated with autonomy needs and communicational needs (social support, democratic quality, and equality) are *not* closely coupled to these pressures (O'Neill et al., 2018: 91-92). The level of achievement for all indicators except equality flattens after a certain level of ecological pressure. Yet, the environmental pressures of countries with relatively high achievements in indicators of social outcomes associated with autonomy needs and communication needs are generally much higher. For all indicators except democratic quality, equality, and social support, there are countries achieving a high level of need satisfaction without crossing ecological limits. Since

¹⁰ One could argue that this position entails an interpretation of sufficiency in the double sense of enough at a lower and an upper level to protect environmental limits. This would starkly contrast this account of sufficiency from seminal conceptions (Frankfurt, 1987:21-22). However, such an elaboration goes beyond the scope of this work.

democratic quality, equality, and social support are only loosely coupled with environmental pressures, for all indicators it should be possible to attain them within ecological limits. This might be achieved through improvements in social provisioning-systems (O'Neill et al., 2018: 92-93). Sufficiency measures aiming for the point of diminishing returns combined with a reduction of income inequality and enhancement social support are promising because these indicators are only weakly correlated with resource use but have a broad impact on other social outcomes.

Social Justice

From a broadly Marxist perspective, degrowth scholars point out the appropriation of surplus generated by one social group, or nature, by another, more powerful social group under capitalism (Kallis, 2018: 37-43, 118-121). Most humans can produce more than what is socially necessary to intergenerationally reproduce themselves and their position in society. Everything that is produced beyond the necessities for social reproduction is surplus value. In contemporary racialized patriarchal capitalism, surplus value is appropriated along the lines of intersecting social hierarchies. Capitalists owning the means of production exploit surplus value from workers. Primarily males expropriate surplus value from other genders through unpaid care-giving, as discussed below. Expropriation, under capitalism, is the confiscation of value and its integration into the process of accumulation (Fraser, 2016: 166-167). Exploitation of wage labourers intensifies as it intersects with racialized oppression because a confiscatory premium is added to the capitalist surplus taken from racialized subjects. Furthermore, capitalists commodify and appropriate nature's contributions to people essential for human well-being such as pollination or air-quality regulation as surplus value (IPBES, 2019: 23b).¹¹ Commodification here means the subjection of diverse values to monetary value through the incorporation of non-human inputs into processes of value exchange through markets (Gómez-Baggethun, 2015: 67-70; Kallis, 2108: 30-34) and hence their expropriation (Fraser, 2016: 166) – or even more precisely, their original appropriation¹². The original appropriation of nature's contribution to people transcends national boundaries. High income and upper-middle income countries appropriate nature's contributions to people and resources from low-income and middle-income countries (IPBES, 2019a: 54, 83, 820; IPBES, 2019b: 30). This is as a form of racialized oppression (Fraser, 2016: 167). Within low-income countries, losses of nature's contributions to people disproportionately affect less powerful groups along gender-based, racialized, and income-based lines (IPBES, 2019a: 134, 324).

¹¹ "Nature's contribution to people" is a term used by IPBES (2019a: 15-17) covering the whole range of positive and negative contributions of living nature to people's quality of life. The term includes and embraces different ways of knowing, which underpin plural values, decisions, and practices. Beneficial contributions include for examples food provision, water purification, and artistic inspiration. Aspects of nature that can be negative to people include disease transmission or predation. Nature's contributions are predominantly positive and sustain people's quality of life. Positive and negative valance of these contributions are not static but can change over time with socioeconomic circumstances and might affect different groups of people in different directions.

¹² In the context of the commodification of nature's contributions to people, original appropriation is a better term for expropriation, since (indigenous) people depending on nature's contributions did not conceive of them in terms of property that could be expropriated. I thank Philipp Jabold for this point.

From a degrowth perspective, it is necessary to end capitalist exploitation for reasons of social justice (Kallis, 2018: 96, 118-121). Capitalist appropriation of surplus value is rejected based on an egalitarian principle (Kallis, 2018: 118), as it constitutes oppression (Fraser, 2016: 165-166). Before I clarify which egalitarian principle degrowth can be interpreted as appealing to, let me situate egalitarianism briefly against sufficientarianism. Egalitarianism is grounded on the axiom that distributional equality is valuable as such. At first glance, this seems at odds with the sufficientarian position which assigns moral importance only to meeting a sufficiency threshold, because this entails that equality of distribution, as such, is morally insignificant (Frankfurt, 1987). Sufficientarians disagree about the extent to which a sufficiency principle should be combined with egalitarian reasoning in matters concerning the distribution of *economic assets* (Benbaji, 2005: 321-332; Casal, 2007: 318-323).¹³ They are *not* concerned with distributions of power or status (White, 2021). Accordingly, theories of social justice concerned with egalitarian distributions of power are not only compatible with sufficientarian views but might even lend further support to them because guaranteeing a sufficient level of access to economic assets is important to prevent oppression in political decision-making. Therefore, degrowth can be read as appealing to an egalitarian theory of social justice aimed at an equal distribution of power. Such a theory of social justice concerned with equal distribution of power is offered by Nancy Fraser (Fraser and Hrubc, 2004: 882-883). Her theory is based on the recognition that real world forms of oppression combine dimensions of economic distribution and cultural recognition (Fraser, 1995: 71-73). Both dimensions are irreducible to one another but can reinforce each other in a vicious cycle. Consider the aforementioned capitalist accumulation through expropriation which is structurally enabled and intensified through racist and patriarchal cultural norms. In turn, the economic expropriation intensifies cultural domination by impeding equal participation in public spheres and the making of culture. To address recognitional and distributional forms of oppression within a single framework, Fraser proposes the principle of *parity* which demands that all (adult) members of society can socially interact with each other as peers (Fraser and Hrubc, 2004: 882). According to this principle, a society is unjust if it denies some members participation in social life as peers with everyone else. This can be caused by lack of economic resources or gross inequalities of economic means and by hierarchical cultural value patterns denying equal standing to some. Hence, a society is just if and only if it assures social interaction as peers for all. Fraser's theory can be interpreted as complementary with the theory of BHNs developed by Doyal and Gough. The principle of parity specifies the conditions under which everyone is enabled to participate in societal debate about how to best meet BHNs without domination and thus the conditions for satisfying communicational needs (Doyal and Gough, 1984: 25-26).

¹³ Note that Benbaji, Casal, and Frankfurt all employ consequentialist reasoning while Doyal and Gough base their theory of basic needs in Kantian philosophy. A full treatment of the implications of these differences for the compatibility of sufficientarianism and egalitarianism are beyond the scope of my work here.

Additionally, overcoming capitalist's appropriation of social surplus is important for sufficientarian reasons. The possibility of meeting sufficientarian requirements of justice through redistribution has long been recognised in theory (Doyal and Gough: 1984 31-32; Frankfurt, 1987: 22). Empirically, the impact of growth on reducing social inequality is very limited within nation states (Kallis, 2018: 95-96, 109). Consequently, the number of people living in the deprivation of relative poverty is growing even in high-income countries. In fact, after the point of diminishing returns of BHN satisfaction associated to economic growth is reached, growing inequalities cause BHN satisfaction to decline for most people (Hickel, 2020: 171-175). Globally, despite growing economic output, the inequality between states of the GN and GS, except China, is growing (Hickel, 2017: 2217-2220). Degrowth scholars argue that the poverty in the GS, and hence unmet BHNs, results from ongoing exploitation by the GN. Since 1980, 46% of global income increases have gone to the Global North's richest 5% (Hickel, 2020: 192-194). The unequal outcomes are driven for example by artificially low wages in the GS, international debt regimes, tax avoidance, and asymmetric tariffs under the WTO trade system (Hickel, 2017: 2219). Kallis and colleagues (2015: 5) argue that the South is poor because the North appropriates its ecological resources and exploits labour. The income of the richest people in the GN is derived from appropriation of nature's benefits to people in the GS and exploitation of their population's labour with a racist expropriatory premium. Given that the present associations of GDP growth and poverty reduction within and between nation states persist, economic growth cannot end poverty. Therefore, ensuring universal BHN satisfaction will require some form of redistribution. Thus, in a degrowth society, relationships of material exploitation would be minimized if not outright abolished and the distribution of surplus value decided collectively (Kallis, 2018: 118-119).

Beyond materialism, degrowth entails an anti-colonial stance towards social imaginaries (Kallis, 2018: 124-125; Latouche, 2015: 117-119). Imaginaries can be seen as representations that mobilize feelings and are implemented in social reality. In Western societies, there is a dominant growth imaginary that puts the expansion of production and consumption at the centre of human life. This imaginary is fundamentally dependent on its expansion. It was and is exported to other countries through colonial processes and commodification of other human and non-human life forms. The coloniality of this imaginary can be understood through a Fanonian account of colonisation. According to Achille Mbembe (2022: 52-56), for Frantz Fanon, being is fundamentally constituted through time in the sense that time forms the basis of subjectivity. To own oneself thus requires the ability to constitute one's subjectivity through the institution of time. Colonial racism was and is the dispossession of the self through the negation of the colonized subjects' ability to institute time and the imposition of European time directed towards growth (Kallis, 2018: 72-73). For Fanon, decolonisation of imaginaries thus requires the institution of alternative temporalities whose futurity does not consist in growth (Hickel, 2020: 190). The decolonisation of imaginaries can be considered a requirement of social justice based on the principle of parity (Fraser and Hrubec, 2004: 882, 885). This principle

prohibits the dominance of one conception of time over others or the complete disregard of alternative conceptions of time and requires recognizing other temporalities to guarantee everyone's social participation as peers. Thus, if social justice entails recognizing multiple groups with different ways of life as peers, the anti-colonial process of resisting commodification in space and unmaking the linear temporal growth imaginary is a requirement of social justice. Hence, a degrowth society, on a Fanonian account, would ensure the possibility of plural forms of human being by enabling the institution of multiple temporalities that can form the basis for subjectivity.

Care

Returning to the question of alternative provisioning systems and taking a decidedly feminist approach, care lies at the heart of degrowth imaginaries and the conception of its provisioning systems (D'Alisa et al., 2015: 63-66; Graeber, 2019: 36:44-46:12). Care is the daily work performed for the welfare and reproduction of humans, their communities, infrastructure, tools, and non-human nature. It is fundamental to physical and emotional well-being of humans – their survival needs – and takes up the largest share of total working time. According to Joan C. Tronto (1993: 102-105), care is a form of recognition directed at someone or something other-than-self and their needs and concerns. It implies the acceptance of a burden to act on this recognition by maintaining, continuing, or repairing the world. Care, thus, involves a disposition and an action. The process of care can be seen to contain the following four phases (Tronto, 1993: 105-110): *Caring about* involves the recognition of someone or something other-than-self is in need and making a judgement that this need should be met. *Taking care of* involves the recognition that one has the required agency to respond to a need and taking responsibility for it by determining how this need should be met. *Care-giving* is the physical act of meeting the identified need and almost always involves direct contact with the object of care. Finally, *care-receiving* affirms the agency of the object of care whose response is crucial for the assessment if the need has been met and if the performance of care has been adequate. The four phases of care are integrated into a caring practice that depends on adequate resources and coordination between phases to be practiced well.

Under patriarchal capitalism care work is primarily performed by women (Kallis, 2018: 121). The patriarchal forms of domination intersect with other forms of domination, leading especially immigrant women and poor women to perform a disproportional share of the care work. In modern societies, caring practices have been gendered along a private|public dichotomy (D'Alisa et al., 2015: 64-65). Historically, masculinity has been associated with care-taking through wage labour as it was necessary for the procurement of resources needed for care-giving. This allowed males to claim the ultimate responsibility for care in the private realm. Simultaneously, masculine caring-about and taking-care-of was related to public concerns for society's greater good. Women, on the other hand, have been subjected to the task of caring-about and care-giving to the physical body in private space. A sexist conception of gender has engendered an association between care-receiving with women and obscured males' vulnerabilities and need for care. In growth societies, the distinction between inferior

reproductive labour and superior productive work is similarly gendered, obscuring the fact that reproduction constitutes the greatest share of total economic activity (D'Alisa et al., 2015: 63-66; Graeber, 2019: 36:44-46:12). A combination of feminist liberation movements and capitalist expansion and demand for labour has led to a double burden on women which were often expected to earn a living wage *and* perform the care work in the private sphere. While this distribution has started to be blurred in recent times, much remains to be done.

A degrowth society would surpass the line between public and private spheres and bring care out in the open (Kallis, 2018: 121). To establish social relations as peers, it would insist on an equitable sharing of care work between all genders (D'Alisa et al., 2015: 65), not only women and men. Through a change of the spatiality of care and the insistence on equitable sharing of care work subjectivities and gender identities of care givers would be reconstituted (Massey, 1999: 2-3). The sharing of care work would foster a reflexivity about needs and vulnerabilities and cultivate a disposition to care (D'Alisa et al., 2015: 65). Ultimately, placing care at the heart of provisioning systems requires a reconceptualization of the production process as meeting BHNs (Graeber, 2019: 36:44-46:12). Producing for BHN satisfaction is likely to reduce economic output, as under capitalism much productive activity is directed at the production of positional goods that do not satisfy BHNs (Cochrane, 2020: 200-203; Kallis, 2018: 3). Simultaneously, the disposition to care would not be restricted to humans but include non-human environment (Kallis, 2018: 122).¹⁴

Social Metabolism

Degrowth scholars argue that a reduction of social metabolism – the throughput of energy, materials, water, and waste of a given social group – is needed to bring societies back within ecological carrying capacities (Kallis, 2018: 24-34, 97-103). Economies are not closed systems but always require inputs of energy and materials for the production and reproduction of products and services. Materials are biomass, minerals, and fossil fuels which are transformed in production processes. Energy comes from the sun and geothermal processes which can be stored in material form and powers transformations and movements of materials by humans, machines, and biological organisms. In transformation processes of materials, unavoidably, a portion of materials is discarded as waste and energy is dissipated into space as heat.¹⁵ Furthermore, transformation of materials needs landmass as a physical operation space and most transformations processes include water. Social metabolism is thus the totality of inputs of energy, materials, water, and land mass required for production, reproduction, and movement of goods and services, and the waste and heat that is inevitably lost in these processes. When the scale of production of goods and services of an economy grows its material throughput grows with it.

¹⁴ From the perspective of Tronto, this expansion of care to the non-human environment will also require exploring ways in which care-receiving can be executed for non-humans. Such an exploration falls outside the scope of this essay.

¹⁵ For a discussion of the physical reasons of this impossibility grounded in entropy, the second law of thermodynamics, see Kallis (2018: 25-34).

Degrowth seeks to reduce social metabolism. As discussed above, the social metabolism of current growth economies exceeds the carrying capacity of ecological systems that act as deposits for waste without satisfying most humans' BHNs (O'Neill et al., 2018: 89-90). The social metabolism of growth societies increases through extraction of solar energy from places where it is stored in fossil fuels to power extraction, transportation, and transformation of materials into goods and services (Kallis, 2018: 30-33). Burning of fossil fuels causes climate change which will eventually cause so much damage to human infrastructure through environmental disasters that continued economic growth becomes impossible (Kallis, 2018: 107-108). While a transition to renewable energies is possible, this will most likely require reducing economic output. Renewable sources of energy are ultimately limited by the fixed rate of solar energy and geothermal energy and require a higher proportion of available energy for their deployment and maintenance. Even if powering a growing economy with renewable energy-sources was possible, the scale of extraction of materials and use of landmass required to globally achieve Western living standards is physically impossible (Kallis, 2018: 97-103). Moreover, the extraction of materials damages land, water courses, habitats, and livelihoods of people living at extraction places and causes biodiversity loss. Materials discarded as waste pollute water, land, and the atmosphere. Therefore, conceiving of economic activity in terms of social metabolism highlights the destructive material requirements for and provides a strong case against the possibility of achieving global BHN satisfaction through continuously growing economic output.

Degrowth Summary

Degrowth scholars operate under the hypothesis that increasing BHN satisfaction is possible while decreasing total social metabolism, and consequently economic output (Kallis, 2018: 112-115). Degrowth scholars can be read to endorse a sufficientarian position on justice based on the theory of BHNs. Satisfying BHNs globally to a sufficient level cannot be achieved through economic growth alone and requires some form of distribution. Complementary to sufficientarianism, degrowth can be interpreted as endorsing a relational egalitarian position on social justice which demands ending human oppression based on the principle of parity. This principle lends further support for approaching global BHN satisfaction through redistribution. Simultaneously, this principle provides a basis for degrowth's aim to end the colonial hegemony of the ideology of economic growth to enable recognition of other temporalities. Moreover, abolishing the productivism at the centre of growth economies opens the possibility of an egalitarian institutionalisation of care at the heart of economic activity. Finally, understanding economic activity in terms of a social metabolism opens an understanding of pressures on ecosystems necessary to move human activity back within ecological limits. With this understanding established, I turn to mutual critiques of degrowth and ecomodernism.

Chapter2: Degrowth vs. Ecomodernism

Thus far, I have elaborated that ecomodernists advocate economic growth driven by innovations in so-called zero-carbon technologies to reach sufficient levels of human development globally. Contrarily, degrowth critiques economic growth as fundamentally driven by dynamics of (neo)colonial capitalist accumulation through appropriation which inevitably result in environmental destruction and cannot lead to global BHN satisfaction. Consequently, degrowth advocates organizing society differently by developing alternative imaginaries and placing relations of care at the heart of provisioning systems. Clearly, ecomodernism and degrowth are two incompatible STs approaches. Scholars from both research traditions have engaged with the other's views and developed arguments against it. In this chapter, I elaborate these arguments and their spatiality and analyses their implications for the feasibility of STs approaches.

Ecomodernist Critique of Degrowth

Moellendorf's (2022: 143-150) elaborates the critique of degrowth of other ecomodernists like Pollin (2019: 312) or Symons (2019: 100-103), offering three arguments against degrowth. Before turning to specific arguments, Moellendorf (2022: 137-139) argues that claims about limits to economic growth posed by ecosystems in which the economy is embedded must elucidate assumptions about the relationship between technology and ecosystem limits. Through efficiency improvements, new technologies could decrease the pressure of the economy on ecosystems while keeping the economic activity constant or even growing economic activity, given enough efficiency gains. Furthermore, technology can make new resources available for economic activity. Thus, while the economy might ultimately be limited by the ecosystem in which it is embedded, technological development determines the scale of economic activity possible within its limits.¹⁶

The first argument concerns the feasibility and desirability of degrowth contributing to the project of preventing dangerous climate change by decarbonizing the global economy (Moellendorf, 2022: 143-145). GDP and carbon emissions are highly correlated. Judging from past experiences with global GDP downturns, reducing economic activity can only achieve global net-zero carbon emissions, which according to Moellendorf are needed for preventing dangerous climate change, by almost completely halting economic activity. This, however, would have unacceptable consequences for human development in low- and medium-income countries and could hardly form the basis for the political mobilization in high-income countries needed to confront the vested interests of fossil-fuel industries. Therefore, addressing climate change through degrowth of the economy is not feasible. On the other hand, if degrowth would entail reaching net-zero carbon emissions by absolute decoupling of economic activity from carbon emission, degrowth would not be necessary. Given the association of economic degrowth and human development, if degrowth is not necessary, it is not desirable. Thus, if

¹⁶ This is the first of Moellendorf's points, he also makes one about mining asteroids to claim that the size of the ecosphere depends on technology. While in principle this is true, I do not consider this relevant for the time scale at issue.

the global economy is absolutely decoupled from carbon emissions, degrowth is undesirable, and if it is not absolutely decoupled from carbon emissions, degrowth is not feasible as a project of decarbonization.

The second argument buttresses the argument that decarbonizing the global economy through economic degrowth is not feasible (Moellendorf, 2022: 149-150). It holds that the foremost aim of the decarbonization project must be technology promotion through innovation policies. To scale up renewable energy technologies in the required timeframe, governments need to create demand for renewable energy by becoming a large purchaser of it and requiring others to purchase renewable energy through policies and regulations. Such demand will lead to innovation in the relevant technologies. States need to take on the early risks by investing in these technologies and facilitating or creating innovation and knowledge diffusion networks. In turn, such innovations fuel economic growth. Thus, the innovations required for energy transitions require state investment and the kind of innovation such investment yields fuel economic growth. It follows that pursuing climate mitigation through economic degrowth is not feasible because the necessary policies must be growth promoting policies.

The third argument concerns the moral costs of degrowth in a globalized economy (Moellendorf, 2022: 146-149). If degrowth entails reduced consumption in the GN, crisis transition mechanisms will lead to aggravated poverty in the GS. Reduced consumption in the GN would lead to decreased demand for raw materials and other products from the GS and thus to decreased income in GS countries. Additionally, decreased GDP in the GN through decreased consumption would lead to declining investments in the GS, as there would be less profits to reinvest. Furthermore, decreased GDP in the GN would cause remittances to fall dramatically because recent immigrants are usually among the first to be dismissed. Even if GS countries became self-sufficient after a transition period and freer to determine their own economic policies, such a transition could not be justified in the face of the setbacks caused to human development. Additionally, self-sufficient countries in the GS would likely be poorer than they were if they remained embedded in the global economy. Therefore, any degrowth account would need to demonstrate how crisis transfer mechanisms would be addressed or be vulnerable to the objection that it does not show enough regard for the poor in the GS.

Ecomodernists thus offer two arguments against the feasibility of climate mitigation through economic degrowth and one normative argument against degrowth. The first argument holds that if degrowth would entail absolute decoupling of GHG emissions from economic growth globally, it would not be necessary and hence undesirable, and if it would not entail absolute decoupling, addressing the climate crisis via degrowth would be infeasible. The second argument is that the innovation to develop the zero-carbon technologies required for absolute decoupling of economic growth from GHG emissions would necessarily lead to economic growth and hence make economic degrowth unfeasible. Finally, the moral argument holds that degrowth, even if confined to the GN, would prolong, or even lead to additional unacceptable poverty in the GS.

Degrowth Critique of Ecomodernism

Proponents of degrowth usually employ a twostep approach to challenging ecomodernists' claims about the feasibility of decoupling economic growth from environmental impacts (Hickel and Kallis, 2019; Parrique et al, 2019). First, they present historical records of efforts to decouple economic growth from environmental impacts and then use it as a baseline to empirically challenge the prospects of decoupling occurring in the future. Here, I take a similar approach while selecting the arguments I consider to be the strongest against ecomodernism in relation to its normative ideal presented in the first chapter. I first discuss historical records of decoupling and then assess the prospects of green growth enabling global, sufficient human well-being in the future.

Decoupling

Before turning to particular arguments, it is crucial to further elaborate the notion of decoupling (Parrique et al, 2019: 11-16). Coupling means that one variable drives another while decoupling means that this association ceases. As ecomodernists acknowledge, decoupling can either be relative or absolute. Relative decoupling means that the strength of the association between two variables becomes weaker while they still develop in the same direction. Absolute decoupling means that both variables develop in opposite directions. Furthermore, economic growth can be said to be decoupled from environmental pressures which can be broken down into resource use and environmental impacts. Ecomodernists usually focus on decoupling economic growth from the environmental impact of climate change, one among many possible environmental impacts. Decoupling can either be measured using territorially based production indicators, only considering the environmental pressures on a given region, or consumption indicators, measuring so-called environmental footprints indicating environmental pressures embedded in consumed products and services. Decoupling can occur on a local scale defined by a particular geographical area or on a global scale. Decoupling can be permanently or temporary with recoupling occurring after a determined period. Recoupling means that the association between two previously decoupled variables reconvenes. Decoupling should be assessed relative to relevant ecological thresholds or targets in relation to which it can be either sufficient or insufficient. Sufficient decoupling means that absolute decoupling is happening fast enough to stay below a defined level of ecological pressure while insufficient decoupling means the level will be exceeded. Finally, introducing a normative component, decoupling can be just. On a sufficientarian account, just decoupling in rich countries is large enough to allow those in other countries below a threshold of well-being to exert further environmental pressure to cross the threshold. For decoupling to be just environmental targets for sufficient decoupling should be set with moral considerations in mind.

Which kind of decoupling is required depends on the aim of such decoupling. The kind of decoupling that is needed to halt climate change is an absolute, global, permanent, and sufficient decoupling of economic activities from GHG emissions. If one's concern is broader than the climate crisis and encompasses other kinds of ecological crisis such as biodiversity loss, this decoupling of

economic activity applies to all relevant environmental pressures. The remainder of this section first discusses empirical evidence of the required decoupling in the past and present and then, against this backdrop, turns to empirical arguments about the plausibility of crossing a threshold of sufficient well-being globally through green growth.

Decoupling in the past and present

The following discussion of decoupling will focus on environmental impacts, but resource use and environmental impacts (Parrique et al., 2019: 24-30). Environmental impacts are concerned with direct pressures of economic activity on ecological systems. These impacts include GHG emissions, biodiversity loss, land conversion, and water pollution. What is the past record of decoupling?

No country has sufficiently decoupled its economic growth from carbon emissions. In a recent study, Jefim Vogel and Jason Hickel (2023) assessed the rates of decoupling of carbon emissions from GDP growth observed in high-income countries from 2013 to 2019. Of the 36 Annex-1 countries to the Paris Agreement *only* 11 achieved absolute decoupling of GDP from consumption-based CO₂ indicators. Assuming a minimum requirement of equity according to which the post 2023 carbon budget for a 50% chance to stay below 1.5°C global warming above pre-industrial levels would be distributed according to current and projected inhabitant numbers of countries, they find that observed decoupling rates in countries with absolute decoupling fall dramatically short of the required decoupling rates. On average, decoupling rates would need to increase by a factor 10 until 2025 and by a factor 12 by 2030. The authors conclude that the decoupling of economic growth from carbon emissions necessary to stay below 1.5°C global warming is not happening in high-income countries. Moreover, the absolute decoupling in the United Kingdom and Sweden, which were the countries with the highest decoupling rate and the country with the lowest per capita emissions respectively in Vogel's and Hickel's study, can only be considered as cases of relative decoupling once sector specific carbon intensity embedded in trade is considered (Jiborn et al., 2018: 29; Parrique et al., 2019: 26). Furthermore, decoupling rates in high-income countries even decline, as easily implementable options are increasingly depleted (Parrique et al., 2019: 25). Additionally, note that consumption-based indicators do not consider GHG emissions from agriculture, forestry, land use, nor international shipping or aviation (Vogel and Hickel, 2023: e765). Finally, it must be noted that in high-income countries territorial CO₂ emission estimates are systematically lower than consumption-based indicators (Parrique et al., 2019: 25-27). This means that carbon intensive industrial production is systematically displaced to countries with less efficient energy systems (Jiborn et al., 2018: 34).

Studies assessing past decoupling at a global level come to similar conclusion. According to Hickel and Kallis (2020: 476-477), global economic growth was relatively decoupled from CO₂ emissions over the period from 1960-2000 while from 2000-2018 no decoupling was observed. Parrique and colleagues (2019: 24) point out that no meta-analysis of studies assessing CO₂ emissions found evidence of decoupling for the period from 1995-2005. While absolute decoupling of economic growth from CO₂ emissions was observed in the EU28 and the USA from 2006 to 2016 based on both

territorial and consumptions-based indicators (again excluding international shipping and so on), over the same period, CO₂ emissions in the GS were only relatively decoupled from GDP growth (Hickel and Kallis, 2020: 476-477). Global emissions plateaued briefly from 2015-2016 while global GDP kept rising, which might be attributed to China and the United States shifted to less carbon-intensive fossil fuels. However, after the completion of these shifts, global CO₂ emissions recoupled with GDP in 2017. Taken together, globally, emissions have been increasing steadily, falling only during periods of economic recession. If the increase in CO₂ emissions accompanying global GDP growth was to continue at the observed rate, global temperature would most likely rise to 4.2°C (2.5°C-5.5°C) above pre-industrial levels by the end of the century (Hickel and Kallis, 2020: 477). Past observed global trends of decoupling are thus by no means on track for the 1.5°C target.

Thus far, only decoupling of economic growth from carbon emissions has been considered but to assess the feasibility of the form of decoupling required from a degrowth perspective other environmental pressures must be considered, too. Another important environmental pressure is biodiversity loss, as it potentially affects ecosystem processes and nature's contributions to people resulting from them (IPBES, 2019b: 11). During the past 50 years the major direct drivers of biodiversity loss have accelerated (IPBES, 2019b: 11-12). Today, human action threatens more species with global extinction than ever before with around 25% of animal and plant groups threatened with extinction. Despite the increase in protected biodiversity areas globally (IPBES, 2019b: 31), no indicator of biodiversity loss shows a decline in pressure on the environment and there is no improvement in the rate of pressure change (IPBES, 2019b: 26). Moreover, with increasing GDP the number of threatened species in a country increases for all species groups except for birds (Parrique et al., 2019: 30). Clearly, no absolute, global decoupling of economic growth from biodiversity loss can be observed.

No decoupling of land-use change from global economic growth has occurred and land-use change is displaced to poorer countries. With growing income living space per capita increases and hence the area of sealed soil (Parrique et al., 2019: 27-28.) Moreover, globally, cropland area utilized for food production has increased by 32% from 1963 to 2005, mostly driven by increasing animal-calories demand, itself strongly influenced by per capita income. For each doubling of income, the footprint of land used from international supply chains leading to final consumption increases by 35%. Land-use change is driven primarily by agriculture, forestry, and urbanization and is itself the leading drivers of biodiversity loss for terrestrial and freshwater ecosystems and the second biggest driver of biodiversity loss in marine ecosystems (IPBES, 2019b: 12, 25). While land-use change does not capture all drivers of biodiversity loss it is evident that economic growth would need to absolutely decouple from land-use change if biodiversity loss is to be reversed while simultaneously continuing economic growth. However, no absolute decoupling of land-use change from GDP growth has been observed so far. Furthermore, GDP growth correlates with displacement of land-use change to poorer regions (Parrique et al., 2019: 28). With each increase of \$10,000 per capita income, between 0.1 and

0.4 gha of biologically productive land used for consumption are displaced to other countries. Using various data sources from 2000-2011, Yu and colleagues (2013) demonstrate that for the United States 33%, for Europe over 50%, and for Japan 90% of the total land used for consumption are in other countries. These displacements of land used for consumption purposes are tied to the displacement of biodiversity loss from high-income countries to low-income countries (Parrique et al., 2019: 28).

There is no global decoupling of water pollution from global economic growth and water pollution is displaced to poorer countries. An environmental impact of particular importance to human health is water pollution (Leet et al., 2010: 20). Water pollution results from wastewater of many industrial production processes (Leet et al., 2010: 12) or from intensive livestock farming and fertilizer use in agriculture (Parrique et al., 2019: 29). In a study using panel data of biological oxygen demand emissions and dividing 97 countries in the regions Africa, Asia and Oceania, America, and Europe, Lee and colleagues (2010: 16-20) find that water pollution decreases with rising real per capita income in the Americas and Europe while in Africa, Asia, and Oceania no such association can be found. Globally, water pollution does not decrease with rising real per capita income. Their results could be interpreted as evidence for absolute decoupling of water pollution from economic growth in high-income countries in the Americas and Europe. However, as Parrique and colleagues (2019: 29) point out, high costs of water-filtration technologies prompt migration to countries with fewer or less enforced environmental regulations related to water pollution. Low production costs in emerging countries continue to be associated with high levels of water pollution. Thus, the observed decoupling is plausibly caused by relocation of polluting industries to low-income countries. This is corroborated by evidence relating to the fast fashion industry, responsible for about 20% of global water pollution (Niinimäki et al., 2020: 189-192). Production locations for textile manufacturing are primarily determined by labour costs which leads to relocation to low-income countries. Water pollution through chemical use in manufacturing, for examples for dyeing and bleaching, without adequate purification-technologies occurs at production places. Consumption primarily occurs in the EU-27 and the United States. It can be concluded that the required absolute global decoupling from water pollution has not happened.

To sum up, in a growing world economy, no absolute decoupling of economic growth from any of the considered environmental pressures has been documented thus far. This means that despite the relative, temporal, or local decoupling observed in some studies (Parrique, 2019:4), overall decoupling of economic growth from environmental pressures has been insufficient. Furthermore, the pattern of distribution of economic pressures across places mirrors the socially unjust, exploitative relations of domination between the high-income and low-income countries. In all cases there is unequal ecological exchange between the GN and GS. In other words, the very economic growth that is observed in the high-income regions depends on the destruction of ecosystems and the resulting loss of nature's contributions to people in poorer regions. The resulting inability for subsistence of local populations in affected places leads to provision of cheap labour for and a dependence on extractive

industries and a log-in of a global economic-dependency space in which the GN dominates the GS (Mbembe, 2022: 45).

The Disaster of Green Growth

Against the background of no past absolute, global decoupling of economic growth from environmental pressures, the following arguments against the prospects of green growth are particularly important to consider in the context of attempts to achieve a sufficient level of well-being globally. These arguments concern shifting of one environmental pressure to another by seeking technological solutions, shifting of costs of these pressures to poorer countries, and the aggravation thereof through diminish returns of materials. I demonstrate that green growth cannot lead to a sufficient level of well-being globally, in terms of human development, as it directly harms human well-being at extraction places.

Ecomodernists primarily focus on climate change but tackling one environmental problem in isolation is likely to shift the problem to other environmental pressures (Parrique, 2019: 40-41). A relational understanding of material geographies reveals the impacts on non-human environments and on human well-being caused by attempts to halt climate change through green growth. Consider the example of mobility in the context of individualistic consumer culture and private property that ecomodernists refuse to challenge (Symons, 2022: 62-36). A central component of the envisioned energy transition is a shift to electric vehicles. This shift is expected to fuel economic growth in countries like Germany and as a result create economic growth and improve living standards in countries of the GS. However, the reality is drastically different. The production of lithium-ion batteries necessary for electronic vehicles requires the extraction of several rare earth materials like lithium, cobalt, nickel, and manganese (Parrique, 2019: 41). The extraction of these materials has severe consequences for the populations at extraction places. Mining causes pollution and biodiversity loss far beyond the extraction sites and thereby harms nature's contribution to people even more severely than industrial agriculture (IPBES, 2019a: 59). Yearly extraction of copper is around 140-150 kilotons and predicted to increase over the next four years to 250 kilotons due to a growing e-vehicle market (Arte, 2022). 60-70% of global cobalt production comes from the Democratic Republic of the Congo (DRC; Deberdt and Le Billon, 2021: 3). For example, in Kolwezi, DRC, the cobalt mines cause pollution of drinking water and soil through dust particles from the mining waste (Arte, 2022). Such pollution is among the main drivers of biodiversity loss (IPBES, 2019b). Thus, the mining at the start of the supply chains of the growing market for lithium-ion batteries shift the problem from climate change to freshwater pollution, land-system change, and biodiversity loss. Cobalt is only one material required for the lithium-ion batteries. Similar arguments could be made for mining other resources like copper, silver, neodymium, dysprosium, or lithium (Hickel, 2020: 142-143). Growth resulting from the electric vehicle industry is thus by no means decoupled from all relevant environmental impacts globally and cannot be expected to decouple from them through innovation and growth promoting policies alone. The picture gets even worse when considering materials required for the production of

the energy infrastructure itself which requires astronomic quantities of iron, copper, lead, zinc, aluminium, neodymium, indium, and silver (Hickel, 2020: 141-142). The benefits of halting climate change through so-called green growth will be very limited if it causes ecological collapse (Hickel, 2020: 148-149).

So-called green growth not only shifts the problem from climate change to other environmental impacts, but it also shifts the costs to poorer places (Parrique et al., 2019: 53-55). Ecomodernists' belief in a kind of trickle-down theory through which green growth will lead to prosperity and increasing human development globally is wrong empirically and such growth has brutal consequences for the affected people. Consider again the case of cobalt mines in DRC (Arte, 2022). 80% of the Congolese cobalt is mined by big mining companies based in China, Switzerland, Kazakhstan, and Luxembourg. The remaining 20% are mined in artisanal mines and sold to primarily Chinese brokers. Water pollution caused by the cobalt extraction leads to health issues for the populations in the surrounding area. The pollution of soil reduces its fertility and shrinks the size of manioc harvested in the area or prevents growing crops altogether. The money Chinese brokers pay for cobalt extracted by artisanal miners barely make for a living and leads to child labour in production processes, particularly in the artisanal mining sector. At extraction places, BHNs of nutrition, health, and education are severely harmed by the operation of the mines. From both, the perspective of human development and that of BHNs, the growth can by no means be said to increase well-being globally. Far from leading to global increases in well-being, the green growth in high and upper-medium income countries is thus directly enabled by environmental destruction and related decreases in human development levels and BHN satisfaction at extraction places. Such green growth undermines the potential of future prosperity in extraction places (Parrique et al, 2019: 54). Moellendorf (2022: 86) argues that states with higher human development attainments should pay for climate mitigation and adaptation by states with lower human development attainments. However, ecomodernists have no account of how to change geographical relations of power that give rise to unequal human development levels in the first place to prevent cost shifting to occur in the future. As long as this is not addressed, their approach will not lead to the envisioned universalization of human development.

Problem shifting and cost shifting will be exacerbated in the long run due to diminishing returns (Parrique et al., 2019: 32-35). High quality ores with high concentrations of metals or minerals, and easily accessible resources are extracted first and increasingly exhausted. Extraction of remaining materials becomes increasingly complex and technologically demanding. Consequently, energy and material requirements and polluting waste per unit extracted material increase. The increasing throughput causes the environmental and social costs of extraction to rise (Conde and Walter, 2015: 73). This problem is not limited to the extraction side itself, as increased mining activity is accompanied by increasing demand for chemical reagents, machinery, fuel, construction materials, and food for workers (Conde and Walter, 2015: 72). All these resources need to be extracted elsewhere and thereby have environmental effects beyond extraction places. Moreover, technologies develop in

layers which means that older technologies continue to exist and might even be used more intensively, as newer technologies and their supporting infrastructures emerge (Edgerton, 2007: 86-87; McCray, 2016). So long as the extraction of materials and production of products required for the energy transition is powered by fossil fuels, the more the global economy grows the more carbon will be emitted for further growth even if the growth is caused by the construction of so-called zero carbon technologies. And even if the extraction and production of further renewable energy-sources would be powered by already existing renewable energy the production would increasingly cause environmental impacts (Parrique et al, 2019: 34-35). For the same output of energy, renewable energy-sources require ten times more metals than fossil energy-sources and the extraction of metals itself requires increasing amounts of energy. Continued economic growth powered by renewable energy leads to a vicious cycle: the production of additional energy requires additional materials the extraction of which increasingly requires energy, and so on. Thus, so-called green growth does not alleviate the harms to BHNs at extraction places and extraction spaces but rather exacerbates them the longer it continues.

Taking a spatial approach to so-called green growth reveals the harms to human well-being it causes at extraction places. The energy transition shifts environmental impacts from climate change to water pollution, land conversion, soil pollution, and biodiversity loss. These environmental impacts occur at extraction sites predominantly located in poorer places. The environmental destruction and associated harms to human well-being at extraction places is bound to aggravate the longer so-called green growth continues. And as technologies develop in layers, the energy transition of a growing economy is bound to emit massive amounts of carbon. It must be concluded that so-called green growth cannot feasibly lead to achieving a sufficient level of human development globally.

Theoretical Reflection

To develop a theoretical understanding of the requirements of STs, a reflection on differences in the conception of well-being, the normative stances of degrowth and ecomodernism, and their spatialities is in order. Ecomodernists and degrowth scholars alike can be read as endorsing a sufficientarian conception of justice which affirms the importance of guaranteeing a sufficient level of well-being for all. Ecomodernists like Moellendorf (2022: 74-77) understand human well-being in terms of human development. Recall that human development is an index that combines indicators for income, life expectancy, and education. Moellendorf argues that of these only health and education are valuable in and of themselves. This understanding of human well-being is thus restricted to *individual* components of human well-being and ignores *societal* components. Relatedly, Moellendorf (2022: 24-25, 77-81) focuses primarily on physical part of provisioning systems and their relation to climate change, because climate change threatens human development. Surprisingly, in an alleged lack of better alternatives, he ends up collapsing human development into the single measure of GDP despite acknowledging its shortcomings (Moellendorf, 2022: 134). This measure, however, is more closely

related to neoclassical-economic utility theories of well-being than to a theory of well-being which might support the special importance of health and education (Lamb and Steinberger, 2017: 7).

Degrowth scholars, on the other hand, take a broader view of human well-being. Conceptualizing well-being in terms of BHNs includes both individual and societal basic needs, as well as liberational needs, communicational needs, and so-called constitutional needs. As their account of well-being is more elaborate, the sufficientarian requirement of justice to guarantee a sufficient level of human well-being is more demanding from a degrowth perspective. Moreover, degrowth can be interpreted as complementing their sufficientarian position on justice in matters of economic assets with an egalitarian position on matters of power and social status. Their position coincides with the principle of *parity* proposed by Nancy Fraser which demands that all (adult) members of society can socially interact with each other as peers (Fraser and Hrube, 2004: 882). This principle condemns societal arrangements characterized by material or cultural forms of oppression. It gives guidance to degrowth's approach to reaching the sufficiency threshold globally, because it favours redistribution of economic assets. Moreover, it adds the dimension of recognition which explains degrowth scholar's rejection of the cultural dominance of the growth imaginary. Taken as a whole, degrowth's normative ideal is far more demanding than that of ecomodernism.

The different understanding of well-being of both ecomodernism and degrowth translates into a different understanding of its relation to the economy. Ecomodernists equate increased economic output with increased well-being (Moellendorf, 2022: 134). In opposition, degrowth scholars argue that an increase in well-being and reduction of ecological pressures will most likely be accompanied by a reduction in economic output (Kallis, 2018: 112-115). Exploitative capitalism cannot satisfy BHNs for all. Guided by egalitarian concerns over oppression, degrowth suggests that global BHN satisfaction should be approached through redistribution of economic assets and replacing capitalism with other provisioning systems. The alternative provision system would place care at the heart of economic thinking and bring care work out into the open to guarantee BHN satisfaction. It would end exploitative relations between the GN and the GS and end unequal ecological exchange. Total social metabolism of economic activity would be reduced to fit into ecological limits. Consequently, economic output would most likely decline.

Turning attention to the feasibility of both STs approaches considered in space, ecomodernism aims to establish a global green-growth space but fails to seriously consider its harmful implications at extraction places. Ecomodernists like Moellendorf (2022: 74-85) cherish the role of so-called zero-carbon technologies in addressing the climate crisis and advancing human development in countries with lower levels of human development scores. I have demonstrated that green growth driven by the so-called zero-carbon technology of e-vehicles has tremendous negative implications for the human development at extraction places such as the Kolwezi in DRC. Attempting to address climate change through technological solutions alone shifts the problem to other environmental pressures such as, land conversion, (water) pollution, and biodiversity loss. Moreover, the cost of these environmental

pressures is shifted to extraction places. This shifting of costs reduces nature's contributions to people at extraction places and harms health and educational attainments of the local population. Therefore, global relations aimed at green growth do not advance human development in all places but actively harm them in extraction places. The resulting inability for subsistence of local populations in affected places leads to provision of cheap labour for and a dependence on extractive industries and, hence, pp a log-in of a global economic-dependency space in which the GN dominates the GS (Mbembe, 2022: 45). From a degrowth perspective, this pattern of unequal ecological exchange results from and is part of the unequal relations of power between the GN and the GS. Continued economic growth in the GN is only possible because of the exploitation of labour and the expropriation of natural resources in the low-income countries. Because ecomodernists fail to address these unequal power relations, their approach to sustainability transformation cannot lead to a sufficient level of human well-being globally. Therefore, the approach to STs advocated by ecomodernists cannot feasibly realize their sufficientarian normative ideal.

Contrastingly, degrowth aims to change the exploitative relations constituting economic and global space but might ultimately be infeasible. Degrowth aims to reconstitute care spaces by breaking the public|private dichotomy and its exploitative care relations and enables a greater emphasis on care work by bringing it into the open. This would reshape spaces of provisioning because economic relations would be directed at BHN satisfaction and not at accumulation of privatized profit. Directing work to meet BHNs is theorized to increase human well-being while reducing social metabolism, most likely result in reduced economic output. Moreover, degrowth aims to change the global space constituted by exploitative relations, including between extraction places and consumption places of so-called zero-carbon technologies. Furthermore, the egalitarian position on social justice requires replacing the growth imaginary at the core of Western societies with an openness for a plurality of temporalities. In turn, this would end global relations of cultural oppression. Degrowth's normative ideal is far more demanding than that of ecomodernism. Some ecomodernists like Robert Pollin (2019: 311-312) largely agree with degrowth's values but are fundamentally concerned with questions of feasibility. It might not be feasible to realize degrowth's demanding normative ideal. Because degrowth aims to reduce total output of the economy in high-income countries, it might end up prolonging the existence of and even creating new poverty places through crisis transition mechanisms without meaningfully advancing the project of climate mitigation which requires innovation (Moellendorf, 2022: 143-149). Moreover, entrenched material and cultural relations of power are hard to change. Therefore, degrowth might end up violating sufficientarian requirements of justice without creating a more egalitarian society or halting climate change and environmental destruction. What is thus needed is a theoretical framework that can be used to put degrowth in practice and advance an argument illustrating its feasibility. This is the task I start to take on in the next two chapters.

Chapter 3: Anti-essentialist diverse economies and communities in defence of Degrowth

In this chapter I complement the spatial method with a diverse understanding of economic relations developed by the economic geographers. Gibson-Graham's (2006: Introduction) work is particularly suited for the task of defending the feasibility of degrowth, because it was developed to confront the seemingly inescapable economic logics of the capitalist economy through an analysis of already existing economic practices. Here, I introduce the concepts of diverse economies and an anti-essentialist understanding of communities opened by it. I suggest a way in which these concepts can move forward debates between ecomodernism and degrowth. I argue that a diverse understanding of economies reveals how BHNs can be satisfied despite declining GDP through diverse provisioning systems. Furthermore, a diverse understanding of the economy reveals how resources can be allocated to innovation in so-called zero-carbon technologies without an increase in total economic output. Diverse provisioning systems form the basis of communities. From an anti-essentialist perspective, communities can be understood as emergent entities that might go beyond the local. I argue that global communities can sublimate the division between the GS and the GN. Taken together, these points offer a rebuttal of ecomodernists' critique of degrowth and theoretically defend its feasibility.

Decentring "the Economy"

A vocabulary of economic diversity is needed to decentre the hegemonic, limited understanding of the economy to make space for economic transformations (Gibson-Graham, 2006: 53-54, 72, 77). While degrowth scholars implicitly and naturally use a vocabulary of economic diversity (Kallis et al., 2015: 8-13), proponents of ecomodernism usually have a hegemonic understanding of the economy (see for examples Pollin, 2019: 313; Mollendorf, 2022: 134). This hegemonic understanding leads them to oversimplify and misinterpret the degrowth agenda (Pollin, 2019: 317; Moellendorf, 2022: 141-149). Hence, to defend degrowth's feasibility, a language of economic diversity must be made explicit.

Discourse can be hegemonic as it fixes meaning around thick nodal points of signification (Gibson-Graham, 2006: 54-55). Discourse is the totality of relations of signification between objects and identities that creates meaning. As every signifier is explained by another signifier meaning is ultimately not fixed. However, actors might attempt to practically fix meaning by condensing several signifiers into one or extending and transferring the meaning of a signifier to others. What previously had different meaning now appears to be closely related or even equivalent. These moves create nodes of meaning that partially fix signification and resulting forms of subjectivity. Such partial fixing of meaning supports the dominance of specific ways of understanding as it encroaches on values, norms, and perceptions.

Neo-liberal capitalocentric discourse is hegemonic (Gibson-Graham, 2006: 55-56, 71-76). In dominant discourse, the meaning of all economic relations and transactions is condensed in what is called *the Economy*. The Economy usually is constituted by market transactions of value, wage labour, and the capitalist enterprise. Conversely, the Economy excludes other relations of transactions such as:

barter, household flows, gift giving, reciprocity, or gathering; other labour relations like reciprocal labour, housework, family care, or self-provisioning; and other enterprises like communal enterprises, or cooperatives. All these other economic activities are constructed as external to the Economy or as only of secondary importance supporting the real Economy. Through developments in automatic pricing and price communication mechanisms, marginalist economic theories, and the (re)conceptualization of growth as the intensification of all relationships considered as economic, the Economy came to be seen as an autonomous object developing in accordance with its internal laws (Locher and Fresso, 2012: 594-595). The corresponding hegemonic measure of economic size is GDP which measures the monetary value of all final goods and services produced within the borders of a country within a year (O'Neil, 2015: 103). GDP only registers economic transactions that are part of the Economy (Raworth, 2022: 264-265). Thus, the Economy signifies a fixed totality of specific kinds of economic transactions developing according to their own laws measured by the GDP while excluding all other economic activities. Consequently, the hegemonic understanding of economic growth considers only the growth of the Economy. This growth is measured in terms of GDP growth. In turn, economic growth has come to be signified by GDP growth. This condensed signification of economic activity is only able to grasp growth of the Economy as a totality.

There is no causal relation between GDP growth and improvements in BHN satisfaction. In hegemonic discourse, improvements in human well-being have been linked to GDP (Moellendorf, 2022: 134). However, according to an analysis by the United Nations Development Program (2015: 27) the positive impact of economic growth on health and education is weak. Moreover, after a certain level of economic output is reached – at approximately \$10,000 per capita¹⁷ – well-being measured in terms of human development increases only marginally with additional economic growth, despite the inclusion of GDP in the human development index (Kallis, 2018: 91-94). Furthermore, Hickel (2020: 48-50, 172-173) argues that when capital initially appropriates the commons of a given population, the commodification registers as growth of the Economy while the population's ability to satisfy their BHNs declines because they lose access to their previous means of subsistence. Capitalism institutionalises artificial scarcity as it prevents access to the commons and makes consumers dependent on markets to satisfy their BHNs (Hickel, 2020: 54-58). Capitalists use this artificial scarcity enforced by state violence and the hunger associated with it to institute a harsh work ethic and competitive behaviour to drive costs of wages down and increase profits. The resulting GDP growth does not translate directly into better BHN satisfaction of for example physical health or education (Hickel, 2020: 171-178). In the capitalist core and colonized nations alike, for most ordinary people there was an extended time gap between the start of economic growth after initial enclosure and improvements in living conditions.

¹⁷ In 2010 US dollar.

What is required for increasing physical health are provisioning systems that redistribute societal economic output (Hickel, 2020: 171-178). Most gains in physical health are achieved through public provision of sanitation, public health care, vaccination, public housing, and higher wages. If only half the income of the richest 1% of the global population was redistributed to enable public provisioning of health care services, everyone in the GS could be provided public health care services on the level of Costa Rica, associated with an average life expectancy of approximately 80 years (Hickel, 2020:192-194). Additionally, they could be paid \$7.60 a day and be lifted above the absolute poverty line. The richest 1% would still be left with an average income of a quarter million, more than anyone can justifiably claim to need. After the basics are in place, education is the best predictor of longevity (Hickel, 2020: 171-178). Education, in turn, is best achieved by universalized access to education through public provisioning. These are public goods, which can be seen as a new kind of commons that reduce the need for income of individuals (Hickel, 2020: 185-187).

The selective relevance of economic activity for BHN satisfaction is reflected in the kind of sectors that the German government during the Covid-19 pandemic declared systemically relevant or indispensable economic sectors (Lübker and Zucco, 2020: 474). These sectors included energy and water utilities, logistics, transportation and traffic, production and distribution of groceries, digital and financial infrastructure, medical services, and care and support of vulnerable groups, as well as related cleaning and kitchen services. In the light of the BHNs for physical health, cultural communication, and a political system, one might add to this list further sectors such as construction, culture and arts, and maintenance of public infrastructure. These sectors might be thought of as contributing to meeting human basic needs.

Conversely, one might consider which sectors of the economy put especially high pressures on ecological systems. For example, the livestock sector is estimated to be responsible for 18% of total GHG emissions, is the single largest anthropogenic use of land, and has a high-water footprint (Cassidy et al., 2013: 2). Additionally, the ratio of animal product calories to feed calories is only 10% which makes feeding humans through animal products highly inefficient. Another example can be found in the fast fashion industry which is estimated to account for 8.1% of global GHG emissions, 7% of local groundwater and drinking water losses globally, 60% of water pollution, 34% of chemical pollution, and 22% of mixed waste world-wide (Niinimäki et al., 2020: 191-192, 195). These pressures on ecological systems occur along the supply chains with low-income countries bearing most of the burden for consumption in high-income countries.

Beyond mere differences between economic sectors, a diverse understanding of economies opens the possibility of a plurality of provisioning systems. Under patriarchal capitalism, most care work is confined to household spaces and its value production appropriated into market exchange, as its unremunerated provision is taken for granted in wage negotiations (Federici, 1975: 3-6). Alternative provisioning systems based on gift giving, sharing, and reciprocity can bring care work into the open and allow to put it at the heart of economic activities. For each need someone *cares*

about, a multiplicity of provisioning systems allows to experiment with ways to best engage in *care taking* and *care giving*. To illustrate, food might be prepared and distributed as gifts at kitchens run by a solidarity economy co-operative preparing vegan food (Johanisova et al., 2015:152-154). The cultural appropriateness of the food can be confirmed by those *receiving care*. Simultaneously, these kitchens might engage in relations of reciprocity with food producers in urban gardens or back-to-the-landers who *take care* of the production of food by farming a commons (Anguelovski, 2015: 192; Calvário and Otero, 2015: 143-145). Reciprocal provision of child rearing or other daily care activities can be arranged via time banks to free labour time to work in a commons (Dittmer, 2013: 6-7). The diversification of provisioning system increases the satisfaction of liberational needs.

Public or shared provisioning systems can be expected to have a lower social metabolism (Hickel, 2020: 185-187). Public provisioning systems are more efficient in terms of materials and energy, as they provide secure satisfiers for BHNs for large numbers of people. In turn, there is less need for these individuals to acquire satisfiers with privatised access which are idle most of the time and thus less need for income. Hence, if satisfiers are designed for durability to make up for intensified use (Hickel, 2020: 209-212), overall material and energy requirements are reduced. With reduced social metabolism associated environmental pressures decline. According to Jason Hickel (2020: 178) building on the research from O'Neill and colleagues (2018), this way it is possible to achieve satisfaction of needs for health, education, employment, nutrition, social support, democracy, and life satisfaction below \$10.000 of per capita income while staying within or close to ecological limits globally. From the perspective of BHNs this would amount to staggering success.¹⁸

Beyond provisioning systems, abandoning the Economy and redistributing social surplus allows to focus innovation on technologies required for STs. If one realizes the egregiously disproportionate surplus syphoned off by capitalists through inefficient BHNs satisfaction and the production of positional goods, it becomes clear that much societal surplus could be redirected towards necessary global energy transitions innovations (Hickel, 2020: 199-200). If BHNs were satisfied through alternative provisioning systems, social surplus could be redirected to innovations in new ways. For example, if a community of carers emerges through reciprocal child rearing mediated by a time bank, they might accumulate more time credits than any member of the community needs to spend. The community might decide collectively to appropriate this surplus value and gift it to scientists improving technologies' carbon efficiency without the requirement to reciprocate care. Reducing overall economic output decreases the capacity of renewable energy that must be deployed and, therein, the required efficiency rates (Hickel, 2020: 139-140). To reach the required capacity, it is unnecessary to grow *the Economy*.

To sum up, a vocabulary of economic diversity can open a way to global BHN satisfaction within ecological limits. It makes visible that market exchange between consumers and capitalist firms

¹⁸ Curiously, ecomodernists believes this would hardly be a condition of generalized prosperity (Moellendorf, 2022: 134; Symons, 2019: 100-103).

is but one of many forms of economic activity. This form of provisioning is not generally associated with improved BHN satisfaction. Instead, it reduces BHN satisfaction, as it replaces alternative provisioning systems based on the commons. Not all sectors of the Economy are beneficial to human well-being, and some are detrimental to both human well-being and ecological systems. Increased economic output best translates into increased outcomes for BHNs as it is redistributed through openly accessible provisioning systems. Allowing for a diversity of provisioning systems enables social learning about need satisfiers. To the extent that provisioning systems are designed for durability, they allow for increased BHN satisfaction with decreasing social metabolism and economic output. Redistribution of surplus and diverse provisioning systems can enable innovations required for global energy transitions while decreasing total economic output. As I argue below, extending these kinds of economic relations can give rise to new communal forms of subjectivity.

Anti-essentialist Communities

In the same way as the Economy is essentialised, frequently community economies are essentialised as the Economy's other (Gibson-Graham, 2006: 85-87). Communities are often described by community economy scholars as entities that bring together preexisting subjects through their essential communality. Descriptions of community economies often draw on normative ideals of positive wholeness or fullness, whether it is as sameness in incubator capitalism or the green idea of small and thus beautiful communities with self-reliant localism integrated into nature. Community is essentialised by association with characteristics like place-attached and local, small scale, cooperative and self-reliant, decentred, socially embedded, culturally diverse, and environmentally sustainable. Such descriptions resonate with more recent accounts of communities in the degrowth literature, for examples in the context of community currencies (Dittmer, 2015) or eco-communities (Cattaneo, 2015), and with descriptions of communities in the economic-growth oriented literature on energy communities, albeit with greater ambivalence towards the characteristics of place-attachment and decentralization (Gjorgievski et al., 2021:1139-1142; Reis et al., 2021: 1-3)

However, these essentialist descriptions neglect the possibility of communities having a detrimental impact on the prospects of STs while limiting their potential to have a positive impact. Energy communities might have a detrimental impact on sustainability as they are used as vehicle for local economic growth and development (Campos and Marín-González, 2020: 8). Even the environmental impact of ecological communities grows once they mature and grow their level of material prosperity, albeit probably to levels still lower than their societies' average (Cattaneo, 2015: 167). Furthermore, essentialising communities *as local* entities, at neighbourhood, city, or regional scale, severely limits their potential role for STs. Degrowth scholars' inclination towards localism has been critiqued, as it leads to a lack of attention to bigger scales (Krähmer, 2022: 339) and an incapability of engaging inherently non-local formations of power (Symons, 2019: 68-70). Innumerable interconnections between places exist with associated degrees of social injustice

(Krähmer, 2022: 338). Because poor countries are hit hardest by climate impacts and food shortages already occur in countries such as Somalia (Hickel, 2020: 117-118), localism is not compatible with degrowth's sufficientarianism. Certainly, local efforts are necessary. However, if communities are to play a vital role in STs, it is necessary to overcome their essentialisation as local entities.

On an anti-essentialist account, subjectivities are not fixed but produced in practice and open for change (Gibson-Graham, 2006: 23-31). Subjectivities are partially made by an external discourse and practices of governmentality and partially by the acceptance and assumption of subjectivities by individuals who translate them into their practices. Graham (2006: 207) cite Foucault's concept governmentality which describes a particular way of thinking constituted through institutions, procedures, analyses, reflections, calculations, and tactics that allow for the exercise of government. This way of thinking prescribes ways of acting to subjects which are required to conform to and perform the identities assigned to them by governmentality. Government is exercised as individuals act in ways required for the performance of their subjectivity. For example, thinking of economic activity in hegemonic terms of the Economy confers the identity of wage labourers and consumers to governed subjects and calculates their performance in terms of GDP. As subjects accept this understanding what is economic, they engage in wage labour and market exchange in particular places, and thus conform to and enact their subjectivity that is instrumental to economic growth. Practices like these are constituted through repetition and reiteration, and necessarily involve moments of discontinuity. Because subjectivities are constituted through practices in particular places, they are in principle open for change. This way of thinking opens the possibility of thinking communal subjectivities as emergent phenomena.

From an anti-essentialist perspective, the emergence of new communal subjectivity is possible. A community is not something that unites already existing subjects in a common being (Gibson-Graham, 2006: 85), as it has been implicitly assumed by degrowth scholarship on consumer communities (Bloemmen et al., 2015: 11-112). Instead, subjectivities of communities' subjects emerge through a discourse of diverse economies and the performance of diverse economic relationships. A diverse economy offers a plurality of subject positions including houseworker, giver of gifts, volunteer, cooperator, home producer, artisan, or member of a kin network (Gibson-Graham, 2006: 75-78). All these subject positions can be signified by the term *community economies* which forms a new nodal point of signification (Gibson-Graham, 2006: 83-84).¹⁹ The term *community economies* fixes meaning by condensing signifiers of diverse subject positions into a single signifier and transferring, in turn, the meaning of *community economies* to them. As subjects perform economic practices associated with the condensed subject position of the communal economic subject, they assume its subjectivity. The content of communal subjectivity is not essentialised, as it is the result of economic

¹⁹ Gibson-Graham use *community economy* in its singular form but I prefer the plural to highlight the possible plurality of these economic relations.

relations a person engages in, which in turn depend on the needs, knowledges, skills, and personal disposition of the person.

Non-essential communities emerge through practices of communal economic subjects. If community is seen as an emergent phenomenon, it is not possible to provide a list of its characteristics *a priori* (Gibson-Graham, 2006: 86-87). Rather, these characteristics are determined in practice through the economic relations subjects engage in. For examples, through reciprocating care work through a time bank locally, a local community of care givers might emerge; through mutual supply of renewable energy across towns, a regional energy community might emerge; through sharing of knowledge via online fora, a global community of hackers might emerge; and through gifting of culturally appropriate food produced by urban gardening to people in Somalia who communicate a need because of drought, an international community of care might emerge. All these examples are aimed at BHN satisfaction. However, this is not necessarily the case: through sharing of knowledge about food scarcity, a community of financial speculators that aims at the expropriation of surplus value might emerge. Hence, communities can take various shapes and roles. The anti-essentialist conception of communities reveals their potential to contribute towards STs beyond the local. However, their potential is not necessarily realized. Therefore, it is crucial to delineate parameters that can inform communal praxes for STs.

Gibson-Graham (2006: 87-97) develop a framework for negotiations for community economies. It is based on the recognition of the sociality of and interdependence between socially situated particulars (Gibson-Graham, 2006: 81-84). Because economies are always inherently socially constituted and its subjects are interdependent, it is necessary to delineate coordinates for negotiating interdependence and subjects' implication in the existence of others (Gibson-Graham, 2006: 87-88). Gibson-Graham (2006: 87-88) propose four coordinates: social necessity, the mode of appropriation and distribution of surplus, whether and how social surplus is to be produced and distributed, and production and sustenance of a commons. While I cannot develop their account fully here, it is important to note that the heart of communal practices resolve around negotiating these coordinates (Gibson-Graham, 2006: 98-99).

Sublating Global Spatialities

Degrowth scholars argue that the poverty in the GS results from exploitation by the GN. Hickel (2020: 192-194) does not believe that international trade benefits people in the GS, because wages of the poorest 60% of the global population only increase by 3% annually since 1980. Contrastingly, over the same period 46% of income increases have gone to the GN's richest 5%. Additionally, there is unequal ecological exchange between the GS and the GN to the benefit of the latter (Hickel, 2020: 110-118). Similarly, Kallis and colleagues (2015: 5) argue that the South is poor because its ecological resources are appropriated by the North and its labour exploited. Thus, the GS and the GN are constituted through exploitative relations to the benefit of the latter. Yet, Moellendorf (2022: 146-149) insists that

degrowth in the GN will harm the well-being of people in the GS and that increasing their well-being requires human development. Contra Moellendorf, Kallis and colleagues (2015: 5) argue that economic degrowth in the GN would reduce the demand for and consequently prices for raw materials and industrial goods and make them more accessible in the GS. However, this is not the point, as this framing turns degrowth only into a quantitative, economic problem and simplifies the debate (Kallis, 2018: 180).

Rather, degrowth should be pursued in the GN to open conceptual space to enable peoples in the GS to pursue alternatives *to* development (Kallis et al., 2015: 5). This perspective is inspired by post-structuralist, post-development scholarship which conceptualizes development as a discourse of Western origin which is enlisted to justify and execute the political, economic, and social production of the Third World (Escobar, 2015a: 29-30). For post-development scholars, the notion of development is integral to the constitution of places with other conditions than those of the industrialized world as underdeveloped and thus in need of economic growth through modernization. Modernization is understood as necessarily bound up with a dualistic separation of the individual from society and society from nature that is not compatible with relational epistemologies and ontologies (Escobar, 2015b: 459-460). Against development, the goal of societal transformations is, for Arturo Escobar (2015b: 460), ultimately to allow for a pluriverse of ontologies and epistemologies to co-exist. Consequently, Escobar (2015b: 456) insists that “while acknowledging the need for real improvements in people’s livelihoods, public services, and so forth, it is imperative for groups in the South to avoid endorsing growth as the basis for these improvements” and thus to reject development. If Escobar is right about the relationship between modernity and development, degrowth scholars should reject the discourse of development based on the principle of parity to ensure that people with different ontologies can meet each other as peers.

If the implications of post-development scholarships are acknowledged, it is important not to endorse a modernist conception of global space. On a modernist account, space is made up of countries as pre-given units of organization that can be ordered in temporal terms according to their development level (Massey, 1999: 6-8). There are those who already have developed along the single temporal trajectory and those who need to catch up. Recalling the Fanonian account of colonialism as imposition of a single temporality (Mbembe, 2022: 52-56), the colonial spirit of the modernist understanding of time is obvious. Moellendorf’s (2022: 74-81) exposition of development as empowerment closely resembles this understanding of space. There are those who already obtained a high human-development level through modern energy technologies and those who need to catch up with them. The vehicle through which they can catch up with developed countries is the consumption economic growth through increased energy consumption. From this perspective, economic degrowth in the GN would constitute a recession in time and an affront against the hegemonic temporality directed towards growth itself. To avoid the oppression of alternative temporalities resulting from this neocolonial understanding of space, an alternative conception of global space is needed.

From the perspective of relational ontology, the GS and the GN are only constituted as such through their relations and are open to change. The GN is constituted as such through its exploitative relations with the GS, as is the GS in turn. However, other relations can and *do* exist simultaneously. From this perspective, degrowth is a project with diverse roots that flourishes in cross-fertilization with allies that likewise have diverse roots: For example, the influential scholar Ivan Illich drew inspiration for his theories from the Indian economist Joseph Cornelius Kumarappa and his economy of permanence (Corazza and Victus, 2015: 207) while Serge Latouche drew inspiration from post-development scholarship from the GS (Escobar, 2015b: 454). Likewise, substantive articulations of Buen Vivir draw on insights from critical environmentalism and critical feminist care ethics and are thus not purely an Andean cultural project (Escobar, 2015b: 455; Gudynas, 2015: 203). Escobar (2015b: 460) goes on to envision that the difference between degrowth and postdevelopment perspectives will tend to dissolve into pluriversal perspectives. If pluriversal projects lead to different kinds of relationships, both the South and the North no longer will be the same. If these relations change, even if this is far-fetched now, the GN will no longer be the GN and the GS no longer be the GS. New spatialities will emerge. From this perspective, Moellendorf's (2022: 146-149) insistence that degrowth will harm the well-being of people in the GS does not make sense, as the relational changes degrowth entails could be an important component of sublating the GN|GS dualism. The point is to develop new relations as peers. A first step towards this might be to recognize mutual interdependence. This applies not only to philosophical cross-fertilization but also to other forms of economic transactions.

Global Communal Space

New global space can emerge through communal economic praxis. Diverse economic practices and relations can give rise to communities. Those relations are not confined to local places but can span the globe. Given my positionality, I tentatively suggest that the emergence of a global communal space is desirable.

Consider the relations of the Zapatista in Chiapas, Mexico and indigenous people from Cauca, Colombia with the *Kaffee Kollektiv Aroma Zapatista* in Hamburg, Germany.²⁰ The *Kaffee Kollektiv* in Hamburg is a coffee cooperative which takes decisions based on consensus. They engage in alternative economic practices with the coffee farmers in Chiapas and Cauca which resist so-called market laws with the explicit aim to overcome exploitative relations between GN and GS. In practice, this means paying for raw coffee far above world market and even fair-trade levels, sharing risks of production and transportation processes, visiting farmers to familiarize with their lived realities and political movements, and financial support of coffee sales in Hamburg by the political structures of Zapatistas and indigenous people. Through the hybrid of formal market exchange with reciprocal relations a global community of political coffee-producers emerges. As Gibson-Graham (2006: 74) point out, examples like these highlight the contingencies and the space for decision making in existing global

²⁰ <https://www.aroma-zapatista.de/>

economic practices. Communities deciding against the perpetuation of exploitative relations testify the possibility of “a world in which many worlds can be embraced”, to cite the well-known phrase of the Zapatista for a pluriverse of alternatives (Kothari, 2020: 248).

Consider another example of an already emerging global community. Eko is an online-platform based global community of people fighting the power of multinational corporations.²¹ The community emerges around signing petitions and economic relations of gift giving. The communities’ gifts collected from people across the globe are used to support front line communities. Exemplary is the case of the NGO Silver Rivers which fought the logging company Samling (Aliran, 2023). Silver Rivers reported on its website weak community consultation in logging concessions managed by Samling and its mishandling of community complaints. In response, Samling filed a lawsuit classified by UN special rapporteurs on the rights of indigenous peoples and human rights defenders as strategic lawsuit against public participation. More than 5800 supporters of Eko engaged in gift giving to help fund the legal costs for Silver River (Eko, personal communication, 2023). Backed by global support, Silver River reached a settlement before the trial was scheduled. As Silver Rivers’ campaign raised awareness of the case, an investigation of the Forest Stewardship Council led to Samling losing their certificate for sustainable forest-management for their Ravenscourt forest-management unit in northern Sarawak under the Malaysian Timber Certification Scheme (Aliran, 2023). This example serves to illustrate communities emerging through relations of gift giving can play a vital role in supporting front line communities in the struggle for STs.

Establishing new non-exploitative relationships would sublate the GS and the GN in the Global Communal Space. As exploitative relations between places are replaced by relations of care and communal negotiations, global space is transformed. The GN ceases being the GN and the GS ceases being the GS. This transformation happens through social learning about each other’s lived realities to enable better BHN satisfaction globally. Consequently, the new Global Communal Space contains knowledges of the reasons for its emergence and an active rejection of violent colonialist exploitative relations. The relations resulting from a degrowth practice are by no means meant to be the only relationships that exist. Other philosophies and frameworks like Buen Vivir, Ubuntu, or Zapatismo which have their own temporalities can coexist with degrowth and continue to build relations themselves. Global Communal Space attempts to continue and increase cross-fertilization between theories and praxes. Because economic relations that give rise to communities are diverse, they are not limited to one temporality directed at growth but allow for a plurality of temporalities to exist. This entails that from other perspectives the same relations might not be perceived as economic but for example as relations of kin. Through establishing non-exploitative praxes, meeting a sufficient level of BHN satisfaction globally does not require growth of the global Economy because social

²¹ <https://www.eko.org>

surplus is distributed equitably. Equitable social relations and respect for other temporalities cultivate a space in which people meet each other as peers.

Rebutting Ecomodernist Critique of Degrowth

An anti-essentialist perspective reveals theoretical possibilities to address ecomodernists' critique of degrowth. Ecomodernists argue that degrowth would not meaningfully contribute to the project of climate mitigation. However, a diverse understanding of economic relations reveals that social metabolism and its associated GHG emissions can be reduced while increasing BHN satisfaction through eliminating unnecessary production, expanding public provisioning system, and experimentation with diverse economic relations to optimize BHN satisfaction. Ecomodernists argue that innovation in so-called zero carbon technologies necessarily leads to growth of the Economy. However, a diverse understanding of economies reveals that production can be directed towards BHN satisfaction with a shrinking social metabolism while the remaining social surplus can be collectively appropriated and directed towards necessary innovation. Ecomodernists argue that degrowth in the GN will lead to increased poverty in the GS. However, an anti-essentialist understanding of space reveals that the GN and GS can be sublated into Global Communal Space in which diverse economic praxes (re)create the commons and provide care for BHNs at both the local and global scale. Because this utopian vision is far off from present conditions but nevertheless desirable from the perspective of degrowth's normative ideal, it is necessary to consider some additional ways in which these ideas can be incorporated into proposals for STs. The final chapter attempts to advance an argument in this direction by spatialising the theoretical argument about the possible role of communities and diverse economies in STs in city contexts.

Chapter 4: Sustainability Transformations of City Spaces

Cities are important sites of STs because they are globally the greatest consumers of energy and material flows (Otchere-Darko: 2023: 1318). Despite the infeasibility of green growth, dominant STs approaches of cities are premised on continued economic growth (De Castro Mazarro et al., 2023: 10; Xu, 2022: 408). Meanwhile, the engagement of degrowth scholarship with cities is limited, as it engages mostly with macroeconomic counter narratives or small-scale insurgent practices (Kaika et al., 2023: 1202). Degrowth literature that does engage with cities has been critiqued for an excessive localism, a lack of concern for larger scales (Krähmer, 2022: 339), an unfounded rejection of cities potential to contribute to STs (Xu, 2022: 406-407), and a failure to address potential socio-spatial tensions resulting from degrowth transformations (Kębłowski, 2023: 1252). Therefore, in this final chapter I focus on cities in the GN to contribute to the emerging literature on degrowth in city contexts. In line with the approach proposed by Karl Krähmer (2022: 338-341), I use *city place* to denote specific cities where global material and power relations meet and *city spaces* to denote the material and immaterial relations that connect, contain, and shape different places.

I draw primarily on the recent special issue in *Urban Studies* that aims to establish a dialogue between degrowth and critical urban scholarship (Kaika et al., 2023: 1192-1193). I engage with issues of scaling-up degrowth proposals for cities without co-optation and the recognition of potential uneven and unequal degrowth outcomes across places (Kaika et al., 2023: 1192-1193). Critical approaches to urban studies highlight cities' complex social and spatial processes of political contestation that can either reproduce or subvert intersecting forms of oppression and are particularly promising from a degrowth perspective, as they go beyond technocratic considerations of environmental problems (Kębłowski et al., 2022: 76-77). The plethora of sustainability problems relating to city spaces is too broad to do justice to all its complexity here. Hence, I focus on the issues of transportation and housing discussed in the special issue. I engage with city contexts from the perspective of a degrowth scholar and economic geography to concretize the rather abstract proposals for a diverse community economies and global communal space of Chapter 3. I use the concepts developed in Chapter 3 to identify already existing practices of diverse economies and communal economic practices and to envision how these could be scaled-out to other practices and scaled-up to the global. The examples are largely drawn from cities in Western Europe and might not be as feasible in other countries of the GN such as in the United States or Australia because of differences in city design and existing infrastructures.

I aim to illustrate potential roles diverse economies and communities – rooted in social movements and heterogeneous constituencies and interests – can play in enlarging transformative potentials of society as a whole (Wright, 2010: 303-307). The strategy behind my approach is based on building counterhegemonic institutions and engaging in symbiotic relationships with state power to increase the potential of such institutions wherever possible without co-optation. I highlight their potential for offering alternative subjectivities to and transforming hegemonic economic subjects,

lowering the dependence on and thus the material interest linked to growth-oriented economies, and potentials for influencing institutional rules to create more favourable conditions for these efforts (Wright, 2010: 281-287). I discuss how *existing* diverse and community economies can complement and inspire degrowth practices and proposals for urban STs in the GN. Then, I imagine how diverse community economies in cities in the GN could contribute to building a global communal space.

Diverse Community Economies in Cities of the Global North

Fare-free Public Transport

Degrowth scholarship on transportation in cities has paid little attention to intersecting forms of oppression of class, race, gender, age (Kębłowski, 2023 1252-1254). Degrowth scholars have primarily focused on the role of automobiles in societal dependencies on fossil fuels, and hence in fuelling climate change, and its imprint on infrastructure. In city contexts, this critique has been translated into proposals for dense cities which shift from privatised, car dependent transportation to public transport and other low-carbon modes of mobility like walking and cycling. However, degrowth scholars neglect how such proposals can exacerbate existing socio-spatial inequalities. To avoid this neglect, I approach transportation in cities from a critical perspective that embeds it in social and political structures and understands it as a vehicle for urban governance agendas (Kębłowski, 2023 1254-1255). Accordingly, city mobility degrowth can be defined as justly increasing human well-being while reducing the total throughput of urban mobility. A critical perspective reveals fare-free public transport (FFPT) as a potential diverse economic practice to advance urban sustainability transformation depending on its form and context of implementation.

Public transportation systems are more environmentally sustainable. GHG emissions of the transportation sector, as a whole, have doubled between 1970 and 2010, with 80% of the increase attributed to road vehicles, with the sector being responsible for 23% of total carbon emissions (Ho and Tirachini, 2024:161). Expanding public transportation essentially means minimizing the number of vehicles used for transportation (Verma, 2023: 3) because metro, rail, and bus transport are the most efficient means of transportation in terms of passengers carried per unit and the time a vehicle is in use once built (Ho and Tirachini, 2024: 162-163). Accordingly, public transportation reduces the energy demand and air pollution per passenger (Vandycke, 2023: 14). Because the total number of required vehicles is reduced, fleet electrification becomes more feasible (Vandycke, 2023: 14) and thus enables faster reductions in carbon emissions and total pressure on extraction sites. The reduced total energy demand decreases the total capacity of renewable-energy infrastructure needed. Reduced air pollution decreases crop size and biodiversity loss through acidifying substances and eutrophication as well as the damage to city building stock through chemical processes (Becker et al., 2012:19). Yet, public transportation use in many large cities around the world is declining (Vandycke, 2023: 15-16).

Decommodifying public transport by removing fare-fees almost certainly results in a significant ridership increase, independent of location of implementation (Kębłowski, 2023 1257). The

two cases in cities in the GN discussed by Wojciech Kębłowski (2023: 1257-1258) let to increases in annual passenger numbers from 1.9 million to 4.48 million, to 5.5 million with the construction of an additional tram line, to 6.57 million after another 4 years, in Aubagne (France); and increases from 133.923 million to 142.675 million passengers within one year in Tallin (Estonia) and a stunning increase from 160 thousand to 1.67 million passengers within one year after trains starting or ending their journey within the city's borders have been incorporated into the scheme. Of the passengers surveyed by Aubagne's municipality who indicated traveling by public transport only after its decommodification, 50% previously used private cars or motorcycles and 20% started traveling with public transport because fees were removed. Yet, 61% of passengers continued to utilize private cars. In Tallin, about 10% of previous car users shifted to public transport after decommodification. The results reveal FFPT's potential to significantly reduce social metabolism and climate impacts of transportation in cities by increasing use of public transportation.

Considering broader socio-political contexts surrounding the introduction of FFPT is crucial to determine how it can be implemented justly. This can be illustrated through a comparison of the context in which FFPT has been introduced in Aubagne and Tallin (Kębłowski, 2023: 1255, 1258-1259). When FFPT was established in Aubagne, it was the biggest municipality of an agglomeration of 12 municipalities with unequal size and political influence. Instead of reflecting the inequality, the FFPT project was explicitly designed to combat it as a wider project of municipal solidarity and inclusion through unconditional access. Connecting the urban core with suburban settlements let to an integration of the (youth) populations across municipalities. In sharp contrast, problematically, the FFPT program in Tallin was characterized by inter-territorial competition through limiting access to formally registered residents. The requirement of formal registration in Tallin reinforced structural inequalities between Estonia's municipalities resulting from tax allocation of €1600 to municipal governments per official residents. Because Estonian citizens did easily change their registered address to Tallin through an unverified online system, within three years the city gained 25000 new official residents equalling draining €40 million from the budget of other municipalities which was used to fund Tallin's public transportation system. Yet, even under problematic conditions, the introduction of FFPT for registered Tallin residents resulted in higher mobility of underprivileged social groups who previously could not afford public transport, ranging from increase of 17%-32% for the unemployed, pensioners, and inhabitants on parental home leave.

Interpreted through the concepts developed in Chapter 3, FFPT is part of a diverse economy. Public means of transportation are provided for free and outside of marketized relations. While privatized ownership of cars is often seen as an important means to access more opportunities and services (Vandycke, 2023: 16), improved mobility through FFPT might change this belief and the associated subjectivity. In turn, this might create spill-over effects for beliefs for other means of public provisioning. The shared form of transportation enables a reduction in social metabolism while making transportation effectively a public good and improving access to public areas for those who

could previously not afford access. Therefore, FFPT can constitute a way of transportation degrowth. However, the case of Tallin cautions that any implementation of diverse economic practices adjacent to growth-driven competitive practices needs to consider existing forms of inequalities to prevent negative side effects. Furthermore, FFPT is dependent on tax money appropriated by the state. While taxing schemes can have redistributive function, they are still dependent on growth-oriented markets to sustain tax revenues. To create favourable conditions for FFPT, Municipalities interested in implementing FFPT might form networks to pressure national governments to shift growth dependent taxation of income to taxation of accumulated wealth (Raworth, 2022: 276-277). FFPT should thus be considered as part of a wider policy package. Alternatively, community economies might provide a way to circumvent FFPT's dependence on market relations. Drawing inspiration from this case, and other existing practices of transportation, proposals for such community economies can be derived.

The Potential of Emerging Transportation Communities

Communities could form to meet demand for FFPT where the violent state prevents its implementation. FFPT exists in nearly 300 locations worldwide (Kębłowski, 2023: 1251). While promising, this number pales in comparison to places in which violent state apparatuses criminalize conditions of poverty by attaching egregious fines or even prison sentences to travel without paying. Hence, communities might establish their own bus lines offering redistributive public transportation services. Inspiration can be drawn from Solibus e.V., a non-profit association in Berlin, Germany.²² The association's purpose is to enable the participation in political or cultural events or activities of persons discriminated against for political, sexist, racist, or ableist reasons while reducing individualised transportation to contribute to climate mitigation and environmental protection (Solibus e.V., 2019: 1-2). This purpose manifests in the provision of a bus service suited for differently abled people. Bus drivers, mechanics, and other personnel volunteer their time. Running costs and bus trips are financed through donations. Passengers can determine themselves how much they can afford to pay. This is an active process of redistribution because wealthier passengers cover costs for those who could not afford bus rides otherwise. The details are negotiated by the passengers and Solibus e.V.. Therefore, Solibus e.V. can be seen as a community emerging through volunteering, gift giving, and sharing which engages in communal negotiations about the (re)distribution of social surplus among community members. The practices of Solibus e.V. offer a variety of subject positions that provide meaningful alternatives for hegemonic economic subjectivity. Furthermore, such practices are desirable because they enable satisfaction of autonomy needs – in the sense of providing social interaction– and works towards conditions of social parity.

Similar ideas might be adopted in city contexts. Self-managed transportation communities are particularly promising for city spaces characterised by socio-economically entanglement of multiple municipalities like in the case of Aubagne but lacking FFPT. Additionally, self-managed, accessible, and (re)distributive transportation could complement, and in the long-term replace, public

²² <https://www.soli-bus.org/support-english/>

transportation in cities with specialised bus lanes like Enschede or Frankfurt am Main (Germany). In these cities, public transportation is faster than individualised transportation, particularly during peak demand hours, but high costs make it unaffordable for underprivileged classes. Communities might engage in negotiations with local municipalities and demand access to bus lanes and public funding. They might even use trailers for heavier cargo and become a viable option for cargo transport for those who cannot afford individualised cars, as self-managed busses are not rigidly bound to fixed bus lanes when meeting needs of community members requires deviating from plans. Such transportation communities reduce the dependence of growth-oriented markets and offer a variety of counter-hegemonic subject positions. Simultaneously, the environmental benefits for public transport discussed above apply as well because buses are among the most efficient modes of transportation (Ho and Tirachini, 2024: 162-163).

To illustrate the economic potential of transportation community city spaces in the GN, consider the following. In Germany, a person with an average salary of €64,531 annually taxed at 40%, and average costs for car maintenance and ownership of €8,985 annually, spends almost a full three months of income on their car.²³ This means in Germany, on average, almost three months could be freed for each car owner living in cities to engage in work in transportation communities to ensure meeting city dwellers' transportation needs. The operation of sufficient public transport would hardly require two months' work of every person who owns a privatised car at present, as there would be far fewer vehicles to drive. In turn, time would be freed to engage in other communal activities directed at care for BHNs. Alternatively, additional social surplus could be directed at scientific innovation for energy transitions without growing total economic output. Therefore, establishing expansive networks of transport communities could feasibly reduce community subjects' dependence on growth-oriented markets while freeing economic assets for innovations and reducing cities' social metabolism.

Finally, localism might be overcome in the context of transportation. Self-managed bus communities might replace for-profit intercity bus transport such as offered by FlixBus.²⁴ Inspired by Solibus e.V., they might engage in redistribution of surplus across cities, potentially across national

²³ Data on car ownership costs at 2018 rate retrieved from the consultancy LeasePlan Corporation N.V. via ><https://www.leaseplan.com/-/media/leaseplan-digital/gr/public-pages/documents/car-cost-index.pdf><; Income data retrieved from the OECD via ><https://data.oecd.org/germany.htm><; US dollar converted to Euro at January 2024 rate using a calculator tool from Forbes advisor via > <https://www.forbes.com/advisor/money-transfer/currency-converter/usd-eur/?amount=70.31><; data adjusted for inflation using inflation data from Statista retrieved via ><https://www.statista.com/statistics/267908/inflation-rate-in-eu-and-euro-area/><; Tax rate data retrieved from Worldwide Tax Summaries via ><https://taxsummaries.pwc.com/germany/individual/taxes-on-personal-income/>< (Sources Accessed January 21, 2024). Values in € rounded to full numbers. Notice that Germany has car maintenance costs roughly at European average and income above European average. Note also that considering average income means that many people earn less per month.

²⁴ <https://www.flixbus.com/>

boundaries. Furthermore, Self-managed bus communities might form wider communities through processes of federation (Savini, 2023: 1237). The idea of federation is discussed in more detail in the next section in the context of housing.

Housing Communities

Any degrowth approach to cities must deal with the question of how to (re)organise housing. Under the hegemonic developmentalism, city housing is a central element of economic growth through rising house prices and rents, house construction, and moving (Tunstall, 2023: 1287). For financial capitalism, city housing has been a main site of new enclosure that increased the costs of individual security need satisfaction for the underprivileged classes (Hodkinson, 2012: 509-514). From an ecological perspective, building, maintenance, and demolition of houses are major contributors to climate change through carbon emissions and biodiversity loss through habitat destruction (Tunstall, 2023: 1287). Slightly adapting the definition offered by Rebecca Tunstall (2023:1290) to address the negative trends of city housing, housing degrowth should aim at justly increasing human well-being while reducing the total material throughput of housing production and use. In line with proposals to combat the negative impacts of privatised housing markets through (re)commoning (Hodkinson, 2012: 514-516), most degrowth scholarship has focused on alternative modes of living such as co-housing (Savini, 2023: 1233; Tunstall, 2023: 1289).

Federico Savini (2023) offers an account of a co-housing project in Amsterdam and how it could potentially be scaled up and protected from re-enclosure through practices of federation. The co-housing project in Amsterdam whose name translates into *the new commons* (TNC) seeks to build 35 affordable and decommodified housing units in line with principles of low impact living, sufficiency, sharing, and conviviality (Savini, 2023: 1238). Conviviality means shared use of technologies in ways that do not rely on experts for their production and maintenance (Deriu, 2015: 79). The 35 living units are situated on a plot of 2000 m² including a courtyard open to non-residents; are organised into five collective living groups with four to eight residents on floors of 200 m²; 15 independent social housing units available to people with low-income; one housing unit dedicated to undocumented migrants; and a ground floor with facilities such as a dining space and a library; and 360 m² of non-residential space dedicated to various collectives (Savini, 2023: 1239). The estate was obtained through collaboration with Amsterdam's municipality by responding to a public tender to pilot co-housing projects. TNC has been set up as collectively owned explicitly to combat the limited choice of Amsterdam's residents between long-term indebtedness to access privatised property markets and long-term waiting for affordable social housing. Moreover, it aims to influence the city's housing policy (Savini, 2023: 1238-140). The projects' refusal of available options should thus be understood as an attempt to work within existing institutions against those institutions (Savini, 2023: 135).

TNC is a prime example of an emerging community economy. TNC develops a form of housing premised on relations of sharing (Salvini, 2023: 1238-1239). Dwellers share living spaces, facilities, resources involved in housing provision, and time dedicated to *care taking* and *care giving*

instead of wage labour. Dwellers' care work includes building and maintaining the estate, relations between people, and essential services. Furthermore, TNC established several working groups to tackle issues such as finance, law, or media. TNC takes decisions based on deliberation and consensus in several fora (Savini, 2023:1241). Amongst other topics, these fora deliberate on questions such as insuring inclusive access to the commons and surplus appropriation and distribution (Savini, 2023:1239, 1241-1242). TNC can thus be interpreted as communities emerging around relationships of sharing, care, and collective decision-making. The participation in TNC and associated collectives offer ample opportunities, including for non-residents, for decreasing dependencies on growth-oriented markets and forming counterhegemonic subjectivities.

From an ecological perspective, building new housing co-operatives can be sustainable depending on energy efficiency and materials used. Kallis (2015) advocates a stop to new building construction instead optimising the use of existing housing stock. However, at least when it comes to energy use, replacing existing old houses with more energy efficient ones leads to a net reduction over the whole live cycle, as house use makes up the largest share of total energy consumption (Tunstall, 2023: 1298). In turn, energy consumption is linked to further material requirements related to energy transitions. While urban scholars argue for building smaller houses, they do so under the assumption of decreasing household size (Stefánsdóttir and Xue, 2018). However, co-housing increases household size. Instead of total house size, consider the so-called environmental performance of buildings (EPB) which summarizes environmental costs per gross floor area derived from energy consumption and building materials (Oorshot and Asselbergs, 2021: 4). Recall that TNC is built on principles of low impact living (Savini, 2023: 1238). Low impact living is a way of building which utilizes materials associated with low environmental pressures and local non-fossil energy-sources (Dale et al., 2018). TNC is built considering lifecycle of building materials. Its loadbearing structure is built from wood which stores carbon and is built as much as possible with dry systems which reduce environmental impact related to building deconstruction.²⁵ Energy neutrality is attained by using photovoltaic and heat pump technologies. Overall, the building has an EPB of 0.45 which compares favourably to Amsterdam's present target EPB of 0.8 for new buildings and the prospective target of 0.5 for new buildings by 2030 (Oorshot and Asselbergs, 2021: 17).²⁶ Therefore, TNC's construction of new facilities is plausibly environmentally sustainable.

Housing collectives like TNC can overcome localism and protect themselves against re-enclosure through federation. Federation is a practice that allows multiple commons to be structurally coupled and expand commoning through new interdependencies (Savini, 2023: 1237). Federations are alternative institutions that enable various commons to sustain each other through gift-giving practices and sharing of power. Existing examples of federative practices of housing collectives demonstrate its

²⁵ <https://nieuwemeent.nl/en/gebouw/>

²⁶ TNC's EPB is retrieved from their website (Accessed January 22, 2024). The EPB targets of Amsterdam were set after signing the 'Green New Deal Timber Construction' following COP 26. See Oorshot and Asselbergs, 2021: 17) and <https://www.ams-institute.org/news/signed-and-sealed-green-deal-timber-construction/>

feasibility (Savini, 2023: 1237-1238). Examples include the Mietshäusersyndikat (Germany), Habitat federation of cooperatives (Austria), and VrijCoop (the Netherlands). These federations built structural independencies by means of co-ownership. Each co-operative housing project is co-owner of half of each other estate. Co-ownership provides a measure of protection against re-enclosure through the violent state or market pressures (Savini, 2023: 1237). Additionally, federated housing-communities built synergies with other housing communities through sharing of skills and knowledge and building networks to pressure the existing institutional environment through political struggle demanding more favourable conditions for commoning practices (Savini, 2023: 1243). Federations are, thus, broader communities beyond the local based on relations of sharing and gift giving.

Federation can link a commons with other fields of action (Savini, 2023: 1237). Housing communities could establish synergies with food producing communities engaged in urban gardening (Anguelovski, 2015: 192). TNC's sharing of space with food collectives already hints in such a direction. Collaboration could be extended by providing space to food preparing communities like the *I€ Soli Essen*, which biweekly provides healthy vegan food for one Euro at Münster's (Germany) central station and donates the revenue to causes supported by the community.²⁷ Furthermore, housing communities owning large estates could engage with transportation communities inspired by Solibus e.V. and provide free parking space for their busses. Through negotiations co-ownership might be extended to secure busses against enclosure in federated structures. Emerging multi-sectorial communities could unite to politically demand favourable conditions for commoning from non-local governments, for example by demanding exception from the European Union's competition law which currently applies to non-profit undertakings (Schweighauser, 2020: 6). With every sector taken care of additional synergies can be created and BHN satisfaction, particularly for the underprivileged, is liberated from privatised property relations in the spirit of radical incrementalism (Anantharaman et al., 2023: 1281).

Alternative-Mainstream Housing Hybrids

Thus far, only alternative forms of housing have been considered but there are several problems with relying on co-housing as the only strategy for housing degrowth. Co-housing projects face numerous financial, legal, and cultural barriers to form and expand (Tunstall, 2023: 1289). They might not be easily accessible to the whole population, because of the money, skills, time, and persistence that this social innovation often requires. Forms of co-operative housing only make up one percent of total households in the UK (Tunstall, 2023: 1290) and it is not far-fetched to extrapolate similar numbers for most cities in the GN. The remaining 99% of households are either privatised property or rented from landlords. Clearly, a complementary strategy for privatized housing is needed.

A hybrid between co-housing and mainstream housing arrangements might be created. Inspiration can be drawn from community land trusts (CLTs), an institutional arrangement stemming from the Black Power movements (DeFilippis et al., 2019: 797). CLTs are based on the idea of sharing

²⁷ <https://ms-alternativ.de/node/3607>

equity where ownership rights are separated from the land on which they sit to combat gentrification by taking property out of competitive markets (Williams: 2018: 461-462). Houses on the land are individually bought and sold at reduced prices and subjected to restrictions, for example on use. Next to offering housing space, such arrangements are used to run neighbourhood community centres (Williams: 2018: 462-463). CTLs are used to coordinate and enable a neighbourhood's sharing of equipment based on informal agreements or take the form of a formally institutionalised NGO. Inspired by CLTs that serve as an institutional structure for land ownership and coordination, imagine the following for cities like Enschede or Dortmund, largely consisting of sub-urbs of terraced or semi-detached houses with gardens separated by fences: For such places, per block or street one or two houses might be converted into a commons via CLT. These common houses might contain a room for storage of gardening equipment, an industrial kitchen, a dining room, a living room, a room for repair equipment, and a library. Sharing this equipment across streets would remove the need to buy privatised equipment. This is in sharp contrast to individualised living arrangements in which most households own such equipment redundantly. Privatized gardening and special kitchen equipment are idle most of the time. By analogy to shared modes of transportation (Ho and Tirachini, 2024: 162-163), increasing the number of users and time of use of a unit of shared equipment makes them more ecologically efficient, if designed for durability to make up for intensified use (Hickel, 2020: 209-212). This way houses accessible to community members would enable reductions of material throughput of their streets without reducing BHN satisfaction by facilitating sharing of equipment. Furthermore, the relatively poor residents in these streets would probably acquire more choices for BHN satisfaction. Community houses, therefore, advance a practice of urban degrowth. The experience of sharing equipment and common space - and negotiations around usership necessarily emerging around them - would enable the formation of new subjectivities for the emerging community of sharers.

Municipalities and spatial planners might initiate the emergence of hybrid housing communities (Otchere-Darko, 2023: 1322-1323). Municipalities operating CLTs exist (Williams, 2018: 460). Municipalities could identify neighbourhoods interested in establishing hybrid forms of housing. They can buy land and houses in those streets and make them available to neighbourhood inhabitants as living spaces or community centres. Municipalities can establish a classic CLT board in which local community members hold two-thirds of seats (DeFilippis et al., 2019: 796) and hire a full-time employee acting as a community organizer to facilitate residents' participation in decision making (William, 2018: 463, 467). Once pilot projects are established, municipalities could, with communities' consent invite other citizens to inspect the facilities and offer to establish similar houses in neighbourhoods with sufficient interest. To prevent increasing spatial inequalities, municipalities should pursue similar practices in disadvantaged places and turn apartments in multi-storage buildings into community centres. Furthermore, municipalities can combat gentrification resulting from commoning by buying available real estate, integrating them into the CLT, and selling the house at a

reduced price, attaching restrictions regarding household income and the amount of equity individual homeowners can gain from selling (Williams, 2018: 461-462). Additionally, they can expropriate big housing corporations. Expropriation of Vonovia was favoured in a 2021 referendum by 56.4% of voters in Berlin (Gislam, 2021). 45% of rent paid by Vonovia's renters was directly transferred to the company's shareholders as dividend (Unger, 2022: 5). From a degrowth perspective the power difference between shareholders and renters can ethically justify social expropriation because expropriation is conducive to conditions of social equality. After expropriation, they should integrate the real estate into their CLT. Other municipalities might conduct similar referenda to legitimise social expropriation politically.

Emerging hybrid housing, co-housing communities, and municipalities might cooperate to overcome localism. CLTs spanning multiple cities exist (Williams, 2018: 463). Depending on community members' preferences, municipalities might integrate their CLTs. Furthermore, over the long-term, various actors across cities might cooperate by replacing broken equipment with standardized versions. Standardization can facilitate reparability through exchangeable parts and recycling of equipment. The collective demand from communities and municipalities makes worker-owned cooperatives taking care of and giving care for the production and maintenance of common equipment viable. To prevent co-optation of the degrowth agenda and communities' sharing practices when cooperating with municipalities, co-housing communities should set clear goals and terms for collaboration and identify planners and municipal officials interested in changing existing frameworks to accommodate their more radical agenda (Druijff and Kaika, 2021: 2204-2205; Kaika et al., 2023: 1203).

Global Communal City Spaces

Thus far, I have mainly concentrated on possibilities for STs in city places, but problems and opportunities related to STs become much broader when considering city spaces. Consumption of resources in services in cities are linked to environmental pressures in extraction places and production (Hoorweg et al., 2016: 571-573). At present, cities spaces are characterised by highly exploitative relations between the GN and the GS to the detriment of the latter (Brand, 2020: 36-37). Consequently, degrowth transformations of cities in the GN must entail a change of those exploitative relations into relations of solidarity with other places (Brand, 2020: 38). Yet, these relations have been scarcely considered in degrowth scholarship on cities. I do not claim that my proposals are sufficient to change these relations completely. Rather, I want to highlight some ways in which communities can play a role in changing city spaces in the spirit of radical incrementalism (Anantharaman et al., 2023: 1281).

Transportation communities could redistribute surplus value to mining communities. Even if transportation communities can reduce the total number of vehicles needed to meet transportation needs in cities of the GN, the buses these communities operate need to run on electricity to effectively

address the climate crisis (Moellendorf, 2022: 143-145). The production of lithium-ion batteries required for e-vehicles requires mining of several rare earth minerals. While the reduced need for minerals will on the mid-term reduce the environmental degradation around mining sites and enable recovery of nature's contributions to people, in the short-term mining communities might suffer from reduction in revenue streams (Moellendorf, 2022: 146-149). Despite the net drain of financial resources from the GS to the GN (Hickel, 2020: 192-194), declining revenues might adversely affect BHN satisfaction of mining communities, already compromised through mining operations. To smooth the transition, transportation communities might enable their members to voluntarily donate an amount of money determined through their monthly income. As community members reduce their required income by almost three months of their annual salary by abandoning privatised transportation, available revenue would be considerable. Transportation communities should closely involve mining communities and consider their needs as peers. This means engaging in negotiations with mining communities who should be able to identify unmet needs and culturally appropriate ways of meeting them, either in value or commodity form, to determine recommended donation rates. Such a praxis of gift giving combined with negotiations about surplus distribution would constitute a global communal city space.

Housing communities can contribute to addressing structural knowledge inequalities. Despite informal independence from former colonizers, DRC is still dependent on Belgium because of knowledge inequalities (van den Borre, 2023). After decolonisation, Belgian engineering experts stayed within the country, as they had their livelihoods established there. To end knowledge dependencies, DRC's post-colonial government undertook efforts to replace these engineers with Congolese experts. However, the replacement rate was too slow, as the governments' training program from the 1960s to the 1970s trained merely 7 engineers every 5 years. This left DRC with a proportion of 95% Belgian and merely 5% Congolese engineers.²⁸ To contribute to changing post-colonial relationships of dependency, housing communities or CLTs might offer housing units to students from formerly colonised countries without requiring rent. Housing communities should consult the communities they intent to support to determine the studies eligible for free (co-)housing. Over the long term, such praxes could significantly address knowledge inequalities and contribute to ending post-colonial countries' dependence on their former colonisers. This praxis would effectively turn co-housing into a globally re-distributive praxis of global communal city space.

Thus, city communities can play a role in changing exploitative relations between the GN and the GS. While the two examples provided above cannot undue colonial harm, they would constitute a step in the right direction of creating different relations. Emerging global communities could contribute to preventing a degrowth transition in cities in the GN from leading to exacerbated poverty in places in the GS dependent on financial flows and over the long-term address knowledge

²⁸ These developments not only apply to DRC but can also be observed in other post-colonial countries like Ghana where the juridical system is still dependent on British judges.

inequalities. Degrowth scholarship on communities has been critiqued for excessive localism. However, these examples serve to illustrate that, once established, communities in cities in the GN could be extended through alternative economic relations and negotiations to create new city spaces not characterized by exploitative relations. Each additional global community established through similar practices would contribute to re-making global space in the spirit of radical incrementalism (Anantharaman et al., 2023: 1281) and eventually sublimate the GN and the GS into a global communal space.

Conclusion

The initial research questions can now be answered. Communities should contribute to reducing total social metabolism by developing diverse provisioning systems improving BHN satisfaction, and in so doing, contribute to reshaping global relations. Cities in the GN and emerging communities situated there can play a significant role in STs on multiple scales.

Proponents of green growth and degrowth alike subscribe to some version of sufficientarianism. Sufficientarian requirements of justice are violated through the pursuit of alleged green growth because environmental destruction at extraction sites of rare-earth minerals crucial for energy transitions harm the well-being of local populations. This observation holds true irrespective of the conceptualisation of well-being in terms of human development or BHNs. The well-being of populations at extraction sites located in the GS does not increase through economic growth in the GN driven by the development of renewable energy-sources and their required infrastructure. On the contrary, so-called green growth shifts environmental problems from climate change to biodiversity loss, land conversion, and water pollution, and shifts the costs of these environmental impacts to extraction sites. Consequently, the well-being of populations at the extraction sites suffers. Through economic growth, this process is bound to exacerbate due to diminishing returns of rare-earth mineral mining combined with rising energy demand. Therefore, a reduction in total metabolism, particularly in the GN, is required to stop and counteract this process by reducing demand for rare-earth materials and allowing ecological recovery that increases nature's contributions to people.

Social metabolism can be reduced through changing from inefficient privatised provisioning systems to public and diverse forms of provisioning systems. This process will probably reduce total economic output. Ensuring sufficient well-being without a growing economy requires rejecting and addressing exploitative racial, gender, and class relations, as is advocated by proponents of degrowth guided by an egalitarian position on social justice. Diversification of provisioning systems allows for the optimisation of well-being through redistribution of social surplus value and experimentation in specific contexts.

Communities have a crucial role to play in the diversification of provisioning systems. If conceptualised from an anti-essentialist perspective, communities are entities emerging through economic relations between persons. The characteristics of communities depend on the kind of economic relations its members engage in. Diverse economies thus give rise to communities which enact diverse forms of economic relations. Communities can form the basis of diverse provisioning systems with reduced social metabolism. They offer the source for a variety of counterhegemonic subjectivities. As the scale of communities is not predetermined, communities might span the globe and connect different places. This enables the redistribution of surplus to advance conditions of parity and change global relations of exploitation until a truly global communal space is constituted.

Cities in the GN have a vital role to play in this process by justly establishing diverse provisioning systems with lower total social metabolism that alleviates pressures on ecosystems in the GS. These

provisioning systems can be constructed through emerging communities inspired by existing practices and municipalities willing to accommodate a diverse degrowth agenda in their frameworks. Such provisioning systems reduce the dependence on growth-based economies. Communities can scale up their operations through processes of federation that connect multiple communities while protecting their commons from re-enclosure. City communities in the transportation sector can reduce demand for rare-earth minerals and free social surplus value that can be redistributed to the extraction sites to increase BHNs satisfaction in consolidation with the local population. Housing communities and CLTs can contribute to reducing global knowledge inequalities by reducing total study costs for students from former colonised countries. This way city communities can contribute to changing global relations to establish global communal city spaces.

I contribute to the ecological economics and economic geography literature by answering Krähler's (2022: 317) call to highlight the spatial dimensions of degrowth. Thereby, I advance the debate between proponents of ecomodernism and degrowth by spatialising so-called green growth and demonstrating that it cannot lead to sufficient human development globally but has detrimental consequences at extraction places. Furthermore, by decentring the hegemonic conception of the Economy and explicitly embracing a diverse conception of economies I advance an argument supporting the feasibility of degrowth theoretically and empirically. A diverse conception of economies reveals how total social metabolism can be reduced while simultaneously increasing human well-being. It reveals the potential of community economies for providing alternative forms of provisioning. Although not indisputably demonstrating degrowth's feasibility, I advance an argument demonstrating the potential of a transformation strategy in cities of the GN based on building counterhegemonic institutions and engaging in symbiotic relationships with state power to increase the potential of such institutions wherever possible without co-optation (Wright, 2010: 303-307). I highlight existing practices as offering potential for alternative subjectivities to and ability to transform hegemonic economic subjects, lowering the dependence on and thus the material interest linked to growth-oriented economies, whilst shedding light on potential to influence institutional rules creating more favourable conditions for these efforts (Wright, 2010: 281-287). I illustrate how such a strategy can surpass the local scale, developing to the regional and, ultimately, the global scale, in turn coalescing into a global communal space which might one day sublate the North|South binary. Consequently, I contribute to the emerging dialogue between the urban studies and degrowth literatures by reconceptualizing recent expositions of degrowth practices in city spaces as diverse economic practices, illustrating how these could be supplemented by community economies and scale-out to other practices, scaling-up to larger scales, and integrating them into a common transformative strategy.

On a metatheoretical level, my thesis accentuates a fundamental difference in perspective between ecomodernist and some currents of degrowth scholarship. Ecomodernists are driven by urgency, particularly by the urgency to mitigate climate change. This leads them to concentrate narrowly on this

issue, proposing solutions without adequately considering potential side effects that perpetuate colonial harms. The indigenous philosopher Kyle Whyte (2021) has analysed this way of knowing the world as *crisis epistemology*, a way of knowing the world in a way that characterises something as threatening the present and derives from this claims about urgency. Urgency, in turn, serves to justify (continued) relational harms. From this perspective, my proposals for action might seem unrealistic because they do not seem to address the urgency of climate change. Indeed, despite rooting my proposals in existing practices, I have not been able to demonstrate how these could be scaled-up and lead to a full societal transformation in the required timeframe, especially at the global level. However, this is seen differently from the perspective of what Whyte (2021) calls *epistemologies of coordination* which organize knowledge through (kinship) relationships. This perspective responds to crisis nonetheless, but it does so in a way that calls attention to the impacts of the crisis response on the quality of relations. From this perspective, I have advanced an argument identifying harmful relations and proposing ways to replace them with other, peer relations, in a timeframe that it takes to develop them. Such new relations might improve the lives of those who embrace them while building capacities to duly respond to the polycrisis of the 21st century whilst continuing building relations of care.

Practically, this exercise reveals that it is crucial to think about economies in a way that enables reducing ecological pressures while improving human well-being, both in the GN and the GS. Policy makers would be well-advised to diversify their view of the Economy to enable a shift in paradigm from economic growth to diverse provisioning systems aiming at BHN satisfaction in addressing the 21st century polycrisis. At the city level, policymakers should take the reality and potential of diverse economic practices seriously. They should identify local practices of care provisioning, for example the *I€ Soli Essen*, and provide them with facilities that enable them to develop their practices further. They should respect their goals and terms for collaboration and try to adjust their governance frameworks to caring for communities' needs (Druijff and Kaika, 2021: 2204-2205). Furthermore, they should put into practice proposals for FFPT, possibly community-led, and CLT-based housing and community centres to reduce dependence on market forces and increase the scope for further transformations. They should experiment with ways to distribute surplus value to scientist developing energy transition innovations. Finally, they should build new relations as peers with community representatives in cities like Kolwezi, to inquire into ways of counteracting post-colonial dependencies, for example through free housing on CLTs for engineering students.

Due to my positionality, I have limited my discussion to cities in the GN. While this prevents me from making undue universalising claims about cities, it lacks engagement with cities in the GS. Future research might remedy this omission by using ethnographic methods to analyse diverse economic practices of *and with* economic communities in the GS to understand their potential for STs and synergies with communities in the GN. There are ample possibilities for such research, from the Zapatista communities in Chiapas to the Landless Workers Movement in Brazil. Such research might

establish differences and similarities between practices in different contexts and enable mutual learning. Furthermore, it could identify existing relations between alternative economic practices that already span the globe, like the Zapatista coffee sold in the *Kaffee Kollektiv Aroma Zapatista*. Documenting such practices might add further thrust to the argument developed in this thesis. Relatedly, while I think my claims about possible reductions in social metabolism through diverse economic practices are well-grounded in academic literature, the extent to which communal practices actually reduce total social metabolism and the scope for their practices requires thorough empirical research. Future research might use life-cycle analysis or related research methods to compare different transportation or housing provision systems to determine their full potential to address ecological crises. Furthermore, future research is needed to strengthen the theoretical basis of degrowth's normative ideal. I have started to sketch the relation between several important moral and political concepts frequently used in the degrowth literature: sufficiency, exploitation and expropriation, oppression, social justice, anti-coloniality, and care. However, the degrowth literature is vast and several important concepts are missing in my discussion, for examples autonomy, conviviality, and non-anthropocentrism. Dedicatedly philosophical research is needed to develop an encompassing normative framework that can bring these ideas together and defend its desirability as a basis for emancipatory struggles. Finally, further research on transformation strategies for degrowth is needed. I briefly outlined a transformation strategy that can inform communal and municipal practices. However, to develop this strategy to an extent that does justice to the complexities of the societal reproduction of growth societies (Wright, 2010), as well as complexities of the 21st century – the polycrisis, reactionary right-wing backlash, shifting geopolitical balance of power, and rapid development of artificial intelligence – requires a full-fledged research program. Such research could combine approaches from critical theory, political theory, social movement theory, human geography, and political anthropology to flesh out a transformative strategy that can maneuverer present contingencies to guide emancipatory struggles for degrowth.

Sources

Aliran (2023) Astonishing outcome! Timber giant withdraws lawsuit against indigenous forest defenders. Aliran, September 18. Available from > <https://aliran.com/civil-society-voices/timber-giant-samling-withdraws-lawsuit-against-indigenous-forest-defenders>< (Accessed 02 January, 2024)

Anantharaman, M., Sahakian, M., and Saloma, C. (2023) Spatialising degrowth in Southern cities: Everyday park-making for (un)commoning. *Urban Studies*, 60(7), 1266-1284.

Andreucci, D. and McDonough, T. (2015) Capitalism. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 59-62.

Anguelovski, I. (2015) Urban Gardening. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 192-194.

Arte (2022) Kobalt, die dunkle Seite der Energiewende. Available from > <https://educ.arte.tv/program/kobalt-die-dunkle-seite-der-energiewende>< (Accessed 1 December, 2023).

Becker, I.U.J., Becker, I.T., and Gerlach, D.W.I.J. (2012) The true costs of automobility: External costs of cars overview on existing estimates in eu-27. In Report, Chair of Transport Ecology. TU Dresden.

Bloemmen, M., Bobulescu, R., Le, N.T.; and Vitari, C. (2015) Microeconomic degrowth: The case of community supported agriculture. *Ecological Economics*, 112, 110-115.

Brand, U. (2020) Sozial-ökologische Transformation konkret: Die solidarische Postwachstumsstadt als Projekt gegen die imperiale Lebensweise. In Brokow-Loga, A and Eckardt (Eds.) *Postwachstumsstadt: Konturen einer solidarischen Stadtpolitik*. München: oekom, 30-42.

Brey, P. (2012) Well-Being in Philosophy, Psychology, and Economics. In Brey, P., Briggle, A., and Spence, E. (Eds.) *The Good Life in a Technological Age*, Routledge, 15-34.

Calvário, R. and Otero, I. (2015) Back-to-the-landers. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 143-145.

Campos, I. and Marín-González, E. (2020) People in transitions: Energy citizenship, prosumerism and social movements in Europe. *Energy Research & Social Science*, 69, p.101718.

Casal, P. (2007) Why Sufficiency Is Not Enough. *Ethics*, 117(2), 296-326.

Cassidy, E.S., West, P.C., Gerber, J.S., and Foley, J.A. (2013) Redefining agricultural yields: from tonnes to people nourished per hectare. *Environmental Research Letters*, 8(3), 034015, 1-8.

Cattaneo, C. (2015) Eco-Communities. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 165-68.

Cochrane, R. (2020) From Caring to Counter-Consumption: Feminist Moral Perspectives on Consumerism and Climate Change. In Miller, D. E. and Eggleston (Eds.) *Moral Theory and Climate Change: Ethical Perspectives on a Warming Planet*. New York: Routledge, 193-214.

Conde, M. and Walter, M. (2015) Commodity Frontiers. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 71-74.

Corazza and Victus (2015) Economy of Permanence. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 204-207.

D'Alisa, G., Demaria, F., and Kallis, G. (2015) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge.

D'Alisa, G., Deriu, M., and Demaria, F. (2015) Care. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 63-66.

Dale, J., Marwege, R., and Humburg, A. (2018) Low impact living: More than a house. In: Nelson A and Schneider F (eds) *Housing for Degrowth: Principles, Models, Challenges and Opportunities*. London: Routledge, 145-155.

De Castro Mazarro, A., George Kaliaden, R., Wende, W., and Egermann, M. (2023) Beyond urban ecomodernism: How can degrowth-aligned spatial practices enhance urban sustainability transformations. *Urban Studies*, 60(7), 1304-1315.

Deberdt, R. and Le Billon, P. (2021) Conflict minerals and battery materials supply chains: A mapping review of responsible sourcing initiatives. *The Extractive Industries and Society*, 8, 100935,1-13.

DeFilippis, J., Williams, O.R., Pierce, J., Martin, D.G., Kruger, R., and Esfahani, A.H. (2019) On the transformative potential of community land trusts in the United States. *Antipode*, 51(3), 795-817.

Deriu, M. (2015) Conviviality. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 79-82.

Dittmer, K. (2013) Local currencies for purposive degrowth? A quality check of some proposals for changing money-as-usual. *Journal of Cleaner Production*, 54, 3-13.

Dittmer, K. (2015) Community Currencies. In D' Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 149-151.

Doyal, L. and Gough, I. (1984) A theory of human needs. *Critical Social Policy*, 4(6), 6-38.

Drujff, A. and Kaika, M. (2021) Upscaling without innovation: taking the edge off grassroots initiatives with scaling-up in Amsterdam's Anthropocene forest. *European Planning Studies*, 29(12): 2184–2208.

Edgerton, D. (2007) Creole technologies and global histories: rethinking how things travel in space and time. *Journal of History of Science and Technology*, 1(1), 75-112.

European Commission (2019) The European Green Deal. European Commission: Brussels. Available from: https://eur-lex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF (Accessed 28 December, 2023)

Escobar, A. (2015a) Development, critiques of. In D' Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 29-32.

Escobar, A. (2015b) Degrowth, postdevelopment, and transitions: a preliminary conversation. *Sustainability Science*, 10, 451-462.

Federici, S. (1975) *Wages Against Housework*. Bristol: Falling Wall Press. Available from https://monoskop.org/images/2/23/Federici_Silvia_Wages_Against_Housework_1975.pdf (Accessed 28 December, 2023)

Frankfurt, H. (1987) Equality as a Moral Ideal. *Ethics*, 98(1), 21–43. doi:10.2307/2381290

Fraser, N. (1995) From Redistribution to Recognition? Dilemmas of Justice in a 'Post-Socialist' Age. *New Left Review*, 212(1), 68-93.

Fraser, N. (2016) Expropriation and Exploitation in Racialized Capitalism: A Reply to Michael Dawson. *Critical Historical Studies*, spring, 163-178.

Fraser, N. (2022) *Cannibal capitalism: How our system is devouring democracy, care, and the Planet and what we can do about it*. London and New York: Verso Books.

Fraser, N. and Hrubec, M. (2004) Towards global justice: An interview with Nancy Fraser. *Sociologický časopis/Czech Sociological Review*, 40(06), 879-889.

Gibson-Graham, J.K. (2006) *A postcapitalist politics*. Minneapolis and London: University of Minnesota Press.

Gislaam, S. (2021) Berlin votes for expropriation of landlord firms as Vonovia acquires rival. *Industry Europe*, September 27. Available from ><https://industryeurope.com/sectors/construction-engineering/berlin-votes-for-expropriation-of-landlord-firms-as-vonovia-acquires-rival/>< (Accessed January 4, 2024)

Gjorgievski, V.Z., Cundeva, S. and Georghiou, G.E. (2021) Social arrangements, technical designs and impacts of energy communities: A review. *Renewable Energy*, 169, 1138-1156.

Gómez-Baggethun, E. (2015) Commodification. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 67-70.

Graeber, D. (2019) 36C3 - From Managerial Feudalism to the Revolt of the Caring Classes. 28 December. Available from: >https://www.youtube.com/watch?v=MN9S0HD8VH8&list=WL&index=3&ab_channel=media.ccc.de< (Accessed January 3, 2024)

Gudynas, E. (2015) Buen Vivir. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 201-204.

Hammer, S., Kamal-Chaoui, L., Robert, A. and Plouin, M. (2011) Cities and green growth: a conceptual framework. Available from: ><https://www.oecd-ilibrary.org/docserver/5kg0tflmzx34-en.pdf?expires=1697230792&id=id&accname=guest&checksum=23FA0B215DAA4D91CC74B2EA769C2666><

Helfrich, S. and Boiler, D. (2015) Commons. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 75-78.

Hickel, J. (2017) Is global inequality getting better or worse? A critique of the World Bank's convergence narrative. *Third World Quarterly*, 38(10), 2208-2222.

Hickel, J. (2020) *Less is More: How Degrowth Will Save the World*. Dublin: Penguin Random House UK

Hickel, J. and Kallis, G. (2020) Is Green Growth Possible?, *New Political Economy*, 25:4, 469-486, DOI: 10.1080/13563467.2019.1598964

Ho, C.Q. and Tirachini, A. (2024) Mobility-as-a-Service and the role of multimodality in the sustainability of urban mobility in developing and developed countries. *Transport Policy*, 145, 161-176.

Hodkinson, S. (2012) The new urban enclosures. *City*, 16(5), 500–518.

Hoornweg, D., Hosseini, M., Kennedy, C., and Behdadi (2016) An urban approach to planetary boundaries. *Ambio*, 45, 567-580.

Hopwood, B., Mellor, M., and O'Brien, G. (2005) Sustainable development: mapping different approaches. *Sustainable development*, 13(1), 38-52.

IRP (2018) *The Weight of Cities: Resource Requirements of Future Urbanization*. Swilling, M., Hajer, M., Baynes, T., Bergesen, J., Labbé, F., Musango, J.K., Ramaswami, A., Robinson, B., Salat, S., Suh, S., Currie, P., Fang, A., Hanson, A. Kruit, K., Reiner, M., Smit, S., Tabory, S. A Report by the International Resource Panel. United Nations Environment Programme, Nairobi, Kenya. Available from: ><https://www.resourcepanel.org/reports/weight-cities><.

IPBES (2019a) *Global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*, Brondízio, E. S., Settele, J., Díaz, S., Ngo, H. T. (eds). IPBES secretariat, Bonn, Germany. 1144 pages. ISBN: 978-3-947851-20-1

IPBES (2019b) *Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services*. S. Díaz, J. Settele, E. S. Brondízio E.S., H. T. Ngo, M. Guèze, J. Agard, A. Arneth, P. Balvanera, K. A. Brauman, S. H. M. Butchart, K. M. A. Chan, L. A. Garibaldi, K. Ichii, J. Liu, S. M. Subramanian, G. F. Midgley, P. Miloslavich, Z. Molnár, D. Obura, A. Pfaff, S. Polasky, A. Purvis, J. Razzaque, B. Reyers, R. Roy Chowdhury, Y. J. Shin, I. J. Visseren-Hamakers, K. J. Willis, and C. N. Zayas (eds.). IPBES secretariat, Bonn, Germany. 56 pages.

IPCC (2019) Annex I: Glossary [Weyer, N.M. (ed.)]. In: *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate* [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. Available from ><https://apps.ipcc.ch/glossary/>< (Accessed on January 22, 2024)

IPCC, 2022: Summary for Policymakers [H.-O. Pörtner, D.C. Roberts, E.S. Poloczanska, K. Mintenbeck, M. Tignor, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem (eds.)]. In: *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press, Cambridge, UK and New York, NY, USA, pp. 3–33, doi:10.1017/9781009325844.001.

Jiborn, M., Kander, A., Kulionis, V., Nielsen, H., and Moran, D.D. (2018) Decoupling or delusion? Measuring emissions displacement in foreign trade. *Global Environmental Change*, 49, 27–34. <https://doi.org/10.1016/j.gloenvcha.2017.12.006>

Johanisova, N., Suriñach-Padilla, R., and Parry, P. (2015) Co-operatives. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 152-155.

Kaika, M., Varvarousis, A., Demaria, F., and March, H. (2023) Urbanizing Degrowth: Five steps towards a Radical Spatial Degrowth Agenda for planning in the face of climate emergency. *Urban Studies*, 60(7), 1191-1211.

Kallis, G. (2018) *Degrowth*. Newcastle upon Tyne: Agenda Publishing Limited. ISBN 978-1-911116-80-6.

Kallis, G. (2015) Can we prosper without growth? 10 policy proposals. *Green European Journal*, 1 September. Available from ><https://www.greeneuropeanjournal.eu/can-we-prosper-without-growth-10-policy-proposals/>< (Accessed January 04, 2024)

Kallis, G., Demaria, F., and D'Alisa, G. (2015) Introduction: degrowth. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 1-17.

Kębłowski, W. (2023) Degrowth is coming to town: What can it learn from critical perspectives on urban transport?. *Urban Studies*, 60(7), 1249-1265.

Kębłowski, W., Dobruszkes F., and Boussauw K. (2022) Moving past sustainable transport studies: Towards a critical perspective on urban transport. *Transportation Research Part A*, 159: 74–83.

Kothari, A., (2020) Earth vikalp sangam: proposal for a global tapestry of alternatives. *Globalizations*, 17(2), 245-249.

Krähmer, K. (2022) Degrowth and the city: Multiscalar strategies for the socio-ecological transformation of space and place. *City*, 26(2-3), pp.316-345.

Lamb, W.F. and Steinberger, J.K. (2017) Human well-being and climate change mitigation. *Wiley Interdisciplinary Reviews: Climate Change*, 8(6), e485, 1-16.

Latouche, S. (2015) Imaginary, decolonization of. In D'Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 117-120.

Lee, C.C., Chiu, Y.B., and Sun, C.H. (2010) The environmental Kuznets curve hypothesis for water pollution: Do regions matter?. *Energy policy*, 38(1), pp.12-23.

Locher, F. and Fressoz, J.B (2012) Modernity's frail climate: a climate history of environmental reflexivity. *Critical Inquiry*, 38(3), 579-598.

Lübker, M. and Zucco, A. (2020) Was ist wichtig? Die Corona-Pandemie als Impuls zur Neubewertung systemrelevanter Sektoren. *WSI-Mitteilungen*, 73(6), 472-484.

Mandelli, M. (2022) Understanding eco-social policies: a proposed definition and typology. *Transfer: European Review of Labour and Research*, 28(3), 333-348.

Massey, D. (1999) Philosophy and politics of spatiality: some considerations. The Hettner-Lecture in Human Geography. *Geographische Zeitschrift*, 87, 1-12.

Mbembe, A. (2021) *Out of the Dark Night: Essays on Decolonization*. New York: Columbia University Press.

McCray, P. (2016) It's not all lightbulbs. *Aeon*. Available from: > <https://aeon.co/essays/most-of-the-time-innovators-don-t-move-fast-and-break-things>< (Accessed October 31, 2023)

Milstein, B. (2023) Review of *Cannibal capitalism: how our system is devouring democracy, care, and the planet—and what we can do about it*, by Nancy Fraser Verso. *Contemporary Political Theory*, 1-4. <https://doi.org/10.1057/s41296-023-00654-0>

Mitchell, T. (2009) Carbon Democracy. *Economy and Society*, 38 (3), 399-432.

Moellendorf, D. (2022) *Mobilizing Hope: Climate change and global poverty*. New York: Oxford University Press.

Niinimäki, K., Peters, G., Dahlbo, H., Perry, P., Rissanen, T., and Gwilt, A. (2020) The environmental price of fast fashion. *Nature Reviews Earth & Environment*, 1(4), 189-200.

O’Neil, D. W. (2015) Gross Domestic Product. In D’ Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 103-106.

O’Neill, D. W., Fanning, A. L., Lamb, W. F., and Steinberger, J. K. (2018) A good life for all within planetary boundaries. *Nature sustainability*, 1(2), 88-95.

Oorschot, L. and Asselbergs, T. (2021) New housing concepts: Modular, circular, biobased, reproducible, and affordable. *Sustainability*, 13(24), 13772, 1-19. <https://doi.org/10.3390/su132413772>

Ossewaarde M. and Ossewaarde-Lowtoo, R. (2020) The EU’s Green Deal: A Third Alternative to Green Growth and Degrowth? *Sustainability*, 12, 1-15.

Otchere-Darko, W. (2023) Scaling-up degrowth: Re-imagining institutional responses to climate change. *Urban Studies*, 60(7), 1316-1325.

Parrique, T., Barth, J., Briens, F., Kerschner, C., Kraus-Polk, A., Kuokkanen, A., and Spangenberg, J.H. (2019) Decoupling debunked. *Evidence and arguments against green growth as a sole strategy for sustainability. A study edited by the European Environment Bureau EEB*.

Pollin, R. and Chakraborty, S. (2015) An egalitarian green growth programme for India. *Economic and Political Weekly*, 38-51.

Pollin, R. (2019) Advancing a viable global climate stabilization project: Degrowth versus the green new deal. *Review of Radical Political Economics*, 51(2), 311-319.

Ramose, M. B. (2015) Ubuntu. In D' Alisa, G., Demaria, F., and Kallis, G. (Eds.) *Degrowth: A Vocabulary for a New Era*. New York and London: Routledge, 212-214.

Raworth, K. (2022) *Doughnut economics: seven ways to think like a 21st-century economist*. Dublin: Penguin Random House UK.

Reis, I.F., Gonçalves, I., Lopes, M.A., and Antunes, C.H. (2021) Business models for energy communities: A review of key issues and trends. *Renewable and Sustainable Energy Reviews*, 144, 111013, 1-29.

Roy, J., Tschakert, P., Waisman, H., Abdul Halim, S., Antwi-Agyei, P., Dasgupta, P., Hayward, B., Kanninen, M., Liverman, D., Okereke, C., Pinho, P. F., Riahi, K., and Suarez Rodriguez, A. G. (2018) Sustainable development, poverty eradication and reducing inequalities supplementary material. In: *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [V. Masson-Delmotte, P. Zhai, H. O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J. B. R. Matthews, Y. Chen, X. Zhou, M. I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, T. Waterfield (eds.)].

Savini, F. (2023) Maintaining autonomy: Urban degrowth and the commoning of housing. *Urban Studies*, 60(7), 1231-1248.

Sandberg, M., Klockars, K., and Wilén, K. (2019) Green growth or degrowth? Assessing the normative justifications for environmental sustainability and economic growth through critical social theory. *Journal of Cleaner Production*, 206, 133-141.

Schneider F. and Nelson A. (2018) 'Open localism' – On Xue and Vansintjan III. In: Nelson A. and Schneider F. (Eds.) *Housing for Degrowth*. Abingdon: Routledge, 223–230.

Schweighauser, D. (2020) The application of competition law to non-profit organizations: Aspects of cartel law and state aid law of the European Union and Switzerland, *CEPS Working Paper Series*, 18, University of Basel, Center for Philanthropy Studies (CEPS), Basel.

Solibus e.V. (2019) Vereinsatzung Solibus e.V. Available from ><https://solibus.site36.net/files/2019/04/Satzung-Solibus-eV-25012019.pdf>< (Accessed 3 January, 2024)

Stefánsdóttir H. and Xue J. (2018) The quality of small dwellings in a neighbourhood context. In: Nelson A and Schneider F (eds) *Housing for Degrowth: Principles, Models, Challenges and Opportunities*. London: Routledge, 171–182.

Symons, J. (2019) *Ecomodernism: Technology, Politics, and the Climate Crisis*. Cambridge and Medford: Polity Press.

Tronto, J. C. (1993) *Moral Boundaries: A Political Argument for an Ethics of Care*. New York and London: Routledge.

Tunstall, R. (2023) An empirical test of measures of housing degrowth: Learning from the limited experience of England and Wales, 1981-2011. *Urban Studies*, 60(7), 1285-1303.

Unger, K. (2022) *Vonovia: Ein Problem, das immer grösser wird*. Berlin: Rosa-Luxemburg-Stiftung. Available from https://www.rosalux.de/fileadmin/rls_uploads/pdfs/sonst_publicationen/Broschur_Vonovia_Web.pdf (Accessed January 4, 2023)

United Nations, 2015. *Resolution adopted by the General Assembly on 25 September 2015*. New York, NY, USA: United Nations. Available from: https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf

United Nations / Framework Convention on Climate Change (2015) Adoption of the Paris Agreement, 21st Conference of the Parties, Paris: United Nations. Available from: https://unfccc.int/sites/default/files/resource/parisagreement_publication.pdf

United Nations Development Programme (2015) Training material for producing national human development reports. UNDP Human Development Report Office. Available from: <https://hdr.undp.org/system/files/documents/hditrainingpdf.pdf> (Accessed on January 21, 2024)

Van den Borre, M (2023) Maite van den Borre, *The nationalization of the Union Minière du Haut-Katanga: a turning point in Belgian-Congolese relations*. paper presented at Conference Workshop Mining Matters, University of Twente, Enschede, the Netherlands, November 27.

Vandycke, N. (2023) Q&A with Nancy Vandycke: Toward sustainable mobility. *One Earth*, 6(1), 14-16. <https://doi.org/10.1016/j.oneear.2022.12.009>

Verma, A. (2023) Focus on moving people not vehicles. In Verma, A., Dunn, J., Tirachini, A., Boongaling Agatan, C., Hsieh, I.Y.L., Mayyas, A., Althaf, S., and Mladenovic (authors) *Driving a*

sustainable road transportation transformation. *One Earth*, 6(1), 3-6.
<https://doi.org/10.1016/j.oneear.2023.01.002>

Visseren-Hamakers, I.J., Razzaque, J., McElwee, P., Turnhout, E., Kelemen, E., Rusch, G.M., Fernandez-Llamazares, A., Chan, I., Lim, M., Islar, M., and Gautam, A.P (2021) Transformative governance of biodiversity: insights for sustainable development. *Current Opinion in Environmental Sustainability*, 53, 20-28.

Vogel, J. and Hickel, J. (2023) Is green growth happening? An empirical analysis of achieved versus Paris-compliant CO₂–GDP decoupling in high-income countries. *The Lancet Planetary Health*, 7(9), e759-e769.

White, S. (2021) "Social Minimum", *The Stanford Encyclopedia of Philosophy* (Winter 2021 Edition), Edward N. Zalta (ed.), Available from <https://plato.stanford.edu/archives/win2021/entries/social-minimum/> (Accessed January 19, 2024).

Whyte, K. (2021) Against Crisis Epistemology. In Hokowhitu, B., Moreton-Robinson, A., Tuhiwai-Smith, L., Andersen, C., and Larkin, S. *Routledge Handbook of Critical Indigenous Studies*. New York and London: Routledge, 52-64.

Williams, O.R. (2018) Community control as a relationship between a place-based population and institution: The case of a community land trust. *Local Economy*, 33(5), 459-476.

Wright, E. O. (2010) Elements of a Theory of Transformation. In Wright, E. O. *Envisioning Real Utopias*. London and New York: Verso, 273-307.

Xue, J. (2022) Urban planning and degrowth: a missing dialogue. *Local Environment*, 27(4), 404-422.

Yu, Y., Feng, K. and Hubacek, K. (2013) Tele-connecting local consumption to global land use. *Global environmental change*, 23(5), 1178-1186.

Acknowledgements

This thesis, as every product of human work is partially the outcome of a collaborative effort. I am thankful for innumerable constructive comments, and suggestions for readings from my supervisors Dominic Lenzi and Casey Lynch. Additionally, I am thankful to my brother Philipp Jabold for sharing parts of his deep knowledge of Marxism and critical theory with me and proof-reading parts of my text. I am thankful to my partner Aylin Ünnes and my housemate Lucas Staab for countless discussions of my ideas which help them mature and checking premature drafts for typos and spelling mistakes. I am thankful to Andreas Weber who let me bounce of ideas taken from the History of Philosophy in Chapter 2 and confirmed they are virtually uncontested in his discipline (although they did not make it through the final cut) and to Adam Henschke who read a short snippet of Chapter 3 and confirmed it was not too dense. I am grateful to Florian Helfrich for a discussion about communities in which he shared his expertise about the role of communities in energy transitions. I am grateful to a short exchange with Kornelia Konrads following the *mining matters* workshop which stimulated me to reflect on the nature of my arguments. Furthermore, I am grateful to my mother who reciprocated care work with me in the period before my green light meeting and proofread my thesis for spelling mistakes and typos. Equally, I am grateful for the care I received from my housemates and my partner in the last intensive time before handing in the final version. I am grateful for suggestions from Lucas Staab, Celina Borko, Aylin Ünnes, and especially Alexander Baker-Friesen – with his counterhegemonic subjectivity as caring dad – for correcting spelling and grammar mistakes as well as unnecessary long phrases in a version close to the final one. Finally, I am grateful for the band Asian Kung-fu Generation for writing the songs Rewrite and Blood Circulation which provided a vibe that stucked in my pre-conscious and kept me pushing forward in the intensive last days of thesis writing.