

Zbornik

OVERCOMING THE INEQUALITIES OF GREEN TRANSITION

Proceedings from the Summer School
of Political Ecology 2022-23



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Introduction

The International Summer School of Political Ecology 2023 explored the growing inequalities and addressed the question why concepts such as environmental justice or just transition are increasingly important in discussions on how to tackle the environmental crisis without deepening inequalities. The main focus of the summer school was on the growing inequalities within and between countries, and tried to answer the questions of how to organise our societies and economy in ways that do not exacerbate these inequalities, and what kind of policies measures should be adopted, which will reduce and eliminate environmental and ecological inequalities.

This proceeding presents a collection of texts from the 2022/2023 edition of the International Summer School of Political Ecology, written by some of our distinguished guests and speakers and originally published in other publications. The collected texts will help our readers to expand their imagination and dive into deeper understanding of the environmental and ecological issues.

The following collection is structured in three thematic sections. The first section presents a conceptual framework on just transitions: Stefan Bouzarovski develops a critical exploration of nature-society relations and power dynamics in the context of mainstream “just transition” debates; and highlights how well-known contradictions of labour, environmental sustainability, and economic transformation are complicated by encounters with climate and energy circulations. Feola Guiseppe et al demonstrate the usefulness of a lens that attends to processes of making and unmaking in sustainability transformations through an analysis of an ongoing sustainability transformation, the *territorios campesinos agroalimentarios* (TCA) endogenous territorial figure and peasant movement in Colombia. Roland Ngam reflects on degrowth in the African periphery and how the origins of the world’s numerous problems is the current iteration of the colonial capitalist system

that shifted the frontier of capital accumulation from Europe to the Global South. Selina Gallo-Cruzs' ecofeminist perspective on social justice gives an insight on how ecofeminism's systems-thinking and biological diversity-centred approach broadens our understanding of the nature of the ecological crisis we are facing, and reflects on the difference an ecofeminist framework can make to addressing these issues in practice.

The second section contains texts dealing with justice in space: Arturo Escobar discusses the exile of Earth from the city as a reflection of a civilizational anomaly and whether this civilizational anomaly could be reversed. He argues that the project of rethinking, remaking, and re-politicizing urban habitation needs to be undertaken based on the experience of those at the epistemic, ontological, social, and spatial interstices and peripheries of cities, including the more-than-human. Patrick Devine-Wright argues for a place-based approach as fundamental to the success of industrial decarbonisation; and proposes a research agenda that can enable emissions reduction in ways that are considered fair and acceptable by local communities. Rachel Guyet et al., shed light on the extent to which Renewable energy communities (RECs) fulfil a social role and mitigate energy poverty. Drawing on data collected among 71 European RECs, the research investigates how RECs engage in this social role by improving participatory procedures to enable vulnerable groups' participation and by distributing affordable energy and energy efficiency to vulnerable households (article 7); moreover, including insights from 113 German cases, they investigate the extent to which energy communities enhance energy justice and democracy in the German energy transition (article 8).

The third section reflects on justice and class: Emanuele Leonardi and Lorenzo Feltrin discuss the failure of the ecological transition 'from above' and the need for a convergence between workplace and community struggles to move towards a transition 'from below'. Bue Rübner Hansen gives us an in-depth look at workers' participation in the climate and ecological breakdown, and how this might be transformed into ecological care, and leveraged for change. This section also includes an interview by Emanuele

Leonardi & Mimmo Perrotta conducted in 2021, in which they reflect on the relationship between labor mobilizations (especially the occupation at GKN) and climate justice.

Sultana Jovanovska, Andrej Lukšič

**JUST AND
DIFFERENT
CONCEPTUAL
FRAMEWORK**

Stefan Bouzarovski

Just Transitions: A Political Ecology Critique

Abstract: “Green deals” to promote socially inclusive decarbonisation have captured the imagination of public intellectuals and advocates across the political spectrum. Such programmes are often premised upon the concept of “just transitions”, which aims to reconcile environmental and social concerns in the movement towards a low-carbon future. I respond to some of the underlying tensions that underpin dominant discourses in this domain by foregrounding collective, disruptive, and non-capitalist forms of infrastructural transformation in the energy domain. I discuss possibilities for a more egalitarian politics and shared environmental commons in the articulation of residential energy efficiency and housing upgrades with the aid of insights from the political ecology literature, and examples from activist praxis across Europe and North America. More broadly, I highlight how well-known contradictions of labour, environmental sustainability, and economic transformation are complicated by encounters with climate and energy circulations.

Keywords: just transitions, New Green Deal, energy efficiency, social justice, climate mitigation

Introduction

Mainstream climate change debates are increasingly recognising the importance of social justice and economic inequality considerations in the process of moving towards a low carbon future. In particular, “just transition” perspectives have started to play a central role at the interface between climate mitigation and socio-economic transformations. The European Commission has announced the European Green Deal, which purports to, *inter alia*, decarbonise the energy sector and ensure that “buildings are more energy efficient” under the proviso that “no person and no place is left behind” (European Commission 2019). Even if the European Green Deal has been criticised for its lack of clarity and ambition (Varoufakis and Adler 2020), it nevertheless operates with the language of “just transition”, as evidenced by the existence of a “Just Transition Mechanism” in the policy. Similarly, in the US, the proposed left-wing Green New Deal has been seen as possessing “the capacity to mobilise a truly intersectional mass movement behind it” (Aronoff et al. 2019:xiii) while treating the climate crisis as an opportunity for undertaking radical societal change and building “an altogether fairer, more leisurely, and more democratic world” (*ibid.*).

Although just transitions approaches have galvanised activists, intellectuals, and policy advocates from across the political spectrum, dominant policy debates on *Antipode* Vol. 54 No. 4 2022 ISSN 0066-4812, pp. 1003–1020 doi: 10.1111/anti.12823 2022 The Author. *Antipode* published by John Wiley & Sons Ltd on behalf of Antipode Foundation Ltd. This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited. The topic has seen a profusion of techno-managerial framings of the process, underpinned by narrow cost-benefit analyses. The European Green Deal, for example, pledges to “leave no one behind” while also emphasising the need for “increased global competitiveness” and “carbon markets”. Even more progressive proposals—such as those in the US—principally focus on the distributional and procedural justi-

ce aspects of low-carbon initiatives, by emphasising the legal and economic preconditions necessitated to achieve set infrastructural objectives (Carley and Konisky 2020; Füllemann et al. 2020). There has been limited recognition of the inherently socio-ecological character of energy and climate restructuring efforts (Stavis and Felli 2020), whose transformation is imbued with complex and conflicting dynamics of everyday power and precarity (Baka and Vaishnava 2020). What is more, mainstream just transitions approaches have tended to understand justice as “a formalised and preconceived ‘thing’ to be delivered or applied” (Velicu and Kaika 2017:305) via linear reform trajectories. They have left little room for conceptualising the inherently plural and multi-scalar nature of energy systems change (Williams and Doyon 2019).

In this paper, I draw on insights from political ecology to develop a critical exploration of nature-society relations and power dynamics in the context of mainstream “just transition” debates. Focusing on end-use energy efficiency and thermal comfort interventions in residential buildings, I argue that just transitions, in their dominant framing and operationalisation through policies such as the European Green Deal, may serve to accommodate and prolong the unfolding global crisis of climate degradation and social inequality, as opposed to fundamentally challenging the capitalist roots of energy and climate injustices. I explore how, by marginalising radical geographical and political imaginaries, mainstream understandings of just transitions in the energy domain risk perpetuating new forms of enclosure and division. As a counterpoint, I focus on everyday energy-related practices in the domestic domain, highlighting the role of reproductive labour (Barca 2019) in the mobilisation of emancipatory actions. I build on conceptual thinking that foregrounds the ability of progressive actors to confront unequal power relations (Newell and Simms 2020), the emergence of infrastructures-in-the-making (Baptista 2019), and the articulation of hybrid socio-natural metabolisms (Ariza-Montobbio and Olarte 2021).

The paper integrates political ecology insights through Bridge et al.’s (2015:8) “normative political commitment to social justice and

structural political change”, involving the construction of an alternative understanding of social and environmental processes. I draw on wider conceptualisations of environmental, climate, and energy justice, highlighting demands for community sovereignty and democracy (Schlosberg and Collins 2014:359) as well as the emergence of unequal distributional outcomes during periods of transformation (Bouzarovski et al. 2017). In addition to reviewing conceptual contributions, I also provide specific examples and vignettes (principally from the global North) of direct action, transformative practice, or public advocacy to integrate justice in energy transformation processes. As such, the paper’s underlying purpose in articulating a critique of just transitions —and foregrounding politically generative practices—is to beget a set of insights and tools that can be utilised by critical thinkers and practitioners in this domain.

To achieve its aims, the paper commences with an interrogation of how mainstream sustainable energy discourses and policies can generate new forms of enclosure and dispossession by negating the inherently metabolic and hybrid nature of socio-material circulations. At the core of the reasons for such an erasure, I argue, lies an object-focused approach targeting the built and technical fabric of individual dwellings. As a counterpoint, the next section advances a wider range of shared and non-capitalist energy efficiency interventions, beyond the domain of private homes and households. I then trace the contours of an alternative approach to energy retrofits and the achievement of thermal comfort, using a series of examples where politically and infrastructurally generative initiatives have worked to integrate collective political agencies, energy democracy, justice, and socio-material circulations.¹ I conclude with a discussion of the potential for just transitions to be understood as imperfect, messy, and embodied projects, while incorporating diverse possibilities for disruptive politics and socio-environmental justice.

Energy Efficiency Interventions and Their Discontents

The emergence of “just transitions” as a mode of scientific and policy thinking is well documented in the academic literature. In the energy sector, just transitions are now seen to encompass a wide range of meanings and measures. They have extended beyond their initial focus on the extraction of individual resources—principally fossil fuels and nuclear energy—onto practices of demand and consumption (Delina and Sovacool 2018). However, the centrality of climate and energy interventions to the just transitions paradigm implies that a critical engagement with the underlying politics of social and environmental relations is essential for the development of emancipatory and progressive theorisations in the given context. This concerns not only questions of inclusion, recognition, and contestation—who gets to be represented, why, and under which political-economic proviso—but also the collateral consequences of low-carbon interventions themselves. Transformative praxis to promote just transitions thus requires a simultaneous engagement with both the geographical political economies and the environmental crises generated by capitalism.

Climate interventions have been shown to possess a distinctive networked spatiality, in terms of the synergies among organisational stakeholders, the impacts of low-carbon initiatives on vulnerable groups, as well as the nature of sociotechnical interactions that they are predicated upon. In the energy domain, this may lead us to ask whether and how any low-carbon transitions—and their social inequality dimensions—can be considered technically and socially bounded entities. However, mainstream policy and academic discourses that seek to promote “inclusive and low carbon urban development” (Stepputat and van Voorst 2016) view just transition-related work as institutionally discrete and politically divorced from the socio-political and environmental terrain in which it operates (Gouldson et al. 2018). The European Green Deal, for example, is underpinned by a series of industrial and infrastructural policies predicated upon eco-modernist and neoli-

beral visions of the future, in which existing capitalist instruments are meant to be working in favour of the just transition. The social justice elements of the deal are articulated and through techno-managerial tools, including new indicator frameworks, “smart” infrastructures, and “innovative” financial instruments (Kaika 2017).

A broad consensus has emerged over the past five decades, among policy makers and experts alike, with regard to the benefits of investing in technological measures that will improve the efficiency of energy recovery, conversion, transit, and consumption. In addition to bringing economic rewards and aiding energy security, it is now widely recognised that energy efficiency investment can help reduce carbon emissions and address the climate crisis. Importantly, the implementation of energy efficiency measures in the residential sector—involving interventions in wall, window, and roof insulation, the appliance stock, as well as heating and cooling systems—is seen as a “win-win” solution for improving household finances and quality of life while aiding sustainability efforts. Energy efficiency’s health and well-being benefits have been widely documented and discussed, with the recent COVID-19 crisis placing them in the public limelight due to increased (and transforming) energy use in the home as a result of an extended period of residential confinement across the world. When targeted towards low-income and vulnerable households, energy efficiency measures have been seen as the most effective method for reducing energy poverty. Unsurprisingly, therefore, they are the cornerstone of practically all green deal-type policies, regardless of their political and economic provenance.

The energy efficient upgrading of residential buildings is, however, currently taking place against the background of a capitalist economy, the legacies of settler colonialism, as well as a racialised and patriarchal socio-cultural order. Various authors have highlighted the danger that, in its established form, energy efficiency investment may “reproduce the status quo by other means” (Rees 2009:304). Shove (2018) argues that mainstream ways of thinking about energy efficiency are counter-productive to the challenge of carbon reduction, because the target objects of energy

efficiency interventions are bounded, framed, and removed from the socio-technical context in which they operate. One of her main contentions is that energy efficiency measures preserve contemporary standards that “disguise, and in the same move reinforce, their own role in making patterns of energy demand what they are today and in shaping those of the future as well” (Shove 2018:786). The organisational and regulatory embeddedness of energy efficiency policies is convincingly captured by Lutzenhiser’s (2014:142) notion of an “energy efficiency institutional complex” associated with “a sparse, rationalistic, mechanistic device-centred view”, in which the heterogeneity and complexity of the social world are erased via specific technical and bureaucratic rationalities. At the same time, practices of bounding and purification (Bjørn and Boulus-Rødje 2015) hinge upon the development of customised measurement and indicator frameworks. They have been critiqued from a macrolevel perspective for “failing to recognise the metabolic pattern of the economy” (Velasco-Fernandez et al. 2020:1).

As a whole, mainstream debates and practices associated with the improvement of energy efficiency and thermal comfort in residential buildings are in need of a critical and integrated nature-society perspective on just transitions. Notably— even if this is not always explicit in the relatively small body of critical social science thinking on the topic—residential energy efficiency policies and approaches are predicated upon the definition of particular temporal and spatial horizons, with the latter primarily centred upon individual households and homes (Kaika 2004). Mainstream energy efficiency policies, through seeking to reduce and regulate energy flows and exchanges between indoor and outdoor environments— e.g. the insistence on “air tightness” (Shrestha et al. 2019)—may act as an exclusionary technology that constrains the inherently socio-natural and materially fluid (Millington 2018) nature of residential dwellings. The performance of this separation is predicated upon a capitalist calculus: the need to render particular aspects of the indoor environment discrete and measurable so as to define financing solutions that can justify and sustain investment in new residential energy infrastructures. As a result, new markets

and forms of capital accumulation are created inside the intimate domain of the home. Their impacts on social marginalisation are complex and multiple, due to the entry of new private actors in the governance of energy flows within the homes of low-income and vulnerable households (Bouzarovski et al. 2018). Also, they take place against an environment where the scripting of private homes as unproblematic containers of the traditional nuclear family is already implicated in reproducing socially unequal intra- and inter-household relations, particularly with regard to gender-based injustices (Petrova and Simcock 2019).

Viewed through a critical political ecology lens, an energy transition relying on mainstream and privatised energy efficiency and thermal comfort approaches, therefore, is not necessarily a just transition: it may reproduce existing political economies of capitalism, while perpetuating embedded forms of power and domination, and negating the permeable socio-natures of indoor spaces (for some of the practical issues that the tension between ventilation and thermal comfort has caused in the context of climate change, see Hernandez-Morales 2021; Shankleman 2020). And yet, are there alternatives to this? How might we articulate a more progressive energy agenda for addressing social inequality and the global climate crisis at the same time? The answers to such questions often lie outside the political and theoretical mainstream, in domains where diverse climate actors and thinkers have been promoting approaches that unsettle dominant framings of the socio-natural and institutional regulation of energy flows.

Permeable Political Ecologies of the Home

As a first step towards the articulation of a progressive political-ecological praxis towards just transitions in the energy domain, it is useful to explore the sociotechnical functions that energy demand performs in the home, as well as the metabolisms through which it circulates at the interface between indoor and outdoor environments. Energy services and systems of provision approaches are particularly beneficial here. Energy services are a somewhat

elusive concept—one of the most cited definitions sees them as “the benefits that energy carriers produce for human well-being” (Modi et al. 2005:9), although more recent definitions focus on “the useful work obtained by energy consuming” (Lin and Li 2014:590) as well as the basic and secondary capabilities facilitated by energy use (Day et al. 2016). Fell (2017) distinguishes between the volume, content, quality of energy services, as well as the motivations that drive them. This position emphasises that the quantifiable amount of the final utility received by the consumer is a different dimension to the benefits and satisfaction that it brings, because energy services are functions associated with a desired “end state” (e.g. space heating is undertaken for the purpose of obtaining thermal comfort). At the same time, energy services are hybrid socio-technical entities, involving complex interactions among multiple stakeholders, forms of provision, and everyday experience (Morley 2018).

Households who suffer from domestic energy injustices typically lack access to, or cannot afford, socially or materially necessitated levels of energy services in the home. In the global North, vulnerable groups principally struggle with space heating: it has been established that millions of households in Europe are suffering from a lack of adequate warmth in the home (Pye et al. 2015), and there is mounting evidence that the condition is also present across all continents (Bednar and Reames 2020; Kim et al. 2016). Reductions in appliance use and lighting have also been mentioned in this context (Brunner et al. 2012), although literature on the subject is limited. In the global South, debates are primarily focused on the lack of modern fuels for indoor cooking and lighting, and the provision of decentralised solutions that can assist this, as opposed to the traditional focus on large scale grid development (Hirmer and Guthrie 2017). In light of climate change-induced temperature change, inadequately cool homes are also emerging as an important policy challenge at the planetary scale (Thomson et al. 2019). In this domain, relatively little has been said about the global injustices linked to insufficient space cooling, although there is widespread evidence of the detrimental health and well-being effects of increased levels of heat in the living environment (but see Kolokotsa

and Santamouris 2015). It has also been convincingly demonstrated that heatwave-related mortality and morbidity, in particular, are connected to wider socio-demographic factors, neighbourhood structures, and built environment patterns (Gronlund et al. 2015).

Residential energy efficiency measures aimed at improving the airtightness of the building envelope, as well as the energy performance of appliances and heating systems, have been seen as a panacea for addressing energy poverty. Policy and scientific debates on the topic have mainly focused on “fixing” the socioenvironmental deficits present within individual homes and households (Boardman 2010)—to the detriment of more collective, metabolic, or, for that matter, politically disruptive solutions. A critical political ecology lens on this challenge invites us to embrace the social relations and infrastructural elements that are situated at the interface of, and circulate among, indoor and outdoor spaces. The home is seen as infrastructurally heterogeneous and permeable (Larrington- Spencer et al. 2021), in the sense that the boundaries between different spatial realms become blurred, and domestic spaces are cast as active spaces of political contestation and transformation. In practice, this kind of thinking frames the domestic domain as a space of “permeable materiality”, allowing “nature to flow in and through homes” (Larrington-Spencer et al. 2021:226) through a variety of socio-technical interventions and relations.

While permeability has been applied to a range of socio-natural connections in and around the home—from sites of protest and politics, to the relationship between human and non-human worlds—its application can also be extended to the knowledges, routines, and materials involved in the consumption of energy in the home. This movement also unsettles established categorisations that have underpinned mainstream interpretations of energy demand; particularly with regard to the binaries between “technological” and “behavioural” energy reconfigurations, as well as the separation between public and private spheres more broadly (see Figure 1). Domestic spaces are thus opened up to a variety of bottom-up interventions that can collectively reconfigure the infrastructural make up of buildings and cities, while enrolling

non-capitalist forms of economic exchange. At the level of social reproduction, this can involve barter, gifts, and other forms of reciprocity, the sharing of facilities and materials, as well as different modalities of solidarity and mutual support within communities. The resulting landscape of repair and maintenance subsequently becomes a scalar and temporal extension of the slow energy use rhythms (Vannini and Taggart 2015) that exist in the case of off-grid households: a form of grassroots, organic, and distributed retrofit, in which the community relations and socio-environmental circulations that surround and permeate the home can be used as a basis for transforming the built fabric of the home towards more sustainable energy use patterns.

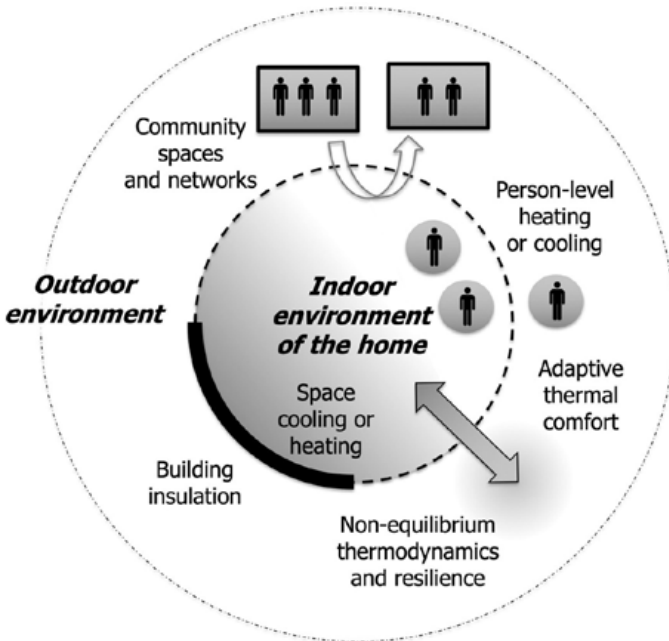


Figure 1: Metabolic energy efficiency interventions emanating from the home

The circulation of air is a key element of this equation—as a convective substance, air carries heat and other material agents across the physical boundaries of residential buildings and the environments that surround them (Walker et al. 2014). Through

the circulatory conduit of air and atmosphere, the articulation of energy use in the home is closely intertwined with the manner in which “energetic-thermal flows are variously exchanged, accumulated, and dispersed within and around human bodies” (Oppermann et al. 2020:275). Moreover, air connects domestic energy demand to wider socio-environmental changes at the scale of entire human settlements and regions, such as heat islands or air pollution (Reyes et al. 2019). There is an opportunity here to rethink how better quality, lower-cost, socially inclusive, and low-carbon cooling and heating services can be provided through measures beyond the conventional register of insulation-based energy efficiency interventions. This includes the delivery of energy services via collective means (e.g. co-housing, social networks of kin and friendship, or community spaces)—the use of common warm and cool spaces in shared homes is a good example of this. Another possible site of intervention is the development of person-level heating and cooling by employing the principles of adaptive thermal comfort (de Dear and Brager 1998), radiant or portable energy sources, as well as modifications in furniture and clothing (De Decker 2015). Wider built environment measures inspired by traditional house-construction approaches, “nature-based solutions”, and non-equilibrium thermodynamics also play a role (Bonetti and Robazza 2016). They can integrate diurnal and seasonal patterns of energy use with the built fabric of the living environment, while allowing for useful energy to be stored and dissipated through the careful use of a measures that are already well known and widely used across the world—passive solar heating and cooling, vegetation, reflective surfaces, shared walls and courtyards—in line with residents’ needs.

A critical political ecology perspective on just transitions in the context of lowcarbon energy interventions thus highlights the need for moving beyond mainstream energy efficiency, retrofit, and thermal comfort policies, while showing how the reinforcement of compartmentalised and technologically modulated barriers between indoor and outdoor environments is fundamentally incompatible with the integration of environmental and social

objectives through a set of progressive political visions. Developing a more idiosyncratic, incremental, and socio-materially hybrid (but also disruptive) set of energy interventions offers possibilities for a political programme that is both emancipatory and just. I now explore specific examples where elements of such an approach are starting to be enacted.

Progressive Energy Alternatives

Many of the initiatives and projects that I present here can all be said to operate within what has been termed a “transformative” position towards just transitions, predicated upon calls for fundamental socio-economic economic reconfigurations, the democratisation of infrastructure ownership and control, the prioritisation of public interest, as well as “the subordination of production to the needs of humans and the ecosystems as opposed to profit” (Goddard and Farrelly 2018:113). For example, left-of-centre green deal proposals in the US (Aronoff et al. 2019) emphasise the need for building grassroots leverage and spatially networked solidarity to challenge the fundamentals of capitalist systems in the context of just transitions. Their focus is on communal forms of infrastructure development through ambitious state intervention and governance transformations. Similar, but more directly disruptive positions are visible in the work of the Energy Democracy Project, which brings together multiple practitioners and organisations from across the United States, with the aim of articulating shared initiatives to pluralise and transform the fundamentals of energy system regulation and governance. Acting as network for mutual aid, this initiative offers a space for the sharing of knowledge, skills, and expertise among involved activists, while determining and addressing common resource needs, and building organisational relationships to promote racial and economic equity (Social and Environmental Entrepreneurs 2021). Their recent toolkit—the “People’s Utility Justice Playbook”—provides strategic advice for grassroots organisations who wish to build “a democratic and energy just system” (The Energy Democracy Project 2021). In a

series of vignettes titled “Utilities vs Communities”, the Playbook documents the multiple manoeuvres used by entrenched institutions in the energy sector, aimed at stifling struggles that seek to democratise and transform unjust forms of infrastructure provision. A further set of interventions, titled “How to Fight Back”, identifies specific steps and strategies for political mobilisation, including tactics such as “deep relational organising”, building cross-movement connectivity, and foregrounding the needs and voices of Black and Indigenous people of colour.

Elsewhere, work by energy democracy activists and scholars has powerfully demonstrated the racial inequalities that underpin the production, governance, impacts, and contestations of energy transitions (Lennon 2017; Newell 2021), with energy injustices disproportionately affecting communities of colour (Bednar and Reames 2020; Lewis et al. 2020). A number of trans-local initiatives are working hands-on to challenge the structural drivers of such inequalities, while articulating alternative visions of the socio-natures of just transitions. New York City’s Local Initiatives Support Corporation (LISC) office—part of a wider nonprofit community development organisation that leverages support funding from multiple sources through multiple forms of partnership—has promoted a “holistic” approach to the energy efficiency upgrades of 2,226 apartments in 96 multi-family affordable housing buildings. The effort has been predicated upon a deep engagement with the entire ecosystem of relevant energy actors, alongside a careful consideration of the specific needs of disadvantaged communities (Flynn and Tohn 2012). In California, questions of difference and diversity as they relate to energy efficiency are central to the work of the Greenlining Institute; its “five-part framework” (Miller et al. 2019)—developed together with the Energy Efficiency For All coalition—foregrounds community-led decision making so as to align electrification efforts with residents’ needs, while reducing household energy burdens. Such forms of partnership building and policy co-operation offer glimpses into modes of energy efficiency improvement that are attuned to the socially, spatially, and politically contingent nature of infrastructural injustice.

In Europe, analogous examples of progressive advocacy can be found in the activities of the Right to Energy Coalition—a continent-wide movement uniting trade unions, anti-poverty organisations, social housing providers, environmental and health organisations, and energy cooperatives. Alongside its highly effective public campaigning work, the coalition organises, on an annual basis, the “Right to Energy Forum”. This event gathers activists from across the movement, while featuring multiple debates on issues of energy inequality, municipalisation, community energy, and energy democracy. There is a clear emphasis on radical and disruptive change in the energy sector, and ambitious climate transformations with a social justice element: the Forum seeks to help build “a strong European movement demanding and creating fair energy solutions for all” (Right to Energy Coalition 2019).

In 2019, the Right to Energy Forum took place alongside the EU Sustainable Energy Week (EUSEW): “the biggest European conference dedicated to renewables and efficient energy use in Europe” (European Commission 2021). Despite (or possibly because of) being a government-led event, EUSEW has been growing in size and importance, in light of the EU’s growing declarative commitment to low carbon investment and sustainable energy transformations. Formerly a much more corporate-driven affair, EUSEW has expanded in scope and scale to include a number of non-governmental, academic, and practitioner actors. This attests, in part, to its growing recognition as an influential forum for the determination of future policy directions. The conference is more widely attended and there are streams dedicated to a wider range of issues than before—including heated deliberations and debates on the societal and policy challenges linked to decarbonisation. Nevertheless, the overall tone of the conference is accommodati-onist; the emphasis is on finding optimal socio-technical solutions within the existing political and economic framework as opposed to contesting mainstream power structures and relations.

The atmosphere and tone of the 2019 Right to Energy Forum generally resembled those of much larger activist gatherings occurring alongside multilateral government conferences (e.g. the

G8 summit in Genoa). Many activists and organisations from the Forum were also present at, and played a prominent role in, EU-SEW. This allowed them to have a voice at more mainstream debates on energy efficiency (where the emphasis was on neoliberal, capitalist-based, and traditional insulation-focused approaches) while also pushing for—and imagining—more profound changes to the fundamentals of the system (including some of the more distributed and circulatory modes described above). Such strategic action mirrors arguments around “radical incrementalism” in the global South (Lawhon et al. 2018). It is an emergent feature of the increasingly dynamic just transitions polity. The growing connectivity and internationalisation of the climate movement has been accompanied by the rise of a strategic awareness among energy and climate activists—recognising that effective bottom-up action and the imagining of radical horizons has to be accompanied by more strategic and subtle efforts to alter the decision making trajectories of established institutions. This kind of political work transcends traditional binaries between disruption and accommodation in the articulation of just transitions, while operating across multiple scales of governance and advocacy. It provides a stepping stone to understanding how a more transformative programme of energy efficiency and retrofit can be put in practice.

Despite the rich landscape of energy democracy activism, however, there is limited evidence of practice-orientated interventions to promote alternative, socio-material approaches at the nexus of energy justice and housing. Even if the examples I have cited above directly confront the capitalist economic logics that underpin the regulation of energy flows at multiple scales, while reframing social relations within the home and beyond, they rarely explicitly engage with the entrenched socio-technical logics of domestic energy demand. The articulation of collective and disruptive forms of social action and political transformation in the achievement of thermal comfort, thus, is still a largely theoretical effort. Vasintjan’s (2018) intervention is one of the few to explore the necessary transformations for the creation of a political-ecological movement around the need for improved cooling in cities.

He argues that the struggle for mitigating the effects of urban heat goes hand-in-hand with the improvement of capacities for progressive and shared action by a variety of urban stakeholders. He outlines a twopronged strategy to achieve this. First, the embedding of ecological alternatives to mainstream urban planning, via the governance of the built environment and the social structures that underpin it, so as to “reduce both total energy use and air temperature”. The second element of his approach entails establishing collaborative relations among relevant stakeholders, including pressuring politicians to actively oppose vested interests in the construction, real estate, and transport sectors. At the heart of both arguments lies the need for acknowledging how the recognition that “being cool is a fundamental right” can be used as a basis for collective political action.

In Australia, a transdisciplinary pilot project titled “Cooling the Commons” has sought to explore “more social, convivial, and environmentally sensitive responses to a warming world” (Mellick Lopes et al. 2018:41) by reframing the home as a distributed and communal entity. Foregrounding the concept of “coolth: the sensation of feeling cool in a heated atmosphere”, this work develops relational understandings of domestic spaces, while building on Indigenous knowledge (Mellick Lopes et al. 2018:43). It reveals intersecting infrastructures of care within the “cool commons” of the city, predicated upon a porous and socially relational perspective on urban lifeworlds. The resulting design and policy interventions promote thermal comfort via the integration of diverse cooling practices, understandings, flows, and spaces. The mainstreaming of some of these approaches across the world is exemplified by city-level efforts to provide collective cool spaces —“cooling centres” (Berisha et al. 2017; Kim et al. 2021)—during periods of extreme heat, so as to reduce the public health impacts of high temperatures on vulnerable groups. More broadly, they have been integrated into the recommendations issued by mainstream institutions such as the United Nations Environment Programme, whose recent “Cooling Handbook for Cities” (Campbell et al. 2021) focuses on the urban scale as a site of action and intervention, while promoting

“whole-systems solutions” that extend beyond domestic air-conditioning. Closely related to this project are the activities of the Cool Coalition and the Clean Cooling Collaborative, which bring together governments, companies, and third sector organisations. While both networks operate under the auspices of an accommodationist perspective on just energy transitions—with pro-capitalist and market-based discourses underpinning many of the proposed measures—the Clean Cooling Collaborative’s core mission is tightly connected to issues of social inequality, as demonstrated by its headline determination to advance “net-zero cooling accessible to all”.

What to make of this variegated landscape of initiatives, actions, and measures that work against the grain of established notions of energy retrofit and upgrading in order to achieve thermal comfort? If there is one commonality, it is that it is difficult to draw a coherent thread across the broad spectre of political and infrastructural work that takes place across all of these activities. They are largely predicated upon socio-material perspectives on energy services, utilising concepts of fluidity and permeability for the governance of energy circulations in the city. However, their predominant focus is on the need to ensure adequate space cooling during hot weather, with other forms of energy services and thermal comfort—particularly the provisioning of warm spaces in winter—receiving limited attention (even if theorised via a capabilities framework by, e.g. Day et al. 2016). A more fundamental challenge is connected to the democratic and emancipatory potential of existing initiatives in this domain. The literature suggests that low carbon urban initiatives can only achieve transformational change by enrolling a variety of actors operating at different levels of governance, while at the same time politicising the power relations and inequalities that underpin the production of urban space, through processes of “relational rescaling” (Bouzarovski and Haarstad 2019). Yet some actions actively operate with technocratic capitalist language (Campbell et al. 2021), while others find themselves needing to strategically work with or against the grain of established systems in order to achieve their aims. This points to a deeper tension within the political ecologies of just transitions:

the extent to which progressive bottom-up alternatives also have to contend with, and work through, a more programmatic top-down effort in order to achieve impactful change.

Conclusion

A critical engagement with dominant just transitions discourses and policies requires both a careful interrogation of the political economies of capitalism and a confrontation with the conceptualisations of justice itself. Socio-ecological justice perspectives are destabilising normative and bounded approaches focusing on recognition, procedure, and distribution, to highlight struggles for egalitarian politics and a shared environmental commons (Ajl 2021; Yaka 2019). Throughout this paper, I have aimed to delineate the elements and components of two positions towards just transitions, in relation to energy efficiency and thermal comfort interventions. On the one hand, we can identify conventional approaches towards housing retrofit, framing the home as a bounded entity that can be regulated via technological interventions, and operating within a capitalist regulatory framework. On the other, there are actions that incorporate the hybrid socio-material nature of energy and climate technologies as a means of moving beyond dominant framings of the nature-society interface. Their aim is often to overcome the lacunae displayed by mainstream understandings of the circulation and regulation of energy in the home, by interweaving human and non-human agencies via socio-technical networks that permeate the physical and social boundaries of indoor spaces. The path to comprehensive low-carbon justice and equality in this sense also requires a radical shift in current modes of property ownership, civic engagement, and knowledge production, by “taking seriously diverse knowledges, plural pathways, and the inherently political nature of transformations” (Scoones et al. 2020:71).

If we go by the evidence and examples reviewed above, we are still far from the implementation of a politically and ecologically transformative position towards just transitions across the global North. Yet a number of projects are starting to consider the entanglement

of energy services with the multiple social facets of everyday life, in addition to providing households and communities with new forms of adaptive opportunity in social and material terms alike. As of now, the discussion largely remains restricted to space cooling, and progressive alternatives to conventional energy efficiency retrofits in relation to space heating are lacking. What is more, while some proposals and initiatives incorporate hybrid socio-material approaches towards the circulation of energy, they still operate with an ecological modernisation discourse that leaves the underlying capitalist structures of power and inequality largely intact. A deeper tension, largely unexplored in both literature and the field of practice, resides in the relationship between programmatic and large-scale framings of retrofit, on the one hand, vs. bottom-up forms of housing maintenance and repair—undertaken by households as an everyday practice through multiple forms of material intervention, technical competence, and care work (Baptista 2019)—on the other. Operating at the interface of energy and housing, and across the formality-informality continuum, grassroots retrofit and thermal comfort initiatives may involve interventions as diverse as reciprocal care and exchange of building materials and services, to bottom-up upgrades of energy provision systems (Lemanski 2020). But there is a lack of clarity and debate with regard to the extent of the ability of large-scale energy retrofit efforts to enable diverse forms of energy maintenance and repair that work at the everyday scale.

Ultimately, it remains doubtful that even more radical just transitions programmes such as the Green New Deal can deliver their desired goals without a more fundamental and direct confrontation with the entire conceptual terrain where future and existing decarbonisation efforts are understood to happen. Critical political ecology insights provide us with the building blocks of a just transitions perspective that embraces socio-naturally hybrid and politically disruptive practices—in terms of labour dynamics, ownership patterns, power relations—in the promotion of socio-environmental equity in the energy domain. It is here that we may find the makings of a counter-hegemonic project that can transform “segregated, minimally different peripheries into quests for spatial centrality and maximally different, non-capitalist forms of

everyday life” (Kipfer 2008:206). But all efforts in this space have the daunting task of questioning how nature, society, and capitalism are enrolled in addressing the ongoing climate challenge, while revealing the social reproduction of existing economic, social, and gender inequalities through low-carbon interventions (Sultana 2021). There is no other alternative: the current political moment requires that we actively seek progressive tools to build low-carbon futures that are both disruptive and emancipatory.

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Endnote

¹ Methodologically, the paper is based on a purposive review of 156 written sources (from the academic and grey literature), and 55 policy initiatives (principally from Europe and North America), sourced from the author's experience, knowledge, and networks gained from working within two projects between 2016 and 2022: ENGAGER (Energy Poverty Action—Agenda Co-Creation and Knowledge Innovation); and the European Energy Poverty Observatory. The source documents were analysed interpretively, in line with the conceptual framework adopted by the author.

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(Un)making in Sustainability Transformation Beyond Capitalism

Abstract: Theorizations of sustainability transformation have foregrounded the construction (making) of novel socio-ecological relations; however, they generally have obscured processes of deliberate deconstruction (unmaking) of existing, unsustainable ones. Amidst ever more compelling evidence of the simultaneous unsustainability and continued reproduction of capitalist modernity, it is misguided to assume that transformation can happen by the mere construction of supposed ‘solutions’, be they technological, social or cultural. We rather need to better understand whether and how existing institutions, forms of knowledge, practices, imaginaries, power structures, and human-non-human relations can be deconstructed at the service of sustainability transformation. This paper demonstrates the usefulness of a lens that attends to processes

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of making and unmaking in sustainability transformations through an analysis of an ongoing sustainability transformation, the territorios campesinos agroalimentarios (TCA) endogenous territorial figure and peasant movement in Colombia. TCA is transforming territory beyond capitalism on the basis of relational ontologies and principles of autonomy, dignity and sufficiency. This paper identifies processes of unmaking of capitalism in the TCA and demonstrates how they are concretely entangled in the construction of post-capitalist realities. This paper sketches a research agenda on sustainability transformation that is sensitive to and theoretically equipped for the analysis of transformation as a multifaceted, multilevel process that entails the deconstruction of capitalist modernity and the construction of post-capitalist realities. Central to this agenda is a plural engagement with theories of social change from across the social sciences and humanities, which have not previously been mobilized for this endeavour.

Keywords: Sustainability, transition, Politics, Socio-territorial movement, Post-capitalism, Colombia

Introduction

During the last decade, the notion of transformation has taken centre stage in sustainability debates. Inputs from the social sciences and humanities are increasingly recognized as being essential to understand and engender transformative responses deemed necessary in light of the magnitude and scope of global environmental change (Pelling, 2010; O'Brien, 2011; 2012; Hackmann and Lera St. Clair, 2012; Feola, 2015; Patterson et al., 2017; Fazey et al., 2018).

While the unsustainability of models of development rooted in capitalist modernity was not a central feature of initial theorizations of sustainability transformation (Feola, 2015; for a notable exception, see Pelling et al., 2012), sustainability transformation scholarship has more recently come to terms with the root causes of the climate crisis. Societies that maintain 'business as usual' and hence pursue compound expansion—a central tenet of capi-

talism—are set to overshoot the target of limiting global warming to 1.5–2.0 degrees (IPCC, 2018). Meanwhile, the 2008 financial crisis and the Covid-19 pandemic have resulted in a broadening of the debate on the contradictions of capitalism and the conditions for post-growth and post-capitalist economies (e.g. Harvey, 2014; Streek, 2014; Brand and Wissen, 2013; New Roots Collective, 2020; Büscher et al., 2021). Evidence on the unfeasibility of strategies such as green growth and the circular economy, which aim to decouple capitalist development from its intrinsically destructive impacts on the natural environment, has mounted (e.g. Haberl et al., 2020; Hickel and Kallis, 2020; Jackson and Victor, 2019; Parrique et al., 2019). Close examination of sectors such as agriculture (e.g. IPES-Food., 2016) as well as broader analyses of affluence and overconsumption (e.g. Wiedmann et al., 2020) further question the possibility of meeting global sustainability targets without challenging and transforming modern capitalist institutions and their cultural, social and political architecture. Sustainability transformation is increasingly seen across a broad range of fields as a multifaceted, multilevel process that necessarily entails questioning the fundamental principles on which our societies are based: the ‘physical deep structures of civilization’, as well as ‘established patterns of life and work and [...] benefits and burdens’ (Jasanoff and Kim, 2013: 189). Critical, autonomous and postdevelopment scholarship in geography (e.g. Escobar, 2015; Chatterton, 2016; Demaria et al., 2019; Schmid, 2019; Schmid and Smith, 2020) and political ecology (e.g. Brand, 2016) as well as some sustainability transition approaches focussing on long-term development cycles (e.g. Kemp et al., 2018; Kanger and Schot, 2019; also see Feola, 2020) and earth system governance debates (e.g. Albert, 2020; Lo’vbrand et al., 2020) have enriched the conceptualization of sustainability transformation, particularly by bringing together critiques and conceptions of global environmental change, capitalism, industrial modernity, and sustainability transformation. For example, leading human geographer Leslie Head has contended, ‘It is widely recognized that we need to shift some very big cultural frames—the importance of eco-

conomic growth, the dominance of fossil fuel capitalism, the hope of modernity as unending progress—to deal adequately with the climate change challenge’ (Head, 2019: ix). Similarly, environment and development scholar Harold Wilhite has argued that ‘deep reductions in energy use and carbon emissions will not be possible within political economies that are driven by the capitalist imperatives of growth, commodification and individualization’ (2016). This position has been echoed by researchers in the field of sustainability transitions; according to Kemp and colleagues, the sustainability literature indicates ‘the need for systemic change, not only in socio-technical systems, but also in the system of capitalism and the process of marketisation, which has been the dominant force of transformation in the last two centuries, together with emancipation and democratization’ (Kemp et al., 2018:71).

In this paper, we maintain that connecting the above mentioned theorizations of sustainability transformation and debates on contradictions of capitalism and the conditions for post-growth and postcapitalist economies provides a fruitful and as yet not fully explored ground to conceptualize sustainability transformation. An especially relevant perspective has been advanced by scholars who argue that sustainability transformation entails the deconstruction of and liberation from capitalist imaginaries of endless economic growth (e.g. Latouche, 2010) or the ‘breaking’ of capitalist habits (Wilhite, 2016). This research suggests that sustainability transformation might not come about through the mere *addition* of supposed ‘solutions’, values or social imperatives (e.g. Leff, 2010), but rather by *subtracting* problematic existing institutions, forms of knowledge, practices, imaginaries, power structures, and human-non-human relations in the first place.

A recent approach proposed by Feola (2019) similarly rejects the assumptions of ‘automatic’ displacement of extant socio-economic regimes as a *consequence* of the addition of socially, technically, or culturally innovative ‘solutions’. Rather, this framework proposes that actually existing prefigurative and propositional initiatives entail an element of ‘unmaking’ modern capitalist configurations in order to ‘make space’ for alternative, post-capitalist realities. Unma-

king is referred to as ‘a diverse range of interconnected and multilevel (individual, social, socioecological) processes that are deliberately activated in order to ‘make space’ (temporally, spatially, materially, and/or symbolically) for radical alternatives that are incompatible with dominant modern capitalist configurations’ (Feola 2019: 979).

Building on the above framework, in this paper, we call for a research agenda on sustainability transformation that is sensitive to and theoretically equipped for the analysis of transformation as a multifaceted, multilevel process that entails the deconstruction of capitalist modernity or elements thereof, as well as the construction of post-capitalist realities. We demonstrate the usefulness of a lens that attends to processes of making and unmaking in sustainability transformations by applying it to the analysis of an ongoing sustainability transformation. We are guided by the following research question: How are processes of unmaking of capitalist modernity and making of post-capitalist realities entangled in sustainability transformation?

To answer this research question, we examine the case of el Territorio Campesino Agroalimentario del Norte de Nariño y Sur del Cauca, one of a growing number of *territorios campesinos agroalimentarios* (TCA; agro-food farming territories) that have emerged as a Colombian peasant movement that is seeking to realize societal transformation beyond capitalism at territorial level. We introduce an inventory of theories and concepts of deconstruction, rupture and disarticulation drawn from across the social sciences and apply it to identify processes of unmaking of capitalist modernity within a *territorio campesino agro-alimentario*. We describe their diversity in a manner that extends beyond siloed paradigms or disciplines and show how they concretely interplay with the construction (making) of post-capitalist realities. We disentangle processes of deconstruction (unmaking) and construction (making) as two sets of complementary and reinforcing but nonetheless distinct processes. In doing so, we show how processes of unmaking are generative in that they interrupt the routines, structures and relations that impede the constitution of post-capitalist realities.

Theoretical Context: Unmaking and Making in Sustainability Transformation

Knowledge Gaps and Theoretical Shortcomings

Theories of sustainability transformation have generally suffered from an ‘innovation bias’ in the sense that they have overly emphasized the emergence of novelty and undertheorized the deconstruction and disarticulation of existing socioecological configurations. Research on prefigurative social movements has tended to emphasize the ‘construction of the future in the present’, the ‘viral’ diffusion of grassroots prefiguration, and the disruptive effect of such prefiguration on the status quo (e.g. Maeckelbergh, 2011; Monticelli, 2018).

Similarly, socio-technical and sustainability transition studies have long assumed that the disruption of the dominant socio-technical regime is an automatic effect of innovation and have therefore largely undertheorized the former aspect of socio-technical change (Shove and Walker, 2007). Shove (2012) lamented that although the emergence of innovations often implies the disappearance of older socio-technical arrangements, the details of such declines and supersessions rarely receive adequate attention. Along similar lines, Davidson more recently noted the persistence of innovation bias, which in her view can be explained because innovation ‘is far more politically palatable after all, because it does not threaten any vested interests in the current regime. Innovations are also new and exciting; the stuff that wins awards, launches careers and stimulates stock markets’ (Davidson, 2019:255).

Theorizations of sustainability transformation in the field of socialecological systems (SES) studies have suffered from a similar limitation. Bringing forward complexity and systems dynamism, frameworks for understanding social-ecological transformations have dedicated considerable attention to social innovations and the emergence of new ways of thinking, doing and organizing (Park et al., 2012; Moore et al., 2014; Olsson et al., 2014; Haxeltine et al., 2017). Considerations of disruption have been limited to a pre-

-transformation phase, whereby disruption is usually regarded as an effect of external events such as an ecological crisis rather than a result of deliberate action.

Researchers in both of the above-mentioned fields have more recently studied processes of destabilization and disruption. In the field of sustainability transitions, the notion of destabilization —i.e. ‘the process of weakening reproduction of core [socio-technical] regime elements’ such as routines, technical capabilities, strategic orientations, and mindsets (Turnheim and Geels, 2012, p. 35)—challenges the assumption that this process is an inevitable by-product of the emergence of innovation. Rather, the notion of destabilization conceptualizes the ‘unlocking’ of existing socio-technical regimes as a condition for innovation (Turnheim and Geels, 2012, 2013). Another emerging notion of disruption in this field is that of exnovation: ‘a conscious decision to phase out technology or practice, to decommission it, and to withdraw the corresponding resources and use them for other purposes’ (Kimberly, 1981:91). Exnovation includes the deliberate termination of existing (infra) structures and products to pursue ideological, economic, ecological or other objectives which are perceived as desirable (Heyen et al., 2017). The notion of exnovation, which has so far mostly been applied to specific technologies in the energy sector, rests on the assumption that innovations alone often prove insufficient for replacing established unsustainable infrastructures (David, 2018; Davidson, 2019). Similarly, a recently proposed framework of socio-ecological transformations in SES studies acknowledges the importance of challenging incumbent paradigms on the micro, meso and macro social levels in order to contribute to a parallel process of change facilitation. Within this framework, Sievers-Glotzbach and Tschersich (2019:6) explicitly identified the need to challenge crucial capitalist modern paradigms such as ‘materialistic culture and growth’, the ‘control and autonomy of humans over nature’ and ‘expert knowledge and specialization’ in order to pursue socio-ecological transformation.

However, although these theories of destabilization, exnovation and disruption are useful in unpacking some aspects of the en-

tanglement of unmaking and making in sustainability transformations, they hardly offer conceptual tools to examine sustainability transformation in terms of transformation of and beyond capitalist modernity. Indeed, capitalism has by and large been taken for granted in dominant theories of sustainability transitions (Feola, 2020; Newell, 2020), which has limited the scope for imagining alternative futures, policy options and strategies for transformative change. Furthermore, theorizations of sustainability transformation have often given scarce consideration to normative and ontological pluralism, which has contributed to the rigidity of depoliticized techno-centric responses to global environmental change and undermined the transformative co-production of political economies, cultures, societies, and biophysical relations (Nightingale et al., 2019; Pelling et al., 2012; Stirling, 2011; Turnhout et al., 2020). The contributions of subaltern and indigenous scholars on alternative knowledge systems, resistance to capitalism and social transformations (e.g., Nelson, 2008) have rarely been acknowledged in these debates (Latulippe and Klenk, 2020; Turnhout et al., 2020).

In turn, social, political or economic actors with vested interests in the status quo have often co-opted and consequently depleted the term ‘transformation’ of its progressive meaning, as can be observed in instances of ‘greenwashing’ operated by some actors in the business sector (Blythe et al., 2018; Pelling et al., 2012). In this respect, one significant limitation has been a lack of attention to power relations and the politics of sustainability transformations: as transformation becomes an ubiquitous policy imperative—albeit only nominally, such scant consideration of power and politics has reduced the space for other political strategies to face global environmental change, including the potential of resistance and conflict to initiate the early stages of a transformative process (Eriksen et al., 2015; Manuel-Navarrete and Pelling, 2015; Patterson et al., 2017; Blythe et al., 2018; Nightingale et al., 2019; Pelling et al., 2012).

In contrast to sustainability transition and SES studies, autonomous and anarchist geographies, degrowth, and community economies studies have deeply engaged with post-capitalist futures (e.g. Graeber, 2004; Gibson-Graham, 2006; Holloway, 2010; Cha-

tterton, 2016; White and Williams, 2012; Demaria et al., 2019; Schmid, 2019; Schmid and Smith, 2020). Autonomous spaces ‘where people desire to constitute non-capitalist, egalitarian and solidaristic forms of political, social and economic organization’ (Pickerill and Chatterton, 2006:730) exist against (in opposition to) and beyond (as a prefiguration of alternative futures to) modern capitalist socioecological relations (Holloway, 2010; Chatterton and Pickerill, 2010; Chatterton, 2016). Given the pervasiveness of capitalism, ways of living otherwise also necessarily exist within the dominant (albeit not monolithic) system that they seek to overcome (Gibson-Graham, 2006; Wright, 2013). Thus, the emergence and consolidation of autonomous spaces entails both destruction and construction, resistance and experimentation, refusal and proposition. This tension between the making of post-capitalist realities and the unmaking of capitalist ones underscores the critical function of the latter in the non-binary, nuanced in-against-and-beyond character of existing attempts to realize and prefigure sustainability transformation.

However, by and large, this literature has combined thick descriptions of single case studies and weak theory (Gibson-Graham, 2014), which has been pivotal for producing a performative rethinking of the economy but also has hindered more structured theoretical generalizations of transformation processes, specifically with regard to the entanglement between unmaking and making of concern in this paper. Sustainability transformation scholars have repeatedly called for a more in-depth engagement with theories of social change (e.g. Feola, 2015; Fazey et al., 2018) and lamented the inability of existing research and research frameworks to integrate different ontologies about the nature of social and socioecological change (e.g. Sunderlin, 1995; Geels, 2010). Despite attempts to combine, for example, the personal, political and practical dimensions of transformation (O’Brien, 2018), research on transformation has too often struggled to capture and comprehend the widely diverse forms and arenas of struggle for transformation and their productive interconnections. Thus, sustainability transformation scholars have also critiqued the lack

Table 1: Theories and concepts and their significance for the disentanglement of processes of unmaking of capitalist modernity and the making of post-capitalist realities (elaboration based on Feola, 2019, and Feola and Koretskaya, unpublished document).

Theory/concept (field)	Selected references	Core idea	Level at which it occurs	Significance for the unmaking of capitalist modernity*	Significance for the making of post-capitalist realities*
Destabilization (Sustainability transitions)	Turnheim and Geels (2013)	The 'process of weakening reproduction of core [socio-technical] regime elements' such as routines, technical capabilities, strategic orientation, and mindsets (Turnheim and Geels, 2012, p. 35)	Macro (societal)	Weakens the reproduction of core elements of capitalist socio-technical regimes (e.g. technical capabilities for the increasing exploitation of human and non-human life, strategic orientation towards efficiency).	Allows cultural, technical and strategic diversification and experimentation (e.g. as related to modes of exchange outside of the market, responsible technologies or strategic orientation towards sufficiency).
Significance for the making of post-capitalist realities*	Davidson (2019)	A 'conscious decision to phase out technology or practice, to decommission it, and to withdraw the corresponding resources and use them for other purposes' (Kimberly 1981, p. 91)	Macro (societal)	Abandons, purposefully terminates, de-funds, de-routinizes and/or de-institutionalizes socially and environmentally destructive/exploitative technologies, and the production and consumption practices with which they are bound.	Allows political and financial capital to be invested in alternative technologies (e.g. low-tech, frugal technologies) and related practices, value systems (e.g. oriented towards care), and more horizontal power structures.
Unlearning (Organization studies)	Fiol and O'Connor (2017a, 2017b)	Consciously not thinking or acting in 'old' ways (Stenvall et al., 2018)	Micro (individual), meso (collectives)	Abandons, rejects, discards from use, gives up, abstains from retrieving, questions taken-for-granted values, norms, beliefs (e.g. the idea of progress as endless accumulation and expansion), and operations and behaviour (e.g. over-production and-consumption).	Enables learning new cultural significations and routines (e.g. voluntary simplicity) and emotional re-attachment (e.g. with nature).
Sacrifice (Political ecology)	Maniates and Meyer (2010)	Giving up something (now) for something of higher value (to be obtained now or in the future).	Micro (individual), meso (collectives)	Entails voluntary reduction of consumption (voluntary simplicity).	Enables time and space for developing new cultural significations and practices, e.g. as related to non- utilitarian, non-market-based engagements with the self, others, and the biophysical environment.
Crack capitalism (Social movement studies and autonomous geographies)	Holloway (2010)	A refusal to perpetuate capitalist practices and organizational structures through its commitment to value, money, profit.	Micro (individual), meso (collectives)	Entails the refusal to reproduce capitalist relations (e. g. labour, value). Rejects rigid classifications and totalizing abstractions (value, labour) as expressions of modern rationalism and capitalist form of domination.	Enables autonomy to enact forms of doing and organizing based on non-monetary values, self- determination, horizontal relations, and principles of cooperation and recognition.
Everyday resistance (Peasant and development studies)	Scott (1986)	Everyday resistance refers to quiet, dispersed, disguised, or otherwise seemingly invisible acts of opposition, struggle or refusal to cooperate with abusive powers.	Micro (individual), meso (collectives)	Questions, opposes and objects to abusive or oppressive power relations. Refuses to cooperate with or submit to oppressive behaviour and control (e.g. as it relates to the appropriation and exploitation of cheap nature and labour).	Enables autonomy and sense of dignity.

Resistance (Social movement and political studies)	Hollander and Einwöhner (2004)	Resistance refers to varying forms of overt (visible) intentional actions of opposition, which are recognized by the targets of such opposition.	Meso (collectives), macro (societal)	Questions, opposes and objects to abusive or oppressive power relations. Actively dismantles material and symbolic infrastructures of capitalist exploitation of human or non-human life; contests and prevents the physical or symbolic presence of organizations imposing capitalist institutions and relations.	Defends spaces of diversity and autonomy. Reinforces alternative subjectivities through collective action.
Refusal (Decolonial/indigenous and cultural studies)	McGranahan (2016) Simpson (2016)	Refusal is the rejection or negation of an imposed and taken-for-granted definition of a situation, subjectivity and/or social relation.	Micro (individual), meso (collectives)	Abstains from, stops, and/or breaks exploitative and/ or alienating relations (e.g. labour relations). Rejects (taken for granted) consent to, e.g. definitions of progress as endless accumulation or consumption as only political space.	Affirms freedom to redefine subjectivities, problem definitions, histories; thereby provides alternative basis for social recognition, empowerment and reconfiguration of social relations on the ground of, e. g., principles of care, democracy, autonomy.
Delinking (Decolonial and cultural studies)	Mignolo (2007) Wanzer-Serrano (2015)	De-linking from the colonial rhetoric of modernity, which must be conceived as simultaneously capitalist, and denouncing the pretended universality of a Western and European episteme in which capital accumulated as a consequence of colonialism.	Meso (collectives), macro (societal)	Uncovers hidden assumptions, rejects/resists claims to epistemic privilege and universality of Western thought. Disengages from the logic and rhetoric of modernity and capitalism.	Allows claiming and re-linking with diverse (e.g. relational) logics and types of knowledge (e.g. non- scientific) and a redefinition of subjectivities, citizenship, democracy, human rights, human and non-human nature, economic relations.
Decolonization of the imaginary (Degrowth)	Latouche (2010)	A radical and profound cultural change of the foundational imaginary significations of modern capitalist societies.	Micro (individual), meso (collectives), macro (societal)	Refuses complicity and collaboration with the ideology of development, e.g. as in the abstention from the use of environmentally destructive technologies, or the limitation of space allotted for advertisement. Cognitively subverts and critiques economicism and the imperative of endless economic growth.	Enables the autonomous determination of new imaginaries (e.g. alternatives to development).
Defamiliarization (Decolonial and cultural studies)	Shklovsky (1925) Vaught	The 'removal of an object from the sphere of automatized perception' (Shklovsky, 1925, p.6).	Micro (individual)	Ruptures, de-automatizes, dis-habituates automatized perception, e.g. as related to cultural constructions of value and worth. Emotional detachment and critical reflection. Disrupts common sense, e.g. as related to taken-for-granted production-consumption routines and utilitarian value systems.	Allows critical awareness, emotional re-attachment, and establishment of new cultural meanings.

* We provide here an interpretation (stretching) of the theories and concepts to illustrate their applicability to and significance for the study of the unmaking of capitalist modernity and the making of post-capitalist realities. The examples are illustrative and not comprehensive.

of frameworks that can support a multi-level analysis of sustainability transformation. For example, the frameworks used in sustainability transition and SES research do not lend themselves to supporting the analysis of micro and individual level processes, whereas those used in research on post-capitalism and autonomous spaces place individual, micro and meso levels in focus but are less sharp on macro-level processes. Sievers-Glotzbach and Tschersich's (2019) framework might be a possible exception to this norm; however, the applicability and added value of this framework remains to be proven in empirical research.

In summary, the scholarship on sustainability transformation is rich and diverse; however, theorizations of processes of sustainability transformation—how such transformations come about, how they unfold, and how they achieve desired outcomes or fail to do so—suffer from important gaps and theoretical shortcomings that have narrowing and siloing effects on our perspective on the entanglement of processes of construction (making) and deconstruction (unmaking) in sustainability transformation.

A Perspective on The Unmaking of Capitalist Modernity in Sustainability Transformation

In response to the above shortcomings, the following perspective expands on Feola (2019) by introducing an inventory of theories and concepts of deconstruction, rupture and disarticulation drawn from across the social sciences (Table 1). This perspective contrasts with theories of sustainability transformation that foreground 'windows of opportunity' or the capacity for innovative 'solutions' to outcompete or disrupt established socioecological confi (Feola, 2019). Consistently with Feola's proposal, which draws attention to the deliberate unmaking of socioecological confi these theoretical tools conceptualize processes of deconstruction, rupture and disarticulation as *conditions for* rather than *consequences of* social and transformation, and they can be used to inform thinking about the role of unmaking of modern capitalist relations in sustainability transformation beyond capitalism. T1, T2

This inventory is consistent with an understanding of unmaking as a combination of situated processes, whereby acts of unmaking are not end points but rather means inscribed in the performance of historically and spatially situated individual, social and socioecological transformation (Feola, 2019). Processes of unmaking involve both symbolic and material deconstruction and often entail contradictory personal experiences, which open up spaces for different ways of being that are enabled by the rejection of modern capitalist rationalist and utilitarian subjectivities but which might involve compromises, negotiations, setbacks, and dilemmas (Feola, 2019). Unmaking can occur through public actions (e.g. civil disobedience, protests) and disruptive public discourse but are more often private or even covert, and hence less prone to co-optation by states and markets (Feola, 2019). Unmaking is also generative; it interrupts the reproduction of capitalism, thereby opening possibilities otherwise out of reach, and it entails the withdrawing of support from a dominant system in favour of alternative ethical allegiances (Feola, 2019).

The utility of these concepts is illustrated using the case study of a *territorio campesino agroalimentario*. We adopt an interdisciplinary approach to explore the potential of our framework to inform the analysis of processes of unmaking as conditional components of sustainability transformation beyond capitalism. In doing so, we stretch these theories beyond their conventional application, which has not necessarily been to questions of sustainability or post-capitalist transformation. We show their applicability to and significance for the study of the unmaking of capitalist modernity and the making of postcapitalist realities. In concrete cases of sustainability transformation such as that studied in this paper, none of these existing theoretical perspectives in isolation can explain the unmaking of capitalist modernity because different forms of unmaking may be at play and interact with others at multiple levels (from the individual to the socioecological) in distinct cases of sustainability transformation. Thus, the interdisciplinary application of these theories and concepts shatters the paradigmatic and disciplinary silos that have reproduced the fragmentation of

this scholarship. Furthermore, the inventory does not aim to offer an integrated theory of unmaking, but rather is designed to direct attention in research on sustainability transformations to important processes that may otherwise be overlooked within present frameworks. This framework may be subject to further refinement and extension on the basis of future research.

Materials and Methods

To demonstrate the usefulness of a lens that attends to processes of making and unmaking in sustainability transformations, we draw on the case study of the *Territorio Campesino Agroalimentario del Macizo del Norte de Nariño y Sur del Cauca* (henceforth, TCA Nariño and Cauca). Data on this case study was collected through both desk research and during fieldwork conducted between February and April 2019. We adopted a mixed methods approach consisting of the analysis of written and visual documents (see electronic supplementary material) produced by peasant organizations and six semi-structured interviews conducted by one of the authors (Moore) with peasant leaders and experts on peasant movements in Colombia. Interviewees' identities are kept anonymous in this paper. In addition, in April 2019 Moore attended the *Foro Sobre Derechos Campesinos*, a four-day long meeting where representatives from around the country gathered to discuss peasant rights and the future of the Colombian agrarian movement in light of the publication of the United Nations' Peasant Rights Declaration (2018). The *Foro Sobre Derechos Campesinos* was supported by multiple research, peasant and non-governmental organizations and hosted by the Universidad Nacional de Colombia in Bogotá. Notes were taken throughout the conference and several speeches and discussions were recorded and transcribed, as were all visual documents used in this study. Our approach to data collection assumed that TCA Nariño and Cauca can only be understood through the forms of seeing and naming the world of those who construct it: that it is only through the worldview of the peasants themselves that one can understand the strategies and visions they are using to push forward their own form of development (Iguaraín, 2018).

Our data analysis approach involved an initial phase of characterization of the sustainability transformation beyond capitalism in which TCA Nariño and Cauca is engaged, which includes the construction of autonomous institutions (Fig. 1). We then reconstructed the history of TCA Nariño and Cauca, which we interrogated through the abovediscussed making/unmaking lens (Table 1). Throughout this process, the empirical material was analysed through thematic and discourse analysis (Hajer, 1995), which was informed by de Souza Santos's (2014) approach to counterhegemonic grammars and Fals Borda (2010) perspective on popular knowledge.

Case Study: Territorio Campesino Agroalimentario del Macizo del Norte de Nariño Y Sur Del Cauca

Background: Peasant Struggles and the Emergence of Re-Constitutive Processes

Territorios campesinos agroalimentarios (TCA) have emerged as territorialized associations of peasants seeking to create alternative forms of agricultural production, non-alienated labour and relations to nature. This form of association has taken shape within recent peasant, indigenous and afro-descendant joint mobilizations that struggle against marginalization, lack of access to land, and the degradation of vital ecosystems caused by the expansion of agro-industrial, extractive industries and infrastructural megaprojects. Peasant, indigenous and afrodescendant organizations alike see these processes as stemming from a capitalist neoliberal development model which is based on the pillars of extractivism and displacement, as reflected in the Colombian Government's quadrennial *Plan Nacional de Desarrollo* (National Development Plan) (Yie Garzo'n, 2017; Daza, 2019). These mobilizations have not only contested social exclusion and revendedicated political rights and the redistribution of resources but also activated 're-constitutive processes' (Jiménez Martín et al., 2017; also see Cruz, 2014), i.e. processes of political creativity and social bottom-up prefiguration that

lead to the construction of a societal project that builds on popular democracy, recognizes the multiplicity of territorial governance forms, constructs a social, solidary and diverse economic model, [and] permits to overcome the capital-nature contradiction, among other elements that express a new worldview (Jiménez Martín et al., 2017:316, authors' translation).

Launched in 2013, the *Cumbre Agraria, Campesina, Etnica y Popular* (Agrarian, Peasant, Ethnic and Popular Summit) is one of many interconnected and nested social movement platforms such as the *Coordinador Nacional Agrario* (CNA, founded in 1995) and the *Congreso de los Pueblos* (founded in 2010), which bring together social movements at the national level in participatory processes, marches, assemblies and deliberative moments.

As one of the outcomes of these mobilizations, the idea of forming TCAs emerged after the fourth CNA Assembly in 2013 and informed initial attempts to establish them nation-wide. Eager to learn about the experiences of TCA construction, CNA met again for a fifth assembly in February of 2016. The regions of Cauca and Nariño appeared to be more successful than others, and soon became a blueprint for other territories to follow. Encouraged by the positive feedback from the assembly, the peasants of Nariño and Cauca continued their work; local communities from 15 municipalities, encompassing three community meetings in each municipality, various local mayors, and more than 3,000 peasants from the region actively participated in the collective discussion and elaboration of the declaration of TCA (Iguaraín, 2018). The first TCA, Territorio Campesino Agroalimentario del Macizo del norte de Nariño y sur del Cauca was officially declared on 25 November 2016.

Local Circumstances

The construction of TCA Nariño and Cauca was facilitated by a number of place and time-specific circumstances. First, a pre-existing strong social fabric among peasant communities and organizations, including the *Comité de integración del macizo colombiano*, had been reinforced by collaboration during the national agrari-

an strike in 2013 (see Salcedo et al., 2013; Cruz, 2014; interview, 18.03.19). Furthermore, peasants in Nariño and Cauca could rely on the traditional collective organization of the *minga*⁴. In December of 2015, the first *Minga por la Soberanía y Armonización* was held in Nariño with approximately 600 participants. Four more *mingas* followed, including one in January with more than 1,200 participants. It was at one such *minga* that mayors promised to reject extractive megaprojects and to support the formation of TCA Nariño and Cauca. The aims of other *mingas* were to establish the foundational ideas of the *Plan de Vida Digna, Agua y Dignidad* (more on this below) and construct autonomous governance institutions (Yie Garzón, 2017).

Second, local peasant communities and organizations also shared a history of struggle against environmental injustices caused by the capitalist development model. When in 2011 the Canadian company Gran Colombia Gold launched the so-called *Mazamorra* project, which included plans for exploration and extraction of gold over an area of nearly six thousand hectares, peasant communities mobilized to collectively oppose what they considered an intrusion in their territory. Feeling threatened in the absence of the right of prior consultation, many felt they were being denied a say in the exploitation of the local ecosystem on which their livelihoods depended. At the time of the events, the Colombian state granted the right of prior consultation (*consulta previa*) to indigenous and afro-Colombian but not peasant communities. The mobilization was met by death threats to peasant leaders and an escalation of social mobilization, which culminated in the occupation of two of Gran Colombia Gold's encampments. The local authorities did not initially take a position on the issue; however, the local mayors eventually issued an open letter that asserted their opposition to mining operations in their municipalities based on the grounds that the lands

⁴ A *minga* is a gathering that offers a space over a period of several days for people to consciously discuss and share ideas to work towards solutions to collective problems. Indigenous people first applied this idea to social mobilization, but *mingas* have spread beyond the indigenous community. Today they are used as a collective mode of social organizing with its power coming from the ability to express political action in alliance with others (Mantilla, 2018).

have traditionally been used for agriculture. The strong opposition of local communities and administrations forced Gran Colombia Gold to cease exploration in October 2011 (Muñoz, 2017).

Third, local peasant communities share a deep-rooted cultural identity defined in relation to territory (interview, 18.03.19). Due to this strong connection between land and identity, the idea of a *territorio campesino* (peasant territory), although as yet unformalized, was an old aspiration of local peasants (interview, 24.03.19; Muñoz, 2017). The threat of mining in the region made those cultural connections explicit in collective discussions.

Finally, fourth, the construction of TCA Nariño and Cauca was facilitated by the history of direct action at community level to respond to the national government's neglect in this region. While the state has historically been unable to consistently provide adequate basic social, health and educational services, personal security and rule of law, infrastructure, and technical support to the local communities, peasants have long adopted what Muñoz (2017) has called *de facto* actions: local peasant communities autonomously solving concrete issues through the 'sovereign decision of the *campesinos* and *campesinas*' (Grupo Kavilando, 2017), as endowed with 'the legitimacy that is entitled by being the people who have historically lived in this territory' (interview, 24.03.19). Nevertheless, *de facto* political action is not merely a 'fallback' option when *de jure* pathways are absent but rather a conscientious parallel strategy. Official TCA documents insist that 'TCAs will be constructed *de facto* by the communities that inhabit them and their foundation will be found in the legitimacy and strength of its organizational expressions' (Coordinador Nacional Agrario (CNA), 2015: 17). The grassroots approach and idea of 'working with the impossible' are critical characteristics of *de facto* political action. For TCA leaders, thinking about and discussing 'the impossible' constructively expands the limits of the possible, thereby motivating them to conceive of solutions beyond the limits of current legislation (Muñoz, personal communication, 15.03.19). Decisions on *de facto* actions were legitimized through hundreds of regular community meetings leading up to the declaration of the TCA Nariño and Cauca.

Sustainability Transformation Beyond Capitalism in Territorio Campesino Agroalimentario

TCA's are simultaneously a collective vision for an alternative future, a physical geographic area, and a political tool for institutionalization. They are distinguished from other territorial figures such as *zonas de reserva campesina* (peasant reserve areas) by the participation of *campesinos* (peasants) as autonomous agents capable of determining in their own terms how the territory and community will develop (Mun˜oz, 2017).

A TCA is also a discursive space where the peasantry can put forward their visions for a just and dignified future and assert a proud identity that stands against alienation:

The construction of territories connects us directly to the culture of those who inhabit them and this implies that we are dealing with history, socially constructed social relations, with a transformed landscape, with struggles that have already started. To recognize ourselves as peasant men and women is fundamental for the appropriation [of our identity], for our [cultural] differentiation, for making our words express what we are and what we feel (Coordinador Nacional Agrario (CNA), 2017, authors' translation).

The physical area of a TCA is demarcated by common agreement of the *campesino* communities that inhabit it and have decided to unite and self-organize. A ground rule for this demarcation is that the majority population must be *campesino* and it cannot overlap with land already established under a different territorial arrangement, such as *resguardos* (reservations, in indigenous communities) or *consejos comunitarios* (community councils, in afro-descendant communities). Furthermore, the TCA's role as a political tool is fulfilled by translating the collective norms, values and visions of the peasantry into concrete institutions to give it legitimacy and power and prefigure an alternative development pathway.

Based on four fundamental principles, namely autonomy, coexistence, participation and profound respect for life and nature (see electronic supplementary material), the construction of peasant territoriality (*territorialidad campesina*) encapsulates the essence

of the sustainability transformation pursued by TCAs. Through the construction of territory, a TCA constitutes novel, inclusive and dignifying social and political relations as well as a deeply felt human-nature connection:

We are the water from the mountains, the water from the mountains is in our bodies, because we, our grandparents, great-grandparents, we all have this water and the minerals it contains in our body. We are the land because we eat the products and minerals that the land gives; they are in our bodies [...] The relationship that exists between us as campesinos, it is not relationship of use, of utilization of land to produce, instead it is a much stronger connection and it is that which we are defending and have to continue defending (Daza, 2017, authors' translation).

One of the fundamental motivations behind TCAs is the defence of peasant identity, culture and ways of life, of peasant men and women's bodies, and of ecosystems and the commons from capitalist appropriation and exploitation. Nevertheless, TCAs cannot be reduced to a mere resistance movement or a backward-looking defence of a putatively primordial peasant culture. TCAs entail the construction of peasant territoriality in forms that have never before existed: a forward-looking constitution of human-human and human-nature relations in ways that grow from the roots of traditional culture but significantly move beyond them as well as beyond capitalist modernity to the extent to which elements of both traditional culture and capitalist modernity are incompatible with the desired vision of a sustainable future.

The construction of territory in TCA entails an ecological and social re-embedding of economic practices in ways that improve the wellbeing of the local population and ensure ecological sustainability. The notion of *economia propia* is a pivotal axis of the TCA sustainability transformation⁵; it is an economic alternative to capitalist development that responds to the 'potentials, necessi-

⁵ The term *propia* here simultaneously denotes emphasis on (i) appropriateness, i.e. of socioecological and cultural embeddedness, specificity, and fit; (ii) ownership, sovereignty and control; and (iii) endogeneity. This term is used with reference to both the economy (*economia propia*) and education (*educaci' on propia*).

ties, and values of the *campesinado* and to the life that surrounds it' (TCA, 2016a). The *Plan de Vida Digna* (discussed below) lays the foundations of *economía propia* as a set of situated economic relations that function on the principle of sufficiency, which entails a guarantee of forms of production and exchange that are just, pursue food sovereignty, and the protection of the environment and human relations (TCA, 2016a; Yie Garzo'n, 2017). Strategies of *economía propia* include crop diversification to increase community resilience and self-sufficiency, prioritization of subsistence production with any surpluses going first to the local market before entering national or international markets, and public ownership of common goods such as water (La Direkta, 2014). This model opposes capitalist development; it challenges, among others, the understanding of efficiency (productivity), self-interest, violence domination and homogeneity as an organizing principle of agricultural production and human and non-human life (Coordinador Nacional Agrario (CNA), 2017; Cardona-Lo'pez, 2020).

Disentangling Processes of Unmaking and Making in Territorio Campesino Agroalimentario Nariño and Cauca

Processes of Unmaking and Making: Territorial Institutions

We understand the sustainability transformation pursued by TCA Nariño and Cauca as consisting of interconnected and interdependent processes of deconstruction and disarticulation (unmaking) of existing realities and of construction (making) of alternative ones. Fig. 1 visualizes the entanglement of these two sets of processes.

The construction of peasant territoriality, including an *economía propia*, has proceeded through the creation (making) of new institutions, namely autonomous governance institutions, the *Guardia Campesina* (peasant guard), knowledge commons institutions, and the *Plan de Vida Digna* (Fig. 1). We discuss them in turn.

Autonomous governance institutions. The political system within TCA Nariño and Cauca, referred to as the *gobierno campesino* (peasant government), is decentralized and constructed from

the bottom-up with the idea ‘that the communities start from the local to create processes of resistance, of organization, of self-governance, towards a conformation of a popular resistance in all of the nation that can counteract the power of the imperial regime.’ (TCA, 2016b). The *gobierno campesino* is meant to be inclusive and representative, with authority and legitimacy stemming from the territory. The *gobierno campesino* does not aim to replace but rather to work in parallel and in collaboration with state government.

The role of elected members of the *gobierno campesino* is *mandatar*, to mandate, which means to reach collective agreements and transform them into norms while guaranteeing that they express the values, interests, and needs of the people living in the territory. The mandate is the primary tool used to legitimize collective action and serves a mechanism to ensure that ‘all of the activities that we are doing have to be talked about and converted into an instrument that will guide our declaration of rights, our proposals, our projects’ (Daza, 2019).

The *Junta de Gobierno Campesino* is the political body of the *gobierno campesino* and is entrusted with leading the process of

Table 2: Overview of the unmaking of capitalist modernity in Territorio Campesino Agroalimentario del Macizo del norte de Narin˜o y sur del Cauca.

Processes of unmaking	Theoretical reference	What is unmade
Rejecting and negating imposed and taken-for-granted identities and imaginary significations	Refusal (e.g., McGranahan, 2016; Simpson, 2016) De-linking (e. g., Mignolo, 2007; Wanzer-Serrano, 2015) Decolonization of the imaginary (e.g., Latouche, 2010)	Imaginary and imperative of development as defined by Eurocentric modernity; imposed identities of peasant, consumer entrepreneur and hired labourer; patriarchal culture.
Abstaining from using undignifying but routinized and interiorized language	Unlearning (e.g., Fiol and O’Connor, 2017a, 2017b)	Hegemonic discourse, patriarchal culture.
Withdrawal from the market economy Expulsion of destructive enterprises from the territory	Crack capitalism (e.g., Holloway, 2010) Resistance (e.g., Hollander and Einwohner, 2004)	Market economy relations. Capitalist presence and its socioecological impacts on the territory.

constructing and managing the territory into the future (TCA, 2016b) (see electronic supplementary material). The Junta's representatives are elected in municipal meetings to ensure representation from all regions. Each municipality must elect three people, ideally a woman, a man, and a member of the youth in order to guarantee inclusiveness and diversity (TCA, 2016a).

Guardia Campesina. The *Guardia Campesina* (peasant guard), is an unarmed group of people who are elected in the number of three per municipality and is subordinate to the *Junta de Gobierno* (TCA, 2016c). Its members are required to participate in a special training and establish a communication system to spread alerts quickly throughout the territory (TCA, 2016b). In case of a threat (e.g. intrusion of mining companies), the *Guardia Campesina* informs everybody in the territory to facilitate and lead a mass mobilization:

We, the campesinos, through our way of living and farming, have historically carried out the role of 'guardians of life'. Today the territories which we inhabit are subjected to multiple threats, among which is mining. Because of this, it is necessary to form a *Guardia Campesina* which can ensure the protection of both the territory and its people. (TCA, 2016c).

Institutions of knowledge commons. Peasants participate in distributed knowledge production and circulation, such as the *campesino-a-campesino* (peasant-to-peasant) model, which is centred around the idea of a distributed network of municipal agrarian committees united through a common agrarian agenda (Daza, 2017). Relevant knowledge is spread through personal communication, schools, conferences, and community meetings. This method has empowered peasant communities to construct their own land ordinances and has made it possible to activate collective participatory processes around the *Plan de Vida Digna* (Forero, 2018).

Plan de Vida Digna. Emerging from the experiences of some indigenous, afro-descendant and peasant communities from the 1980 s, the *Plan de Vida Digna* (also *Plan de Vida Comunitario* or *Plan de Vida Digna, Agua y Dignidad*) is a form of participatory community-led planning that aims at conducting collective pro-

cesses of constructing visions of possible futures and empowering communities to inhabit, govern, make decisions, and legislate over their territory, ways of living, economy, and culture (Coordinador Nacional Agrario (CNA), 2015). *Plan de Vida Digna* is informed by principles of solidarity, justice, dignity, a holistic view of human and non-human life, collective participation, autonomy, and sovereignty (Coordinador Nacional Agrario (CNA), 2015).

The *Plan de Vida Digna* stands in contrast to capitalist development

because we want life, we want agriculture, we want *alimentación*, we want vital goods like water. Neoliberalism does not desire these things, it only wants profits, to extract minerals for export, while we, on the contrary, defend life. Our *Plan de Vida Digna* is a form of countering the neoliberal model (Iguara'n, 2018).

Furthermore, in contrast with the National Development Plans of the national government, which assume a four-year timeframe, the *Plan de Vida Digna* assumes a long timeframe ranging from twenty to thirty years. This temporal dimension of the *Plan de Vida Digna* is a key form of opposition to the 'short term mentality of capitalist accumulation as a criterion for development' (Iguara'n, 2018).

Like other institutions for autonomous governance in TCA Nariño and Cauca, the *Plan de Vida Digna* responds to calls for advancing 'a territoriality free of patriarchy' (interview, 24. 03. 19). This is in contrast to the machoistic and patriarchal culture remains widespread in rural Colombia. The fact that women still have to demand basic rights—'rights to be, to know, to learn, to speak, to decide' (interview, 24. 03. 19)—is understood as a serious problem in TCA Nariño and Cauca and is therefore as much an object of transformation as capitalist development.

In summary, autonomous governance institutions, the *Guardia Campesina*, knowledge commons institutions and the *Plan de Vida Digna* are foundational institutions that prefigure and to an extent already realize the construction of an autonomous society, including an *economía propia*. TCA Nariño and Cauca is set aga-

inst-and-beyond even while still a part of and therefore inevitably within a capitalist society. However, this construction is made possible by the unmaking of the socially and ecologically destructive presence of capitalism as embodied in the extractive industries and agribusiness (Fig. 1; Table 2). TCA Nariño and Cauca's vision and practice of autonomous society is founded on agroecological agriculture that is 'kind to the ecosystem, that produces produce free of chemicals, that takes care of people, that takes care of the water and the environment', which is supplemented by plans to reforest and collectively manage water resources (interview, 24.03.19)

This form of sustainable agriculture would be critically undermined by ecological destruction (e.g. soil contamination, disruption of water cycles, biodiversity loss) caused by the extraction of natural resources. Furthermore, TCA Nariño and Cauca depends on the inclusion and participation of healthy people and ecosystems and on their dedication to building a dignified economy. This approach is incompatible with agrobusinesses as well as extractive industries, which have a long history of negative health impacts on hired labourers and local communities, and often require the 'extraction' of labourers from their community (e.g. Goebel et al., 2014; Goebel and Ulloa, 2014; Feola, 2017; also see the Environmental Justice Atlas: <https://ejatlas.org/>).

Peasants in TCA Nariño and Cauca have achieved the unmaking of ecological and social destruction in two ways (Fig. 1, Table 2). Firstly, peasants deliberately—albeit often partially—withdraw from the market economy, i.e. from food supply chains and exploitative labour markets in the effort to localize the economy, by establishing locally embedded social relations as well as material (e.g. water) flows. Secondly, peasants engage in the expulsion of destructive economic, in particular extractive enterprises from their territory. Illustrated by the case of Gran Colombia Gold described above, the expulsion of extractive industries was in turn made possible by the creation of a territorial border (see map in electronic supplementary material), in itself another fundamental institution, which became consolidated in collective deliberations and led to the declaration of TCA Nariño and Cauca in 2016, as described above. TCA Nariño

and Cauca's border is actively monitored by the *Guardia Campesina*. Furthermore, it is reproduced through symbolic as well as material actions, such as *caravanas* (caravans) attended by hundreds of people, which aim to harmonize the territory and cultural identity (Yie Garzo'n, 2017). The peasants put up flags indicating their permanence in this territory as a symbolic gesture intended to assert to companies that 'this land is our land, it is our children's land, the water is for humanity not for profit' (interview, 24.03.2019). *Caravanas* are events of 'brotherhood with mother earth, it is a spiritual event were the participants talk to the mountains, talk to the lakes, and communicate that they are there to defend them' (interview, 24. 03. 2019; also see Yie Garzo'n, 2017). According to one peasant leader, the *caravana* 'seeks to alert the whole territory of the threat of mining transnationals' and remind people to care for the earth and 'the generosity she has had with humanity.'

Processes of Unmaking and Making: Development and Subjectivities

The construction of new institutions rests on processes of deliberate refusal and unlearning of development imaginaries and imperatives and their related subjectivities of peasant and human beings (Fig. 1, Table 2). In turn, these processes of unmaking enable the elaboration and projection of alternative subjectivities that inform the new institutions as well as the relational ontologies and holistic principles on which the TCA is founded. Peasants explicitly refuse the dominant development paradigm based on material accumulation by dispossession, violence, the imperative of endless economic growth and profit-seeking, and the reduction of people and nature to commodities. This paradigm is incompatible with a dignified life founded on TCA's principles of autonomy, coexistence, participation, and deep respect for life and nature (electronic supplementary material) (Cardona-Lo'pez, 2020).

The refusal of development has two facets, both of which are formalized in the official TCA written and audio-visual documents used to present this institution to other peasant communities and the wider public. Firstly, peasants refuse the subjectivities of consumer, hired labourer, and entrepreneur (food producer) im-

posed by the dominant capitalist development narrative; peasants refuse ‘what the system wants us to want’ (interview, 24.03.19). A peasant leader laments the hegemonic nature of the globalized neoliberal capitalist system that ‘insists that the population have only one type of imaginary, only one type of culture’, an imaginary ‘of being a consumer. Not human beings but consumers.’ (interview, 24.03.19). To peasants, life is the central organizing principle rather than profit: ‘what unites us is life’ (Yie Garzo’n, 2018; also see: Cardona-Lo’pez, 2020). Peasants see agriculture as more than a form of employment and perceive themselves as more than agricultural workers. From a *campesino* perspective, agriculture has ‘never been catalogued as a business’; being an entrepreneur is not part of the *campesino* mentality. People in the territory do agriculture for agriculture’s sake, because of tradition; it is their duty and lifestyle (interview, 24.03.19).

The second facet of the refusal of development relates to the way in which the state’s development discourse in Colombia depicts peasants and their cultures and rural ecosystems as dispensable and as barriers to development and progress towards modernity. *Campesinos* engage in deliberate unlearning of this discourse by abstaining from using the routinized, interiorized language and imaginaries of peasants as ‘lacking basic needs, being years behind in terms of development, backward and inefficient in agricultural techniques’ (Daza, 2019). In parallel, peasants develop and learn to use an alternative discourse in which the grammar of rights is very prominent; peasants request the right to life and the right to territory. Similarly, peasants abstain from reproducing interiorized notions of ‘natural resources’ and rather learn to think and speak of nature in terms of ‘vital goods’ or ‘ancestral heritage’. The new discourse makes peasants’ lived connection with nature explicit and reveals their intergenerational, long-term temporal perspective whereby present natural conditions are the result of ancestors’ actions. Such counterhegemonic grammar becomes part of the larger effort to construct an alternative history of the peasantry—one that reaffirms their dignity, autonomy and cultural relevance. To recover historic memory and construct a non-hegemonic history of

the peasantry also enables campesinos to critically examine some aspects of peasant culture. In particular, the persistence of a machoistic and patriarchal culture is explicitly acknowledged as being incompatible with the vision of a dignified future for the community, and thus it is deliberately refused, thereby enabling the design of new institutions that practice inclusion, as described above.

For TCAs, it is important to make a conscientious effort to learn about one's own history and the traditions and rituals of everyday life that make their culture. The construction of an alternative peasant history is very closely connected to the new discourse on the good life (*buen vivir*). The two discourses reinforce each other and result in symbolic practices and proposals that solidify new ideas. One such proposal is that of *educación propia*: an education based on ideas of autonomy, dignity, and cultural relevance that revendicates being *campesino* (Mantilla, 2018). *Educación propia* aims at strengthening communities such that peasants can become leaders who know their rights and can defend their territory (Mantilla, 2018). The proposal of *educación propia* includes a requirement that rural school principals must be *campesinos*, people that grew up in the countryside rather than the cities, and that there is at least some discussion of what it means to be *campesino* (interview 24.03.19).

Discussion and Conclusion

Contribution to Theorizations of Unmaking Capitalist Modernity in Sustainability Transformation

In this paper, we have sought to advance the theorization of sustainability transformation by expanding the notion of unmaking capitalist modernity. We have contended that rather than conceptualizing sustainability transformation as a process of addition of sustainability values, social imperatives, or socio-technical solutions, which are assumed to displace extant values, social imperatives or socio-technical regimes, we should see the role of unmaking as a possible condition of sustainability transformation.

We have offered empirical evidence of how unmaking and making operate in a concrete case of sustainability transformation. In undertaking this analysis, we find that the unmaking of capitalist modernity cannot be adequately explained from any single existing theoretical perspective. In seeking to develop this field, we have brought together theories from as diverse fields as sustainability transitions, degrowth, political ecology, decolonial and indigenous, resistance, anarchist, and cultural studies scholarship in order to provide the basis for a new analysis that takes into account the deconstruction of unsustainable capitalist socioecological relations alongside the construction of sustainable post-capitalist realities in sustainability transformation. Thus, this paper has covered some ground towards an integrative framework of the role of the disruption of capitalism in sustainability transformation by reconstructing the interplay of different but interrelated processes of unmaking from an empirical perspective.

In advancing the theorization of unmaking of capitalist modernity in sustainability transformation, this paper also makes at least three more specific contributions. First, it expands the theoretical basis for studying processes of unmaking of capitalist modernity and provides empirical evidence of these processes and their operation in the case study of TCA Nariño and Cauca. Many of these processes of unmaking are underappreciated in sustainability transformation research, or they have been studied in isolation, if at all, in relation to sustainability transformation. Although only a subset of the processes presented in Table 1 were actually observed in this case study, other processes may be at play in concrete cases of sustainability transformation elsewhere. Second, this paper shows how processes of unmaking and making are concretely entangled; unmaking creates conditions for the construction of alternative institutions; however, unmaking and making occur in chains whereby the construction of some institutions and the deconstruction of undesirable subjectivities, imaginaries, physical and social structures can enable each other in turn (Fig. 1). This finding provides nuance to the relationship between processes of unmaking and making. Third, the analysis

of TCA Nariño and Cauca illustrates that the unmaking of capitalist modernity for the pursuit of sustainability transformation can be combined with the deconstruction of other cultural elements—in this case, traditional patriarchal relations—that coexist with the former and are equally incompatible with the realization of peasant territoriality. In this respect, too, this case study provides evidence against overly simplistic conceptions of sustainability transformation as instances of mere anti-capitalism.

In sum, our analysis supports the understanding of generative processes of unmaking of capitalist modernity in sustainability transformation. As postulated by Feola (2019), processes of unmaking interrupt the routines, structures and relations that impede postcapitalist realities from emerging and becoming consolidated. Political acts of unmaking are sometimes covert and hidden, which makes them no less meaningful to those who enact them and their collectives, whereas other times, they are vocal and visible; they can take conventional (e.g. protests) or unconventional political forms (*de facto* actions, *caravanas*). Importantly, disruptions of the status-quo have an emergent and processual character; they are performed and reproduced in everyday lives of individuals and collectives (Feola, 2019), as in the case of counterhegemonic grammars and the enforcement (both symbolic and material) of the territorial border in TCA Nariño and Cauca. Unmaking and making are lived in the contradictory everyday experiences of individuals and collectives who exist in-against-and-beyond capitalist modernity: peasant communities living simultaneously in two different territorial constructions, which also correspond to contrasting value systems, types of economic relations, governance and knowledge systems, historical narrations, and subjectivities.

Future Research

We call for a research agenda on sustainability transformation that is sensitive to and analytically equipped for the analysis of transformation as a multifaceted, multilevel process that entails the deconstruction of capitalist modernity or elements thereof as well

as the construction of post-capitalist realities. We suggest that three research directions can fruitfully inform this research agenda.

First, we envision further comparative analysis of existing transformational initiatives worldwide to critique and refine the approach proposed in this paper. Doing so will help to overcome the limitations of single case study analysis and generate further evidence of the roles played by different forms of unmaking to engender the construction of sustainable alternatives to modern capitalist development. In inviting applications of this perspective to existing transformational initiatives in other contexts, we are particularly aware of the specificity of the case study discussed in this paper: an initiative that is situated in the ‘periphery’ of capitalist modernity, where there might be more social and symbolic structures, including non-Western ontologies, that have not yet been appropriated by capitalism, and where a relatively weak state fails to protect communities from the negative impacts of capitalist development. In ‘peripheral’ contexts such as these ones, which are in fact ‘core’ in the resistance to capitalist appropriation of cheap nature and labour, transformative initiatives may be more vulnerable to capitalism, but also share a history of resistance, and thus find crucial resources to inform transformative initiatives that are alternative to capitalist modernity. In effect, these were important local circumstances for TCA Nariño and Cauca. In ‘core’ areas of the Global North, where capitalist modernity is more entrenched, also thanks to stronger state power, and where there might be more difficult access to ways of knowing, being and doing that have not been appropriated by capitalist modernity, transformative initiatives may experience different dynamics than those observed in TCA Nariño and Cauca. The analytical approach proposed in this paper, with its openness to diverse forms of unmaking in transformation to sustainability, can help identify processes specific to either the ‘core’ and ‘periphery’ of capitalist modernity.

Secondly, although this was not accomplished in the present study due to limitations in the available data, we envision and call for longitudinal studies of sustainability transformation that can disentangle processes of unmaking and making over time. To do

so, also recognizing the processual character of sustainability transformation, we suggest that process research methods based on narrative-based explanation, such as event-sequence analysis (e.g. Griffin, 1993) are promising to unpack such entanglement and thereby re-construct sustainability transformation pathways. This proposal also responds to calls for infusing a more marked historical and temporal perspective in investigations of sustainability transformation, as advocated by Hackmann and Lera St. Clair (2012) and Fazey et al. (2018), among others.

Finally, as this paper illustrates the usefulness of investigating sustainability transformation and specifically the entanglement of unmaking and making in such processes of fundamental change, we suggest that scholars pursue a more daring plural engagement with theories of social change from across the social sciences and humanities. Doing so requires escaping the safe ground of established theories and paradigms and mobilizing concepts that remain as yet unapplied to sustainability transformation, which may help gain insight into particular change processes, as well as critically exploring their respective blind spots and potential for theoretical integration. We consider this study a first step towards such a plural theoretical engagement.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary Data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.gloenvcha.2021.102290>.

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Roland Ngam

Degrowth in an African Periphery; Recentring Decoloniality Around Circular Ontologies

Degrowth in an African Periphery; Recentering decoloniality around circular ontologies

*There is a train that comes from Namibia and Malawi.
 There is a train that comes from Zambia and Zimbabwe.
 There is a train that comes from Angola and Mozambique,
 From Lesotho, from Botswana, from Swaziland,
 From all the hinterland of Southern and Central Africa.
 This train carries young and old, African men
 Who are conscripted to come and work on contract,
 In the golden mineral mines of Johannesburg
 And its surrounding metropolis, sixteen hours or more a day
 For almost no pay.
 Deep, deep, deep down in the belly of the earth
 When they are digging and drilling that shiny mighty evasive stone,
 Or when they dish that mishmash mush food
 into their iron plates with the iron shank.
 Or when they sit in their stinking, funky, filthy,
 Flea-ridden barracks and hostels.
 They think about the loved ones they may never see again
 Because they might have already been forcibly removed
 From where they last left them,
 Or wantonly murdered in the dead of night
 By roving, marauding gangs of no particular origin,
 We are told. They think about their lands, their herds
 That were taken away from them
 With a gun, bomb, teargas and the cannon.
 And when they hear that Choo-Choo train
 They always curse, curse the coal train,
 The coal train that brought them to Johannesburg.*

Hugh Masekela - Stimela

Introduction

Although major advances in medicine, technology, and governance have brought significant improvement to the lives of people everywhere over the last one hundred years, unfair economic models have also dealt devastating blows to the financial and physical health of many – in fact, billions of people - as well as the planet's finite resources during the same period. There is hardly a country in the world today where a significant part of the population does not feel that the economy is rigged against them. Evidence of the palpable anger in people who work their fingers to the bone and yet cannot afford their mortgages, food to eat or even a day off can be seen in the hard right shift in the politics of many countries. People are latching on to any solution that can improve their lives and in this scenario, facile arguments scapegoating foreigners are sometimes hard to resist.

But then, the problems that face us today are more systemic and deep rooted than just stopping some people from crossing the Mediterranean into Europe, because there is also unrest in Bangladesh, India, China and Africa which has witnessed seven coup d'états over the last three years (in Mali, Chad, Burkina Faso, Gabon, Niger and Guinea). The anger is even bigger in the Global South. Colonialism, the neoliberal economic order and the austerity policies that came with the Structural Adjustment Plan (SAP) in the late eighties have left many African people and communities without infrastructure, education or jobs. Through no fault of theirs, Africans are barely eking out a living on the ruins of what used to be beautiful, idyllic communities where their ancestors lived - mostly well - on their lands and on their own terms, without the kind of mental stress they are constantly under today. Worse still, the environment on which they still depend for their food and sustenance seems to be irretrievably damaged. Many Africans are led by people they barely know and, needless to say, this is a ticking time bomb. Sooner or later, the world is going to witness an African Spring, much bigger and probably more violent than the Arab Spring.

There is no doubt about it: the origins of the world's numerous problems is the current iteration of the colonial capitalist system that shifted the frontier of capital accumulation from Europe to the Global South. The modern economy is built on a paradigm of exploitation, constant growth, and unfair wealth distribution. Over time, a shrinking group of people and interests has been appropriating most of the surpluses that millions of workers produce every day. The unfairness in wealth distribution has a face, and it has consequences. The closer you get to the core of Global politics and business, the better off you find that people are. The farther away you move from the centre to the outer rings of this circle, the more difficult and dreary existence is for billions of people.

The world's growing inequality and climate challenges require urgent litigation of the neoliberal economic order and if we do a proper job of this, then it can only lead to one conclusion: the hegemonic capitalism model has failed dismally. This essay zooms in deliberately on Africa, its development crises and the disarticulated colonial model on which it is built. It further highlights the unfairness of the immanent green colonialism on which the just energy transition project is built. Finally, it posits that in order to build a fairer system that works for the majority, the world needs to quickly shift to an ecocentric degrowth ontology that leverages Africa's rich cultural heritage for the wellbeing of all people.

The Invention of The Modern Economic System

The hegemonic Judeo-Christian capitalist system would have you believe that infinite growth in a world of finite resources is possible; that if you really want it, you too can have your own eighteen-bedroom mansion in the mountains, a helicopter to shuttle you to and from your daily meetings and your very own football club in the English Premier league. The argument goes that everyone is free, free to innovate and free to use their labour to accumulate as much wealth as they want. According to this perspective, all that one needs to do is focus single-mindedly on getting their own slice of the pie, and it will eventually become reality.

However, the reality is different: the global socioeconomic system is the product of decades of extreme violence and genocide. It is the product of a predatory type of colonial capitalism first invented in Western Europe and blessed with a papal seal of approval in the *Dum Diversas*. This papal bull, issued by Pope Nicolas V, granted Europe's Christians the right to go out to the world and take over Saracens' (i.e. pagans) property because they were not among God's chosen people. It also gave Christians approval to place Saracens in perpetual slavery. Most participants in the global capitalist system did not have a choice when they were first pulled into it. In many instances, they were completely oblivious to the fact that they were even engaging in this process.

Although modern history often presents the world as a monolithic system of continental silos, with each one inwardly focused on its internal dynamics and having very little interaction with the rest of the world, this is in fact a false representation. There has always been dynamic interaction between most people and continents. Even as Africa was being termed 'the dark continent' by some, many of its parts were engaging in trade with most of the world (Basin Davidson et al, 1966). Miners from the Guinea coast supplied England with the gold that it required for its Guinea coins. There were Portuguese bankers in Timbuktu when the empires of Mali and Songhai were at their height. Africa traded with China and Zheng He's trips to the east coast of the continent are well documented (Li Xinfeng, 2023). The Congolese nobility sent their children to study in Europe and European artwork from this time clearly shows that not all Africans who lived there at the time were poor or slaves (Davidson, 1987). Europe's moneyed class was therefore well aware of the vast wealth that existed in different parts of the world when it started engaging in chattel slavery.

Chattel slavery globalised a vulture form of capital accumulation. When it ended, the predatory nature of the global economic order did not necessarily go away. Slave owners collected their reparations and made investments in a new and more insidious form of exploitation: colonialism. Colonialism's foundational philosophy was that Africans, Asians and South Americans were second-class

citizens of whichever empire they belonged to...without any rights of course. They had to play their part in ensuring that the capitals of empire were prosperous and protected at all times. They had to pull their weight on pain of being imprisoned, executed or having their limbs chopped off. Their biodiversity was mere stock, commodity to be transported and enjoyed elsewhere by people who were more civilised and therefore, more aware of what to do with these things. Their underground became a contested Eldorado.

Darren Acemoglu (2017) posits that “the immense economic inequality we observe in the world today didn’t happen overnight, or even in the past century. It is the path-dependent outcome of a multitude of historical processes, one of the most important of which has been European colonialism”. Colonialism satellised the entire Global South as production outposts of the global centre. André Gunder-Frank explains that to fully understand the development dynamics in peripheral states, one has to locate them within the global capitalist system. This highlights the the role that they play within it. He posits that the surplus expropriation/appropriation contradiction links the global centre in chain-like fashion to the resources of peripheral states produced by exploited landless labourers, small peasants, tenants, merchants and landowners (Gunder Frank, 1967: 7). In *Capitalism and Underdevelopment in Latin America*, he adds that “the contradiction of monopolistic expropriation/appropriation of economic surplus in the capitalism system is ubiquitous and its consequences for economic development and underdevelopment manifold” (Gunder Frank, 1967: 8).

This relationship of exploitation is visible in all major economic systems that have existed in modern history. The first British-centred food regime that forever changed how we eat was based on a unilateral decision by Great British that it could extend its borders to Africa and the Americas to produce more commodities for the motherland. In fact, fields bigger than all of Western Europe became spaces to produce food and raw materials for Europe’s factories and rice for its dinner tables. The global centre provided the money while the periphery provided the cheap or free labour. The periphery only had value to the extent that it could provide the

global centre with endless supplies of commodities and sometimes markets for the things that came out of its factories.

The official end of colonialism caused this accumulation model to evolve shortly after the Second World War, but its main canons remained the same. The new food regime that replaced the British-centred production model after World War II created protected statuses for white owned plantations or export businesses so that blacks continued to produce and export cheap, undiversified commodities. The black elite that had played the role of overseer during colonial times became presidents and ministers – very important personalities – with an insatiable need for big cars, big houses and single malt whiskeys. They were white skins in black masks. The former colonial powers even encouraged them to set up very expensive large-scale commercial farms and processing plants for sugar and wheat. Although Africa did not need this type of large-scale monocrop plantations (because in an agrarian continent 99% of the population was still subsistence or small scale farmers) or even sugar and wheat factories (only a tiny class of whites and emerging black elites consumed those things) many countries went out of their way to invest in them. Slowly over time, people abandoned the foods that they had consumed for centuries in favour of rice, spaghetti, baguettes and fizzy drinks.

Global North Corporations in search of new markets for their products seized on these trends from the seventies and offered ever-growing quantities of pesticides and fertilisers to Africans, which launched a new corporatised food regime. It was based on replicating all over the world what had been trialled in American laboratories and fields, i.e. instead of people having seed sovereignty and producing at least some of what they consume, corporations like BAYER, MONSANTO, ChemChina, CORTEVA, BASF, PANNAR etc. would control the entire agricultural process from farm to fork. The agriculture-industrial complex reduced the entire farming process to formulae and equations, calculating how much fertiliser and pesticides, combined with how many bags of GMO seeds could give exactly which size of harvest and for how much profit. This trend, heavily subsidised by the American go-

vernment created bumper harvests that spawned new industries, especially food aid and fast food restaurants.

The corporatised food regime has brought significant devastation for soils and water sources all over the world. It has led to a mass extinction of pollinators. Toxic chemicals cause soils to lose their micronutrients and all the worms that are constantly tunnelling underground, creating permeability and the conditions for plants to grow well. Large-scale commercial farms also dump large quantities of carcinogenic substances in the atmosphere and aquifers.

The process of getting pesticides and fertilisers to farmers is in itself another major problem for the world. Thousands of cotton farmers have taken their lives in India after falling back on payments to agrochemicals companies (Kannuri & Jadhav, 2001). Climate change often means that what people calculate in laboratories does not translate to the same conditions around the world. In other related activities, factory farms produce lock millions of birds and animals under very stressful conditions to meet the demand of ever-growing franchises, which requires copious quantities of antibiotics to prevent diseases. These antibiotics cause a lot of money that animal farmers are struggling to afford. The antibiotics that they pump into animals every day end up on our dinner plates.

The Face of Modern Capitalism

There is a common argument that capitalism is the best economic model ever conceived. The argument goes that is a much better model than feudalism, serfdom, and chattel slavery. It also posits that capitalism is not perfect, but under the circumstances, it is better than socialism and communism although no country has ever fully implemented the latter systems.

The common omission that people make is that, and like Achille Mbembe (2003) has pointed out, capitalism thrives on necro politics. It thrives on genocide and large-scale destruction of people and the environment alike to produce wealth for a few. Take the automotive and energy sectors for example. To produce rubber in the Belgian Congo, King Leopold and the Belgian state

killed over ten million Congolese who either refused to work on colonial projects or did not meet their daily quota. The photos of Alice Seeley Harris that depict the exact horrors of capitalism have been seen all over the world. Alice Seeley Harris's image of Nsala Wala whose five-year-old daughter's limbs were dismembered because her father failed to meet his daily rubber quota is seared into many Africans' minds.

When activists rejected the development of oil projects on their farmland in Nigeria in the 1990s, the response of the Abacha regime was to hang the Ogoni Nine on the morning of November 10 1995, an unmistakable message that it was prepared to do anything to get to the oil in the Niger Delta. They eventually had their way. Shell gained access to the Niger Delta which it has been contaminating with oil spills ever since. The production of fossil fuels have caused massive pollution and wars across the African continent.

Elsewhere, thousands of women work unusually long shifts to produce the fast fashion that people fall over each other to acquire in shops all over the Global North. In South America, entire villages are wiped out every year to make way for cattle ranches. The beef from these ranches make investors rich in Sao Paulo, London and New York. Everywhere it has gone, capitalism has injected a heavy dose of death and destruction into the system.

Aside from all the destruction, capitalism uses the wrong metrics to measure economic and personal wellbeing. It uses the dollar-a-day matrix for example to calculate how people are faring. It states that two dollars a day means that people are fairly well off, but then the average human being cannot live well on two dollars a day. In the Global North, the average human being cannot live well on ten dollars a day. In the average African metropolises where over six hundred million Africans live, the average person cannot live well on five dollars a day. The dollar-a-day measure is therefore a scam. The dollar a day model does nothing to measure where surpluses are produced and where they are enjoyed.

The GDP matrix is another scam. Every quarter, GDP numbers are churned out to measure by how much an economy has grown. The belief is that GDP growth allows for trickle-down benefits that

accrue to all citizens. The reality is that those who own the means of production are pocketing all the profits. If GDP numbers are to be believed, then Nigeria is worth half a trillion dollars and its citizens should all be enjoying a good standard of living. Yet, Nigeria is one of the most unequal countries in the world, where oligarchs control all the wealth while the rest of the country wallows in poverty. In South Africa, the richest five percent own over seventy percent of the country's wealth. While wages for the majority have stagnated, CEO pay keeps growing and the wealth of the richest one percent grew fivefold during the Covid-19 pandemic.

People Have Opposed Capitalism From the Very Beginning

The process of capitalism becoming the dominant economic model was by no means straightforward. Both chattel slavery and capitalism were contested at every stage. As we have said before, the necro-policies of capitalism committed large-scale genocide to its plantations and production companies in Africa. Joseph Conrad's *Heart of Darkness* captured in graphic detail the level of violence that European companies were using to produce commodities in the Congo (now Democratic Republic of Congo).

African literature of the 1950s and 1960s is a long elegy of communities crying their pathos as they watch strange customs and plantations swallow up their idyllic villages. Chinua Achebe's *Things Fall Apart* and *Arrow of God* depict how the English came to Igbo communities meekly through the church, before quickly imposing taxes and other British government institutions. Resentment led to wars and many Igbo lives were lost. Similarly, Amadou Kourouma's *Le Soleil des Indépendances* laments the bewildering changes that are happening in French West Africa in the 1960s. It is a period when international borders are slicing up communities and scattering them into different nations and rapid urbanisation is creating conflict between people.¹

In Europe and America, the early factories and Fordism were feted as miracles that would make life more comfortable for people, and then people soured on them. The global economic crisis of 1929 and the *Dust Bowl* of the 1930s quickly showed that Rostowi-

an development models were destroying nature and putting workers in slave-like conditions in gulags. Similar depictions of man's violence to nature and other human beings can be seen in *Les Misérables*, the *Grapes of Wrath* (1940), *the Man in the Gray Flannel Suit* (1956) *Norma Rae* (1979) and more recently in *Office Space* (1999) and *Horrible Bosses* (2011).

As capitalism developed, the world could see that nature in its glorious splendour and the calm, majestic communities that inhabited it were being transformed into a dreary hellscape coloured by the grey drudgery of unhappy workers. Writing in *The Meaning of the Twentieth Century: the Great Transition* the economist Kenneth Boulding says “we might well argue in contemplating the first great transition from precivilised to civilised societies that in many cases this was a transition of man from a better state to a worse. As we contemplate the innumerable wars of civilised societies, as we contemplate the hideous religion of human sacrifice and the bloody backs of innumerable slaves on which the great monuments of civilisation have been built, it is sometimes hard to refrain from a romantic nostalgia for the “noble savage””.

Similar sentiments led Nicolas Georgescu-Roegen to say that “*le développement durable, c'est de la poudre de Perlimpinpin*”, i.e. the idea of sustainable development is snake oil (Hannsen. 2019). Boulding argued that “there is clearly here a problem to be solved” and that “we do not make men automatically good and virtuous by making them rich and powerful”. He could see that the so-called freedom of choice that workers had was a scam. He could see that some people were very happy with capitalism, but it was creating too many losers.

In 1972, a group of experts assessed development trends and compared them with the stock of resources that the earth had left. Their assessment led them to the following conclusion: “*By now it should be clear that all of these trades-offs arise from one simple fact—the earth is finite. The closer any human activity comes to the limit of the earth's ability to support that activity, the more apparent and unresolvable the trade-offs become*” (Donella Meadows et al, 1972: 86). They argued that some of the earth's resource challenges could

be resolved through techno-fixes, i.e. improvements in technology and its ability to develop more efficient processes. However, there were other problems that the world could not deal with quickly. For example, when toxic chemicals and pollutants were dumped into water bodies, the earth required a very long time to metabolise them. This called for a more cautious approach to utilisation of resources. After the stark reminder by the Meadows report that we live in a world of finite resources, which led Andre Amar (Duverger, 2009) to say that “*La décroissance, au moins sous certaines formes, apparaît aujourd’hui comme nécessaire*” (today, degrowth appears to be a necessity, at least in some areas).

The Meadows report was not a stark enough warning to people like Ronald Reagan and Margaret Thatcher who championed neo-liberal policies that have created a system of footloose capital and greatly dispersed value chains. Once again, there was great pushback against these policies. This is symbolised in José Bové’s resistance against the McDonaldisation of France, the Zapatista resistance against the North American Free Trade Area in the 1990s and more recently, the *Gilets Jaunes* uprising in France. So for a long time, people were unhappy with the hegemonic system, but there was not necessarily very strong mobilisation against the system. Now, people are fed up. Too many people live from pay check to pay check. It is in this context that degrowth has become an urgent necessity.

The Invention of Africa

Africa under its current political iteration within the Westphalian state system is the product of plantation capitalism. You can go through a list of countries and it is clear exactly why they were created: Nigeria (palm oil, groundnut oil), Senegal (cotton, groundnut oil), Cameroon (cocoa, coffee, bananas, rubber), Democratic Republic of Congo (rubber, cocoa, timber), Kenya (coffee, tea), South Africa (gold, diamonds), Liberia (rubber), etc.

Although the global centre laid claim to colonies and presented them as their property, the wealth from colonies did not necessarily accrue to all citizens of the Global North equally. Rather,

Slavery and then colonialism was underpinned by trading companies with a large investor base. Surpluses were extracted through an elaborate network of companies owned by banks, royals, wealthy families and shareholders. Here are just a few examples of the concessions that operated in Africa:

- Nigeria – the Royal Niger Company
- South Africa – The Dutch East India Company, the British South Africa Company
- Ubangi-Shari (now Congo Brazzaville and Central African Republic) – Compagnie des Sultanats du Haut-Oubangui, Société commerciale, industrielle et agricole du Haut-Ogooué, la Société du Haut-Ogooué, Compagnie Minière de l'Ogooué
- Compagnie Française du Haut & Bas-Congo
- French West Africa (Senegal, Mali, Burkina Faso, Niger) - Compagnie française de l'Afrique occidentale (CFAO)
- Democratic Republic of Congo – King Leopold, Compagnie Française du Bas Congo, ABIR, Anversoise, Katanga Trust, Kasai Trust
- Liberia – Goodrich, Firestone

Colonial-era trade yielded investors profits beyond their wildest imagination and this spurred an unprecedented scramble for a piece of the pie. When the scramble turned into a stampede, King Leopold II of Belgium encouraged German Chancellor Otto von Bismarck to convene a conference where spheres of influence would be carved out and shared equally among the rivals. Fighting was bad for business. The money generated through colonialism built the highly-industrialised countries. It built their banks, the skyscrapers, the highways and neat lawns, the gated communities and the cultural wealth of core empire.

While colonialism made the Global North rich, it left ugly legacies in the Global South. In many areas, large holes still stand where mines used to be. The mineral wealth from these gaping holes now rest on the English King's crown and in other homes

across the globe – everywhere except in the homes of the young men who broke their backs for hours every day deep in the bowels of the African underbelly. Food systems changed forever, and as Africa urbanised, it consumed mostly the type of food that it did not produce. It also changed the socioeconomic realities within communities. Before the colonial experience, the responsibility for producing food was shared equally between men and women. However, with the arrival of concessions, men were progressively drawn into cash crop production and growing food crops became a woman's responsibility. Men quickly understood that if they married more wives and produced more children, they could produce more commodities and pocket the proceeds. Polygyny thus became even more common across Africa (Jacoby, 1995).

When colonialism ended, the commodities that had defined the various colonies continued to be their biggest revenue generator. Agricultural commodities often represented up to 80% of some countries' GDPs. Operating in the shadows, colonial powers retained control by either holding on to currencies or the biggest plantations. After it granted independence to its colonies for example, France retained control of their currencies by pegging the West African Franc and the Central African Franc to the French Franc and then acting as their central bank.

Nkwame Nkhrumah notes in *Neo-Colonialism, the Last Stage of Imperialism* (1965) that the general modus operandi of neo-colonialism is to use foreign capital as a tool for the exploitation rather than the development of less developed parts of the world. Many African countries attempted to diversify their economies through import substitution industrialisation policies. However, they soon ran into structural and liquidity challenges. In many countries, the public sector bill was ballooning and expensive projects (dams, sugar mills, aluminium plants, etc.) were not yielding enough revenue and loans were needed to stabilise countries until they could stabilise. The reaction of development finance institutions was to put African countries under some of the toughest austerity measures that the world has ever seen.

The Structural Adjustment Plan and austerity economics in Africa

The Structural Adjustment Plan (SAP) is a set of macroeconomic policy interventions first introduced by Bretton Woods institutions (BWIs) in the mid-eighties to rescue ailing developing nation economies in Africa, Asia and Latin America hit by the triple whammy of the 1970s-economic slump, bad policy choices (or at least what was perceived as such at the time) and ballooning public sector bills. Structural adjustment was inspired by an unfounded conviction by the authors of *Towards Accelerated Development in Sub-Saharan Africa* (more widely known as the Berg Report) that all economies necessarily follow the same linear path to development and that the same macroeconomic principles which had helped many Western countries to achieve fast-paced economic growth could equally cause African economies to thrive (Briggs and Yeboah, 2001). Its main thrust was the following free-market policies:

Massive currency devaluation; price, interest rate, payments and trade liberalisation; the imposition of credit ceilings and controls over money supply; a freeze on wages and salaries; public enterprise privatisation/commercialisation/liquidation; public expenditure reduction; the withdrawal of subsidies (real and imagined) and the introduction of cost recovery measures on a range of (mainly social) services; the reduction of the size of civil service through staff retrenchment; and the stepping up of efforts at revenue mobilisation through, inter alia, the introduction/enforcement of a range of direct and indirect taxes (Olukoshi, 1996: 57-58).

BWI were unequivocal in their assessments: signatory governments were the problem and to solve their developmental challenges, they had to privatise plantations and agro-processing parastatals and let the private sector get on with it (Oppong, 2013). They directly fingered government-controlled cooperatives and their related marketing boards as targets for structural reforms and insisted that they had to go (Schwettmann, 2014a). Although there were complaints about the programme's one-sided anti-statism and its over-reliance on fiscal discipline and austerity, most sub-Sa-

haran countries were in dire need of liquidity, and so, willingly or under duress, they rewrote legislation to privatise key parastatals and give foreign entities unfettered access to their markets (Gibbon & Olukoshi, 1996; Wanyama, 2013).

The consequences of governments' complete and sudden withdrawal from the agricultural sector were disastrous and spectacular. The most enduring consequence of structural adjustment was the exacerbation of poverty and a growing reliance on food imports. The quick dismantling of the only value chain accessible to African smallholders impoverished millions and caused agricultural production to backslide, leading to maldevelopment (Moyo & Yeros, 2005). Gains of Green Revolution programmes were completely wiped off in less than a decade. Once self-sufficient, Africa became a net importer of food, with grains (corn, wheat and rice notably) accounting for over 10% of all imports per annum, i.e. about 1 billion USD.

Upheavals in the agricultural sector cascaded into every section of life, sparking a prolonged deagrarianisation process characterised by a surge in non-agricultural activities, prevalent work experimentation, an increase in cash-based work, intensified migration and a rise in illegal, unplanned settlements in urban areas (Havnevik et al, 2007; Moyo, 2007; Moyo, 2010; Mkandawire, 2005; Mkandawire, 2006). The upheavals in turn fuelled a wave of mass discontent with public services and subsequent mass mobilisation for democratisation across Africa (Mkandawire, 2006: 24).

SAP participating countries' combined debt ballooned to 178 billion USD in 1996 while per capita GDP growth which had been steady at around 3% per annum between 1960–80 declined to less than 1% for median countries (Mkandawire, 2005). Africa's share of FDI dropped from 25% to less than 5%. With free market policies, Africa also became a net exporter of capital (Mkandawire, 2005; Moyo, 2010). Many countries defaulted on their loans and were simply given new loans to repay old ones, at interest rates 1.5 times or more what they had originally borrowed.

The effects of SAPS have been intensely researched and the unanimous verdict among academics is that the programme was

ill-advised, poorly-planned, poorly implemented, and undoubtedly stunted Africa's development as well as reversed major economic gains in areas like agriculture (Olukoshi, 1996; Mkandawire, 2006; Havnevik et al, 2007; Stiglitz, 2008). For Mooij, Bryceson and Kay (2000), no single event has brought more devastation to modern African agriculture than the structural adjustment programme. They state unequivocally that the World Bank played a very "prominent and destructive" role in championing failed agricultural policies in Africa. Considering that many countries at the time still relied on agriculture to fund over 60% (and very often, more) of their activities, SAP was a fatal blow. SAP is a key example of a neo-colonial tool that was deployed to destroy the African economy, with devastating success.

Joseph Stiglitz (2008) has been particularly scathing in his criticism of African leaders' simple-minded belief in the absolute magic of the markets. For him, African governments are just as guilty as the BWI for the unmitigated disaster that was structural adjustment. He blames African leaders' lack of backbone and their failure to protect their very embryonic economies for the downward spiral suffered by their economies, ironically just as Western governments were doling out lavish subsidies to their own farmers. In order for market forces to be efficient within a free market dynamic, Stiglitz argues, the markets have to exist in the first place. Policies are a necessary but insufficient boost to agricultural production and on their own, African private sector investors cannot build roads, bridges, airports, warehouses, power plants or other infrastructure - or invest in innovations to turn their commodities into higher value products for that matter. States have a critical role to play in ensuring that smallholders can compete against MNCs.

Energy Colonialism Within the Just Transition

Thirty percent of the world's mineral resources are found in Africa. This means that the continent has a critical role to play in the just energy transition as well the global ambition to cap warming

at 1.5 degrees relative to preindustrial levels. Although - judging by current global trends - it is clear that the world is not going to cut CO₂ emissions by 40% before 2030, there is nevertheless major movement in key industries (auto, energy) to produce cleaner technologies. The United States of America's Inflation Reduction Act (IRA) has turbocharged transportation electrification in that country. Thanks to the IRA's US\$7,500 subsidy, sales of electric topped one million in 2023. There is also a big jump in the demand for clean energy. Between 2020 and 2023, South African households installed over 4000MW of rooftop PV systems.

The big jump in the demand for clean technologies worldwide means that we require large volumes of transition minerals (rare earths, graphite, copper, lithium, cobalt, manganese, rare earth, etc.) as well as water and land that Africa has in abundance. The World Bank has predicted in its *Minerals for Climate Action* Report that mining of transition minerals has to increase by at least 500% (3 billion tonnes of mineral sand metals) to meet the world's demand for clean energy technologies.

This reality is already causing a new scramble for Africa. China has a head start on the major Global North economies because it signed a raft of contracts with countries from Madagascar to Niger at the height of the commodity boom of the 2000s. In 2007, it signed a 9-billion dollar transition minerals for infrastructure contract dubbed "*the Deal of the Century*" with the Democratic Republic of Congo which gave it control over some of that country's largest copper and cobalt deposits in Kolwezi worth over 100 billion dollars. The rest of the world is catching up though. Electric car manufacturer TESLA has signed a contract with mining giant Glencore to acquire minerals from DRC. The Russian Wagner Group has been operation in the Central African Republic in a minerals-for-security arrangement for almost ten years now.

The interest in transition minerals is big but there is much bigger interest in fossil fuels like oil and gas following the Russian invasion of Ukraine. Since 2021, over US\$500 billion dollars have been invested in various fossil fuel projects across Africa. In Mozambique, Total's gas project worth US\$20 billion, i.e. bigger than

the host country's entire GDP, has caused civil unrest and terrorist activity to escalate in Cabo Delgado. The violence has already claimed over 4 000 lives and displaced half the population of Cabo Delgado province. In Senegal, DRC and Uganda, oil and gas projects have caused green grabbing, i.e. taking over of prime forests and wetlands for fossil fuel projects and presenting them as good for the just energy transition. The Uganda-Tanzania heated oil pipeline will run through the Murchinson Falls, the Bugoma forest and the Lake Victoria Basin. In the DRC, the government has approved exploration concessions in the middle of the Congo Basin Rainforest, the world's most effective natural carbon capture resource. In Senegal, the Sangomar offshore oil project has been set up in the middle of a UNESCO-recognised world heritage reserve. These projects claim that they will help reduce dependency on biomass or coal, and for this reason, they are good for the just energy transition.

Energy colonialism projects replicate asymmetric colonial relationships between core and periphery states. While the core states are decarbonising their economies, cleaning up their air, waterways and streets, they are doing so at the detriment of countries in the Global South that supply the mineral resources and sometimes labour required for these transitions. Once again, the large corporations that produce commodities in Africa for use in the Global North are externalising their pollution and exploitative work conditions to Africa. No land is too sacred to be dug open and its biodiversity ripped apart if it has deposits of the resources they are looking for. Protests by indigenous communities do not matter either. Multi-national corporations work with the comprador elite to clear any land they want of its inhabitants. Wherever these projects are rolled out, from Mozambique to Cameroon, Uganda and Senegal, environmental requirements have been hastily modified to ensure their approval. From Cameroon to Sierra Leone, Bolloré has worked with African governments to push entire villages off their lands to make way for oil palm plantations. The palm oil they produce is used to make ethanol for major brands like Shell and Total.

Calculations show that the highly industrialised nations have emitted at least 1.6 trillion tonnes of CO₂ equivalent since the be-

ginning of the industrial revolution. To cap global warming at, say two degrees, we have to stay within a budget of one trillion tonnes of CO_{2e} emissions. Unfortunately, once again, that entire budget is being burned up by the rich nations. The latest World Inequality Report shows that the average citizen of the United States of America uses up about 20 tonnes of CO_{2e} per annum compared to only one tonne for Africans. The reckless behaviour of highly-industrialised countries creates a problem that shall be shared equally among the earth's inhabitants, in some cases placing unjustified stress on poor countries like Mali, Niger, Malawi, Madagascar that they cannot handle.

The consequences of highly-industrialised nations' reckless behaviour is shared equally between the earth's inhabitants. Although Africa bears almost no responsibility for global Greenhouse gas emissions, it is already witnessing an increase in the frequency and intensity of extreme weather events. Madagascar has suffered the world's first famine caused by anthropogenic climate change. The event pushed over two million people into acute vulnerability and required significant efforts by the international community and the World Food Programme to bring under control. The Horn of Africa and Southern Africa have also suffered major famine episodes in the late 2010s that saw over one million people affected. Countries like Uganda and Kenya are already witnessing significant challenges with their coffee trees coming under more pressure from heat episodes and parasites like coffee borer disease.

The Sahel region which has witnessed many episodes of drought over the last half century has witnessed a significant increase in drought conditions and crop failures since 2010. These events are partly to blame for the instability in the region. Youth in countries like Senegal, Mali, Burkina Faso, Nigeria and Niger have been migrating from villages and small towns to large cities as attacks from armed insurgents and the effects of climate change especially begin to bite. Favourable weather saw over 120,000 youth from the Sahel arrive on the Italian island of Lampedusa in September 2023. If work is not done to bolster Sahel towns and cities, this trend will only continue to grow.

The Case for Degrowth

Degrowth is neither an economic theory nor a clearly codified policy. Rather it should be approached from the perspective of a philosophy and a call to action, a manifesto for a new world order if you will. It calls for an end to unnecessary growth, typically represented through GDP numbers, and for the prioritisation of fairer and more useful growth that benefits all human beings and the planet. Writing in *Leur Ecologie et la Notre*, André Gorz (2010) says that the world needs a socio-economic and cultural revolution that is going to abolish the pillars of capitalism under its current form and introduce a new relationship between man and 1) his community; 2) environment; and 3) nature.

Latouche defines degrowth as: *“En effet, il peut s’entendre en un sens littéral, celui d’une inversion de la courbe de croissance du produit intérieur brut (PIB), cet indice statistique fétiche censé mesurer la richesse ; ou en un sens symbolique : décroître, c’est sortir de l’idéologie de la croissance, c’est-à-dire du productivisme”*. This type of definition that completely avoids specific economic terms is designed to ensure that the word is not co-opted into fights over economic theory (in fact, it can be defined from a literal point of view, that is inverting the GDP growth curve on from a symbolic standpoint, that is getting out of the productivism mindset).

Although degrowth proponents have put out papers, books and policy documents stating clearly that degrowth is not just an economic theory but rather something bigger, a complete questioning of *homo oeconomicus*' ontology, some experts still insist on looking at it completely and only as economic theory. This leads them to offer preconceived rebuttals that deliberately leave out what degrowthers seek to achieve. Pope Francis' *Laudato Si on Care for the Planet*, the United Nations Environmental Programme's *Making Peace With Nature: A scientific blueprint to tackle the climate, biodiversity and pollution emergencies* as well as the Intergovernmental Panel on Climate Change's assessment reports are all degrowth manifestos although they do not always explicitly use this term. The series of questions below show some of the objectives that degrowth seeks to achieve:

- Do you think that CEO Pay is out of control?
- Do you think that urgent work must be done to narrow the pay gap between CEOs and their workers?
- Do you agree that our factories and industries are using up too many of the earth's resources, especially with regards to energy production?
- Do you agree that the farmers who grow your cocoa and coffee are underpaid and undervalued and that intermediaries in the Global North take most of their profits year after year?
- Have you seen news footage farmers crying and committing suicide in your country because they are not earning much for what they produce? Is it fair that supermarket chains are making all the profits?
- Do you agree that the insecticides and pesticides that we pump on our food every day is harmful to both the environment and human beings?
- Have you noticed that insect colonies are collapsing?
- Do you agree that trickle down economic policies typically do not let anything trickle down to essential workers?
- Do you agree that some of the most essential workers in our society, like teachers, nurses, police officers, soldiers, street cleaners are underpaid and undervalued?
- Do you agree that corporations being more powerful than governments is a dangerous thing?
- Do you agree that corporations are causing irreparable damage to the environment for which they are not held accountable?
- Do you agree that tax policies in most countries are rigged in favour of wealthy individuals?
- Do you agree that the taxes that multimillionaires and billionaires hide in fake charities, art, tax havens and elsewhere can go a long way in reducing inequality?

- Do you agree that the global economy is still based on colonial principles and that some countries have too much power over how some important global institutions are run?
- Do you agree that development finance institutions give out loans to Global South countries at very unfavourable rates?
- Do you agree that the oppressive presence of constant advertising pushes people to spend more than they can afford every day?
- Do you agree that modern society puts too much pressure on people to look a certain way, dress a certain way and make love a certain way?
- Do you believe that advertising is placing undue pressure on people to respect or aspire to certain beauty standards?

We could go on and on. If you have answered yes to most of these questions, then you agree with the average degrowth and the changes that they want for the world. Of course, if we are talking about abandoning all growth and progress, many people, especially in the Global South, would immediately label you a heretic.

Which growth do you want them to abandon? This is what one often hears in Africa. In fact, some research shows that some academics in the Global South believe that they should not concern themselves with concepts like degrowth (Rodriguez-Labajos et al, 2019). They believe that Global North experts pontificating to people who are still poor is patronising at best, or even an insult, considering that they bear no responsibility for causing global heating or rising inequalities. However, this position ignores a number of key facts.

To not participate in the degrowth debate is to cede correction of mistakes of the past to the same parties that created the problem and are even now still kicking the can down the road. The global economy is so integrated now that one simply cannot sit in their corner and say: “you deal with the mess that you created. I will just sit here and do my own thing”. England has just announced plans to postpone ban on fossil fuel car sales and all across Western Europe, conservative parties are pushing the narrative that the climate agenda is not a priority right now. Those decisions have a

big impact on Africa that is already dealing with the consequences of climate change.

As Latouche and Forster have pointed out, degrowth cannot be rolled out in the same way in all parts of the world. The Global South certainly cannot approach the degrowth debate from the same position as the countries of the global north. They cannot stand on the same principles and demand the same or similar set of changes. Africa has a population of 2 billion people, sixty percent of which still lives in poverty. Although the continent is urbanising rapidly, it is only growing at about 1.1% and services in many urban areas are either in a piteous state or non-existent. The entire African continent produces less than 400 Gigawatts of electricity and over 600 million people have no access to electricity at all. The Global North will focus on different things (e.g. demilitarisation, decarbonising the transport sector, phasing out coal, offering farmers a living wage, class action lawsuits against rogue corporations, etc.) and the Global South will have to do different things (decolonising how we build, educate ourselves, travel, etc; reconnecting with circular ontologies; abandoning austerity measures; ending reliance on food imports, etc.).

The deep levels of deregulation engineered by the Post Washington Consensus have created value chains that bring together dozens of countries to manufacture a single item. It sometimes takes up to more than twenty countries to produce one product. This is certainly the case for mobile phones where the rare earths may come from the DRC and China, the Chip from Taiwan, the design from the USA, the assembly from China and so on. South Africa for example is a major manufacturing site for Mercedes-Benz, BMW, Volkswagen, Ford and other car brands. It is also a major supplier of fruit to supermarkets all over the world. This value chain offshores the dirtier and labour intensive processes to the Global South. While the shareholders of Tesla and Apple get to pocket large profits year after year, countries like the Democratic Republic of Congo inherit contaminated waterways, endemic poverty, disembowelled landscapes, and artisanal mines with thousands of workers who can cause social unrest or even switch to militias at any moment.

Bringing large corporations to account will require everybody working together. The citizens of the Netherlands need to know how Shell behaves in Nigeria. The citizens of the United States of America need to know how the cheap meat on their supermarket shelves is produced in the Amazon. Those who call for electric cars need to know how transition minerals are produced in the Democratic Republic of Congo.

People often underestimate the intricate networks that have been set up by multilateral agencies and corporations to facilitate the flow of money and ideas between continents. Some of these ideas, such as the Structural Adjustment Policy, are deeply unfair and bear the hallmarks of asymmetric colonial bullying. Through these policies, the shareholders of development finance institutions have forced many countries to divest from education, water, electricity, agriculture and much more. They advise African governments to let the private sector get on with it. Western businesses have swooped in and cherry picked the most lucrative and attractive parts of African entities. Other parts, such as higher education, that interest nobody, have been left to rot for decades. Degrowth calls for a completely decolonial approach to development finance. Those who believe that development finance institutions are not doing enough to create the safeguards that ensure that the source regions of transition mineral do not become bastions of child labour, armed conflict, maldevelopment or areas where western companies steal money through transfer pricing and other schemes surely agree with these ideas.

Degrowth and Ehen What?

From a Global South perspective, it is very clear: the savings from degrowth must go towards building a better world, and this in large part means repairing some of the damage that the Global North has done to Africa. We must understand what has caused the images of emaciated children with flies all over their bodies that NGOs use to appeal for donations in many Global North media: it is precisely the genocidal activities of empire and their

corporations that led to the arrested or maldevelopment in these countries. Many parts of Africa are poor because their wealth is being transported to the *Global North* every day, and it has to stop.

Savings do not have to flow to Africa in the form of cash. For every dollar saved by reforming the financial sector or rogue behaviour from large corporations, we can provide universal basic infrastructure in Africa. Different mechanisms can be put in place for country-to-country as well as city-to-city relationships that provide roads, internet, schools, hospitals and mass transit systems in Africa. It is very important to provide a lot of direct support to communities rather than relying on African governments to do that work. Many Global North countries are well aware that many African leaders were not put there by their citizens. Elections in Africa have become a process of manufacturing credibility before the international community. The West knows very well that every time aid is given to Africa, there is a massive spike in money transfers from Africa to Europe or America.

We have to ask ourselves what would happen if degrowth policies are not rolled out to repair some of the damage that colonialism and bad corporate behaviour has done to Africa. I will give only two examples. We have seen an increase in Mediterranean crossings in the last decade. A lot of that is due to dishonest relationships between European Union countries and corporations working in tandem with illegitimate African leaders. Climate change is obviously a problem, but what little resources many communities have has a way of vanishing into foreign bank accounts. If European Union corporations do not stop stealing uranium from Niger, gold from Burkina Faso and so on, the so-called illegal migrations will get worse.

Also, we all know that Africa has a lot of fossil fuel deposits. South Africa has enough coal to last two hundred years. Nigeria has enough oil and gas to last a century. Now, the carbon credit that we have left has to be better managed to cap warming below either 1.5 or at least 2 degrees. That will only happen if we phase out fossil fuels. The expectation that African countries should just move away from these fuel sources to green ones without adequate support is unrealistic. African countries must be given the resou-

nces that they need to operationalise a just energy transition. That support should not happen in the form of concessional loans. It cannot happen as loans. African nations deserve no-strings-attached grants and massive transfers of technology to end energy poverty on the continent. That is only fair.

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Selina Gallo-Cruz

Ontology, Biology, and Care: Ecofeminist Perspectives on Social Justice

In 1973, feminist philosophical fiction author Ursula K. Le Guin penned a short story titled “The Ones Who Walk Away from Omelas,” a story that has gripped readers for decades with its clement-turned-haunting premise. The story begins in the quaint but lively city of Omelas at the dawn of a summer festival. Le Guin describes everything about Omelas as quintessentially joyful and utopian, an interpretation the writer explicitly discloses to her readers just before presenting a sobering caveat: All that brings cause for delight and celebration to the people of Omelas depends, tragically, on a terrible reality hidden in a dark and dirty basement. Here, a child lives in squalor and pain amid long stretches of neglect punctuated by intermittent abuses. “It,” as Le Guin refers to the child, spends most of its days alone, barely surviving on a meager mix of cornmeal and grease and the distant memory of sunshine and its mother’s affection. The child is more than the archetypical scapegoat that sometimes appears in tales of dark fantasy fiction, however. The child’s suffering and utter dehumanization are essential to Omelas’ existence.

Everyone in the city is taught about this despicable reality sometime around the age of reason, between eight and twelve years old. Some come to witness it for themselves, while others mourn upon just imagining it. Those who learn to live with this reality, and Le Guin indicates that most people in Omelas do, go through a

process of legitimation, and ideological justification or repression, denial, and dismissal in order to accept that their near-perfect lives in Omelas depend on the child's continued suffering. Still, there are those who walk away from Omelas forever after witnessing the horrible tragedy of this suffering child.

There are many possible meanings of this short tale and many interpretations of Le Guin's intentions in writing it. I present this short story as a useful tool for thinking through an ecofeminist approach to social justice because it contains imagery of the system dynamics targeted by ecofeminist responses to harm against people and the planet in an age of ecological crises.

The first example of this imagery is the depiction of a double-sided reality in which what seems to be a magically good life comes at a cost that can be well-hidden but not completely ignored or erased. At best, it must be explained away or avoided for as long as possible.

Second, our shared predicament, like the one in Omelas, involves a tragedy that is multilayered and deep-seated. In Omelas, this tragedy goes beyond the ceaseless violence inflicted directly against the sacrificial child to permeate the entire system, which Le Guin informs the reader will unravel entirely without the suffering of the child. This is the same dynamic reflected in the "wicked" problem of ecological crises.

Third, as the story's title suggests, those who walk away from Omelas both reject the status quo and embrace a fate that remains mysterious to those still within Omelas. Another layer of tragedy exists in the overwhelming impetus to stay and carry on with this obscene abuse in the face of the unknown. The only thing that those who walk away can be promised is moral vindication, what will take the place of their life of luxury in Omelas remains a mystery. One first needs to believe that what is unacceptable should be denied before discovering what comes next.

Finally, the great challenge of Omelas can be portrayed in two divergent ways: It can be seen as a reflection on how to live with an uncomfortable reality in the most comfortable way possible or it can be viewed as a depiction of how to abandon a pervasive,

exploitative system. A fundamental dimension of this challenge is how to abandon such a system when only a minority, rather than a critical mass, has chosen to resist it.

Ecofeminism as Movement and Analysis

As with the birth of so many concepts and ideas that animate scholarship and practice, the notions put forth by the concept of ecofeminism predate the coining of the term. As ecofeminists Maria Mies and Vandana Shiva (2014) write, the words may be new, but the pulse behind them is an old one that has animated women's movements for hundreds of years. Still, conceptualization marks the formulation of an idea in a newly organized fashion, bringing forth the development of that idea in new and distinct ways.

The term ecofeminism was coined by French socialist feminist Françoise d'Eaubonne in 1974 in her book *Feminism or Death*. In this text, d'Eaubonne makes the case that because both patriarchy and ecocide are driven by systems of othering and domination they can be understood as common and intertwined problems resulting from the same social ideological system. d'Eaubonne presents two antidotes to these problems, feminism and ecology, that must be brought together lest humanity and the Earth perish due to the entangled threats of patriarchy and environmental destruction.

Interestingly, d'Eaubonne published this book within a year of the publication of Le Guin's short story. While the two women may not have been in direct conversation, they were both involved in an interconnected world of social ideas that embraced systems thinking about injustice, feminism as a movement for women's liberation, socialism as an alternative to the exploitation of industrial capitalism and the poverty of class stratification, and environmentalism, a movement driven by a deep concern for the fate of our planet. It is therefore important to note that ecofeminism as a theory and praxis was born from women's liberation movements in conversation with other related social justice movements for peace and against militarization and war, for equality and against racism and colonization, and for the well-being of the natural world.

An epistemology of ecofeminism was also emerging at this time through the interweaving of social justice and environmental movements around the world during the 1960s and 1970s. This put the environmental movements' deep systems approach to understanding the degradation of the Earth in conversation with a feminist systems approach to understanding patriarchy and objectification, dehumanization, and violence against women. Just as pivotal work was being done in the 1960s to document the declining state of the natural world because of global industrialization (Carson 1962; Udall 1963), women in feminist movement in the United States and the United Kingdom were passionately organizing against the dangers of nuclear power and the build-up of nuclear weapons. Their concerns centered not just on the harmful aftereffects of nuclear bombs, though the bombing of Hiroshima and Nagasaki were certainly a galvanizing event for this movement, but on bringing attention to the public health dangers of nuclear production and testing in the US. One prominent example is the Baby Tooth Survey, which found that children born between the 1950s and 1960s, including those born far away from nuclear testing facilities, carried aftereffects of nuclear testing in their teeth due to how fallout travels through the environment and is stored in the calcium pathways of living beings. Eventually, this on-the-ground work led to the 1963 Partial Test Ban Treaty between the US, the UK, and the Soviet Union.

Women were also mobilized during the occupation of nuclear power plant sites in 1975 at Wyhl in Germany, in 1977 at the Seabrook plant in the US, and in 1978 at Torness in Scotland. In an act of transnational solidarity, women were active in mobilizing against the harmful ecological and public health effects of the Seveso industrial disaster in Italy in July of 1976. Women in Africa were dedicated to the Green Belt Movement for forest conservation in Kenya that took off in 1977. In India, women were at the forefront of the Chipko movement for forest conservation and to resist industrial logging of Indigenous land throughout the 1970s.

These actions led to a dynamic critical theoretical discourse about the connections and relationships between war against other

people and the war on women's bodies; how the violence men were socialized to carry out through military training related to the violence of rape and domestic abuse women experienced at the hands of men at home, in the streets, and in the growing pornography industry; and how the violence against women's bodies compared to ecological destruction and violence against the Earth.

Among early formative writings on ecofeminism is Rosemary Radford Ruether's 1975 *New Woman, New Earth*. In this book, Ruether identified common causes of sexism, racism, anti-Semitism, environmental destruction, and other forms of systemic violence, voicing the concern of a generation by stating that these social forces should be understood as rooted in parallel ideologies and social structures. Similarly, in her 1979 book *Green Paradise Lost*, Elizabeth Dodson Gray confronted the cultural ideological divisions that have led to a common ethos of sexism and environmental destruction: "God-Above and Man-Above" and "Women and Nature Below." She considered this to be the "psycho-sexual roots of our ecological crisis" that had fomented into viewing difference and diversity as an Other from whom we must establish distance, the severing of human values from nature's values, and the drive to execute mastery over nature in the same way men executed mastery over women.¹

Carolyn Merchant's 1980 *The Death of Nature* has also become a cornerstone of feminist engagement with science. Merchant combed through scores of discursive debates at the dawn of the scientific revolution to scrutinize the terms of contentious disagreements among early influential scientific thinkers. These included arguments about how we should think about the nature of the world. While some proposed the view of an organic world in which life force and matter are blended together in unifying

¹ Gray writes that "It is important for us to see that men have done with Mother Nature the same dominance/submission flip-flop. They have by their technologies worked steadily and for generations to transform a psychologically intolerable dependence upon a seemingly powerful and capricious 'Mother Nature' into a soothing and acceptable dependence upon a subservient and non-threatening 'wife.' This 'need to be above' and to dominate permeates male attitudes towards nature. It is as though men did not like any feelings of depending upon 'Mother Nature.' Nature must be below, just as Wife must be below, for to be a man, a man must be in control." (1979, 42).

ways, others presented a mechanistic approach based on the understanding that matter could be fully known, was certain, stable, passive and inert, and that the forces that act upon matter are external to it. In other words, that the natural world could be conceived of much like parts of a machine. Merchant illustrates how some early scholars argued for trying to know and understand nature without exerting dominance over the natural world, but this was not the view that ultimately won out.²

Ecofeminism as a school of thought and as a political and ecological movement grew conceptually and in the breadth of its application in the decades to follow. In 1980, feminist, nonviolent activist, and ecologist Ynestra King organized the first ever national women and ecology conference in Amherst, Massachusetts.³ Additionally, in the 1980s Native American sociologist Winona LaDuke began studying the effects of uranium mining on Native Americans living on reservations. Eventually she founded the White Earth Land Recovery Project to help regain traditional lands for sound stewardship by Native peoples. Women authors from diverse professional and cultural perspectives began to come together to advocate for the application of ecofeminism to a host of social ills including ecological decline, chemical pollution, and public health issues related to childbirth and infanticide, as well as the interconnections of these experiences with violence against women, mining and land displacement, militarism, the buildup of arms, and war. In one such example, Judith Plant's 1989 edited volume *Healing the Wounds: The Promise of Ecofeminism* brought together twenty-five activist authors from around the world to conceptualize a new consciousness of feminism and ecology.

² Further debates ensued over the certainty of knowledge in the scientific enterprise, the contention that drove the rift between Descartes and Gasendi. Merchant further traced the development of value-driven assumptions baked into scientific principles that we all too often assume to be "objective" and value-neutral. These are the ideals of a particular perspective on logic, order, and predictability in the universe that conveniently mimicked the market economy. The assumption of inert or dead matter ultimately erased any semblance of the fundamental elements of the natural world as part of a living organism, paving the way to extractive industrialism.

³ Though there were smaller scale meetings organized on the topic in Berkeley in the late 1970s.

In 1986, German sociologist Maria Mies published *Patriarchy and Accumulation on a World Scale*, excoriating the ways an intermingling of global capitalism, patriarchy, and colonialism have relegated women to a process of “housewifization,” whereby women are made to be the cheapest of consumers and producers. Mies’ work led to a layering of the understanding of the sexual division of labor onto a critical examination of extractive capitalism’s ill effects on the environment. She also put forth a deep systems theorization of how the manipulation of material reality through powerful ideological, political, and economic systems carried within it an ethos that drives men toward a particular relationship with nature and with women.⁴

Additional works from this era expanded the ecofeminist framework in crucial new ways. Australian sociologist Ariel Salleh took on the sexism and oversights of the burgeoning deep ecology perspective; Australian philosopher Val Plumwood, who had been authoring powerful statements on the effects of industry upon ecological decline since the 1970s, branched out to take on questions of “women, humanity, and nature” and the “sex/gender distinction;” and Indian social scientist and agricultural policy advocate Vandana Shiva furthered Merchant’s ideas about mechanism and reductionism as major scientific missteps. Shiva also made clear the deleterious effects of the Green Revolution, a movement shrouded in white saviorism and the development paradigm that she exposed as a Trojan Horse for global corporate profits that decimated the sovereignty, food security, and ecological well-being of vulnerable populations in the so-called “developing world” (1987).

These conversations deepened and grew vociferously during the 1990s. A new special issue in the journal *Hypatia* opened the decade with critical discussions of how ecofeminism informs and differs from other ecological schools of thought; how spiritualism can remedy the oversights of a mechanical approach to the natural world by making sacred the intrinsic relationships between elements of different ecosystems that have been disregarded and

⁴ See also Finnish scholar Hilikka Pietilä’s (1997) work on women’s invisibility in a devalued “free economy” of domestic labor.

denied; what distinct understandings ecofeminism contributes to feminism; how ecofeminism can shape research on the stratification and suffering experienced by women around the world, especially in the developing world; how different epistemologies of womanhood and nature affect humans' relationship with the environment; how ecofeminism applies to animal welfare and to understanding wildness and conservation; and how we can further deconstruct ideas of humanism, womanism, identification, and engagement within biological boundaries.

Scholars in the 1990s developed intricate meta-theoretical explorations of the relevance of ecofeminism in what was then heralded as a "third wave" of feminist theory, during which intersectional theories and post-colonial studies grew alongside the academy and within movements. New works began to provide in-depth explorations of the synergy and unique tenets between and among socialism and ecofeminism and to explore how ecofeminism mattered to evolving women's and gender movements as well as the developing environmental movement.

In her 1997 book *Ecofeminism as Politics: Nature, Marx, and the Postmodern*, Ariel Salleh makes it clear that the same challenges arise in ecofeminism as in feminism when postmodern approaches to gender differences cloud what could otherwise be a concrete commitment to women's liberation from patriarchal systems of domination including sexism, racism, colonialism, extractive industrial capitalism, and the ecological harms caused by all these systems.⁵ However, Salleh expands on Merchant's work on the sociology of knowledge by also critically describing how traditional Marxism is unable to reconcile the assumed Man/Nature dualism present in assumptions about the division of labor in the formal

⁵ Salleh acknowledges Karl Marx and Friederich Engels' work to be "ahead of its time" with its foundational articulation of the importance of understanding commodity fetishism and the "world of mystifying symbolic exchange which disguises real energy exchange" that people around the world are thrust into because of the historic privatization of what was once commons. She builds on their work on alienation as it relates to women and colonized peoples in the global economy and false consciousness as it relates to the false hope offered by neoliberal-leaning labor solutions. She even astutely notes that Marx and Engels held ecological concerns relevant to the times, including soil depletion due to capitalist farming methods and the threat posed to flora and fauna by overdevelopment.

economy, rendering women's labor and the natural world which sustains all industry invisible and undervalued. A Marxian analysis portrays labor as the true source of all wealth, denying the productive contributions of care for the laborer historically provided by women as well as the extraction of resources and energy from the natural world that makes life and the economy possible.

Furthermore, Salleh calls out the arrogance of thinking that man could combine Enlightenment reasoning with industrial technology to pave the way forward the path of history. Drawing on ecofeminists' work on the systemic understanding of domination of the Other, be that Other a woman or nature, Salleh counters that "[in Marxism, too] human's instrumental mastery rested on Man's objectification of Others as matter and resource, cancelling nature's subjectivity and potential partnership."

Salleh also takes on the misunderstandings and misalignments of liberal and postmodern feminism. Unlike these movements, she writes, ecofeminism does not fight for the replacement of patriarchal institutions with women's leadership, nor do ecofeminists wish for the libertarian freedom of never-ending discursive possibilities of postmodern theory. Neither of these movements, she argues, could reconcile the intrinsic human condition of being in relationship with nature. Although postmodernism has played a role in its deconstructive approach to the limitations of Enlightenment biases, Salleh asserts that the postmodernist approach has no tangible ends beyond an endless loop of challenging limits. In her words, "it cannot help movements to formulate a program of action without undermining its own epistemological root[s]." (258)

Perhaps her most valuable contribution, however, is Salleh's articulation of the now central ecofeminist concept of "embodied materialism" which brings these incisive criticisms into a rectifying framework. Salleh defines this approach as "asking activists and scholars to recognize the historical significance of 'othered labor,' that unnamed class of hands-on workers who catalyze natural processes, so enabling life on Earth to flourish." (1) This concept grounds ecofeminist analysis through engagement with the undeniable material reality that is both lived and embodied, un-

derstanding history as shaped by cultural ontologies of Otherhood and domination that have had lasting material consequences that in turn inform and constrain our current conditions.

Whereas political economy analysis identifies who benefits from political control over the means of production, embodied materialism shifts the focus onto who has been exploited and how this is enabled by sexism, racism, colonialism, elite power politics, the ethos of accumulating wealth and power, a continuously expanding military industrial complex, and the many different kinds of interstitial Otherisms that weave these systems together.

Finally, German sociologist Maria Mies' 1999 book *The Subsistence Perspective* presents a new historical analysis that ultimately argues that another world is possible if we make use of the traditional knowledge of Indigenous women living in subsistence-based community. Mies explores case studies from women's economic activities in Africa, Latin America, and Europe. She challenges the ways that the ethos of global industrial and colonial capitalism place value only on the production of commodities for sale and exchange and the accumulation of market wealth, countering that for centuries economies have been vibrantly productive for the sake of subsistence. In the accumulation-driven economy, however, this kind of productivity does not count as valuable. Mies decries the housewifization that has occurred through the expansion of patriarchy and global capitalism, whereby women's work is made invisible and can for that reason be exploited limitlessly. She explains this as a feminist revision of Marx's concept of alienation, a unique form of exploitation experienced by women even in communist-socialist systems.

In contrast, Mies provides an in-depth exploration of the political economy and ethos that govern subsistence societies. First, she explains that women in subsistence economies find security not through market positions or market power but through belonging to an ecology and economy of care that is capable of supporting both humans and the non-human life upon which those humans depend. The effects of Mies' work on this topic in both her 1986 book *Patriarchy and Accumulation on a Global Scale* and in her

1993 collaboration with Vandana Shiva, *Ecofeminism*, have reverberated through the development of ecofeminism ever since. She presents a number of provocative insights through this work:

- A. Subsistence economies have significantly more harmonious ecological relationships with the natural world they depend on than accumulation economies. They achieve true sustainability through this balance.
- B. Accumulation economies not only exploit subsistence, they destroy it.⁶ As Shiva and Mies write, when “the illusion of catching up” is forced upon the developing—that is, the formerly colonized—world debts and poverty continue to grow (with the exception of local elites who gain in wealth). This is shown through their historical work on the expansion of commodities and commodity markets since 1945, which demonstrates that there has also been an expansion of precarities, vulnerabilities, and dependencies on powerful, often non-local, others in order to meet the needs of everyday life. A poignant example of this is the reorganization of agricultural systems that were once diversified and able to meet the local population’s food needs into cash crop nations, in which local populations have come to depend on an import/export system.
- C. Accumulation economies espouse an ingrained hostility to nature that can only be avoided in subsistence economies. Ecofeminists argue that working to make capitalism fairer does not solve the problem of extractive accumulation that has put humanity in its current predicament of being unable to “live within the limits of what our planet can provide.”⁷

⁶ Here, Mies cites Ivan Illich in noting that the real war of capital is the war against subsistence.

⁷ Mies was part of a political movement that resisted “political rules... established [to] give large transnational corporations (TNCs), globally operating patriarchal capital, full power not just over nations, provinces and municipalities, but over all aspects of life: food, health, education, culture and life itself are subjugated to commodity-production and the insatiable profit-motive.”

Through the 2000s and 2010s, ecofeminists continued to provide more specified critical analyses of the problems of ecological overshoot and decline as they have continued to unravel, with climate change gaining the most attention as the defining crisis of our era. Additionally, in response to postmodernist and post-structuralist criticisms of ecofeminism and to the growing import of third-wave feminisms, more work was done to clarify not only the meta-theoretical distinctions of an ecofeminist framework but how these distinct approaches apply to social and ecological problems. Works by Val Plumwood, Chris Cuomo, and Charis Thompson articulate the distinct aspects of an ecofeminist approach and its growing relevance for the deepening crises of our age. Much more has also been said to elaborate on the diversity of insights that inform the application of ecofeminism in concert with the womanist ecological politics of woman of color communities. Sturgeon (1999) addresses some of the developments in transnational and developing world feminisms. Rainey and Johnson (2009) and A.E. Kings (2017) expand on understandings of ecofeminism among minoritized communities (and see also Frazier 2020; Hall and Kirk 2021; Nhanenge 2011).

Because, as attributed to Valerie Krutz in Carlassare's 1994 essay, "the great divider among ecofeminists [was the charge of] 'essentialism,'" much ink, and I think far too much ink, has been spilled in recent decades on defending against this claim. Scholars like Sargisson (2001) and Evans (2015) make typical attacks on ecofeminists' praise for women's special relationship to nature, on the embrace of a spiritual ethos in the natural world, and on the positive imagery associated with mothering as a form of care that should be modelled as "essentialist" and ultimately limiting of women's freedoms. Scholars like Mellor (1997), Moore (2004), and Gaard (2011) counter their arguments by emphasizing the ecofeminist approach to seeing both women and nature as subjects (rather than objects), understanding the accusation of essentialism as one ultimately rooted in a fundamental ethos of human superiority over the natural world, and in calling out the epistemological scare stirred up by anti-essen-

tialist discourse. This, the authors argue, has incited feminists to eschew the systemic work ecofeminists have done not just on speciesism but also on confronting the innately shared hierarchical structure of sexism, racism, and colonialism.⁸

Ecofeminists continue to challenge the expansion of a development paradigm in nations attempting to recover from war (Cohn and Duncanson 2021) and in resistance to the expansion of industries threatening public health and access to essential resources (Batrićević and Paunović 2019; Mukherjee 2013). Furthermore, an ecowomanist and Indigenous knowledge-embracing science have begun to shift the epistemologies of how we can value studying and working for the sake of living in harmony with the natural world while seeing ourselves as a species limited in what we can ultimately know and understand (cf. Kimmerer 2013; Liboiron 2021; Simard 2021).

Ecofeminists have also directed critical scholarly attention toward the politics of extractive industry through systems-cultural analysis, in-depth and on-the-ground case studies, and womanist and feminist critique of both policy and industry power over the possibilities for conservation and ecological and political sovereignty, especially for the marginalized and Indigenous peoples most vulnerable to environmental racism. Peruvian scholar Ana Isla's work is exemplary of this kind of research. Isla has provided in-depth studies of the effects of the sustainable development paradigm in Latin America, of the Earth Summit processes, and of the effects of industry on women, peasants, and Indigenous peoples in Costa Rica and Peru. Her recent edited volume, *Climate Chaos: Ecofeminism and the Land Question*, brings together critical conversations on the state of ecofeminism in 2019, exploring how the money system prevents us from reaching effective solutions

⁸ Much more has been said on the limits of human supremacist logics in an age of climate crisis and late-stage capitalism. For example, Vanada Shiva regularly states that she actively avoids adopting the now commonly used term "Anthropocene" (which is often a descriptor, rather than an endorser, of human influence). As she explains, "The anthropocentric worldview is the cause of so much of the ecological destruction in our time. To continue to put humans at the center is to perpetuate the hubris at the root of the ecological destruction of the earth—and, with it, our own future." (Shiva 2016d)

to climate crises, the development of a discourse of “necrophilia” in political ecology, and issues related to biopiracy and corporate genetic modification of life. The volume also presents in-depth case studies of activists working at the front lines of food sovereignty, anti-mining, and land displacement movements using insights from traditional and Indigenous knowledge around the world. In this vein, Vandana Shiva has also continued to write prolifically since the 1980s, publishing over twenty-eight books covering a myriad of topics. These include the history of global development programs and their impact on women and Indigenous peoples, the effects of the Green Revolution on food sovereignty and poverty in India, biotechnological advancements that have replaced biological diversity with monocultures, the concentration of wealth and corporate power in global agriculture and resource management, biopiracy and the manipulation of life, water privatization, pollution and profit, soil integrity and seed sovereignty, and the cascading threats to democracy and ecology posed by the climate crisis.

How the Ecofeminist Framework Makes a Difference

As we face the unprecedented challenges to the human species in an age of compounding ecological and social crises, it is vital to clarify the difference an ecofeminist framework can make to addressing these issues in practice.

First, ecofeminism is based on systems analysis with a concern for both the cultural and structural foundations of those systems—that is, how ontologies mix with politics and the economy to affect ecological crises. This approach questions where inequalities and injustices to women, marginalized peoples, and the Earth originate from. It points to not only the immediate sources of those injustices but also to the long-term systemic origins of domination and exploitation. While reformist approaches aim to improve particular aspects of a system, ecofeminists think critically about whole systems.

Second, ecofeminism centers a biological diversity approach that positions the human species as one ultimately dependent upon

and part of the natural world that sustains it. It also acknowledges the diverse cultural possibilities for organizing human behavior. This is a subtle distinction, but a fundamental one, especially now that humanism discourse as begun to mix with more-than-human exploratory conversations.

Both of these distinctions were well illustrated in a recent *Yes! Magazine* online forum titled “An Ecological Civilization,” in which panelists and audience members discussed how to get back to a culture of reciprocity and sharing of the commons. Indigenous ecofeminist Winona LaDuke interjected to clarify her understanding of the commons based on the Anishinaabekwe concept of *Akiing*, which means “the land to which the people belong” and *Akiing Amin*, “the very land to which I belong.” As she explains, there is a fundamental difference in these relationships: “it’s not the land which belongs to us in common.” And she emphasizes a distinction ecofeminists have made between their approach and industrial-age socialism—the understanding that we do not own the land but are a part of it, dependent on it. In this vein, one facilitator added the words of Vandana Shiva, who contributed writing to the special issue on the topic but could not be present at the discussion, reading, “the way you design the world in your mind is the way you design it in reality . . . when you design the world as dead matter to be exploited, you will exploit it. When you design without any understanding of the limits you will violate the limits. But if you design it with recognition of interconnectedness you will nurture it” (2021).

LaDuke also discussed how “Windego economics”—Windego being the Anishinaabe term for greed—throw ecosystems out of balance. Whereas postmodernist and poststructuralist feminists embrace women’s rights through a commitment to limitless freedoms, ecofeminism incorporates traditional and ecosystems science knowledge about the harmful consequences of disregarding material limits.

Ecofeminism’s systems-thinking and biological diversity-centered approach also broadens our understanding of the nature of the ecological crises we are facing. Although the media depicts climate

change as the defining ecological crisis of our era, it is not considered to be the most exigent crisis among ecological scientists. In their groundbreaking 2009 paper on planetary ecosystem boundary threats, Will Steffan, Katherine Rihcardson, Johan Rockström and, in subsequent publications, twenty-eight other internationally renowned scientists demonstrated how we must limit the effects of human activity on ten ecological boundaries in order for the planet to continue to sustain human life (Steffan et al 2015; see also Stockholm Resilience Institute 2019). These include the greenhouse gas imbalances that lead to climate change as well as stratospheric ozone depletion, atmospheric ozone loading, ocean acidification, the alteration of biogeological flows, freshwater use, land systems changes, biosphere integrity, and the production, consumption, and disposal of novel entities, all of our daily non-natural waste and especially including industrial chemicals, into the environment. Re-localization could certainly help curb global industrialism, overconsumption and alteration of the natural world and facilitate an ecofeminist ethics of respect for nature and for the scale of life that has been scientifically and historically known to be precariously bound to our species' prospects for survival. Small-scale societies that have traversed the local boundaries necessary to sustain them have "collapsed", noting that this term can refer to many things, from mass extinctions to a population's dispersal and fragmentation into new localities and social groups (Tainter 2016). Therefore, it must be emphasized that an ecofeminist perspective does not point toward re-localization of the industrial model but rather to moving away from industrialization toward a model that respects the life sustaining balance of the natural world, more in line with subsistence economies.

Further, it is important to note how ecofeminists see ontology as related to, though not superseding, biology. Feminists have long understood that, for better or for worse, our understandings of others shape how they are treated. Ecofeminists posit that an ontological analysis is fundamental to understanding the human condition because we are a cultural species and have organized and altered our world based on our cultures and belief systems. Of equal importance to ecofeminist understanding, however, is

the foundational nature of biology. Climate change is a biological process, as is the degradation of air, water, and soil quality that threatens human and non-human life. Thus, reckoning with these biological realities is central to an ecofeminist ethics of care. As noted above, though, statements on the biological essence of human life are often met with opposition from critics of ecofeminism inclined toward postmodernist, neoliberal, or libertarian stances. Contrary to ecofeminism's socialist leanings, each of these opposing stances embraces limitless freedoms, although they see themselves as distinct from one another on other political grounds.

To be clear, ecofeminists are fiercely committed to respect for and protection of biological diversity, so accusations of essentialism are mistaken in that regard. Instead, ecofeminists view the postmodern rejection of purported essentialism as placing a human supremacist value on limitlessness rather than a meaningful concern about inaccurate portrayals of human possibility. For example, some might reject ecofeminist musings on the tradition's reverence for the wisdom of birth-giving mothers as an insinuation that it is essential to the nature of womanhood to give birth. But ecofeminists embrace biological diversity in womanhood as well, including the understanding and acknowledgement that not all women can or should have to give birth, while simultaneously affirming that all human life was born from mothers and that the fundamental practice of giving birth to new life is one essential mode of experiencing the biological exigencies of being human (though, again, certainly not the only one). Furthermore, it would make little sense for ecofeminists to abandon reflective observations on essentiality because fully understanding human needs in this time of ecosystemic crisis is a fundamental component of ecofeminism. Water is essential to life. So is clean air and clean water. A balance of consumption and regeneration is essential to a sustainable ecology. A need for biological diversity exists within any ecological system and there are some essential features intrinsic to the nature of how ecological systems work. Ecofeminists hold that our ontological understandings and orientations shape our ability to grasp and act upon these essential principles.

These distinctions become more poignant as conversations shift from the causes of ecological crises to possible and plausible solutions. A “technological fundamentalism” (Jackson and Jensen 2021) comes easy to neoliberal, libertarian, postmodern, neoconservative, and even socialist-Marxian frameworks. These perspectives center human needs because the economy depends on the continuing flow of goods and services and technological solutions will enable this through investment in “green growth,” including Green New Deal programs; it has become inconceivable to scale down what is now considered a standard quality of life; as some feel humans are entitled to enjoy the opulence of the modern industrial world; or some may not be fully informed of the actual cost of technological fixes in terms of industrial inputs and outputs. An ecofeminist approach diverges sharply from each of these lines of thinking, translating systemic insights into processes that promote visibility, care, and living in balance with nature (on feminist criticisms of Green New Deal programs, see Cohn and Duncanson 2023).

Visibility, Care, and Living in Balance

As one among many systems-theoretical approaches to social problems, an ecofeminist lens works well with other critical frameworks that center the inequities of our current crises, the biological realities of eco-systemic decline, and an ethics of care. In response to these crises, ecofeminists suggest systems changes that work towards social and ecological balance. This entails an intricate weaving together of the efforts to make the hidden inequities of industrialization visible, to nurture a commitment to mutual care, and to grapple with sober and practical solutions for living in balance with nature.

Making Inequity Visible

Social science studies revealing the harmful social and ecological effects of global commodity chains have been published far and wide. Thus, making those unseen harms visible has long been a strategy of ecological justice advocates in the ecofeminist tradition

and beyond. In her 1986 book *Patriarchy and Accumulation on a Global Scale*, Maria Mies urged women to forge a meaningful transnational movement against the exploitation of the world's most vulnerable women by raising consciousness about how consumption in the First World is predicated on the exploitation of their sisters in the Third World. Anti-modern slavery activist Kevin Bales documents common commodity chains linking modern day slavery and environmental destruction in his 2016 book *Blood and Earth*, which ends with a similar call to action. Bales explains that if we are to mobilize against this seemingly intractable problem, we must organize along every major node in the commodity chain so that consumers are aware of what is happening to other human beings and to the Earth on the extraction end of the production chain.

Making precarity visible means different things to different people depending on their social location. For those of us whose grandparents immigrated to the Global North in search of a "better life," this better life has come at the cost of a flow of energy and products extracted from the Global South. My maternal grandmother, for example, spent her working years in a tire factory. She might have contemplated those who produced the raw materials that occupied her hands and her days, including rubber from Africa and metal from South American mines. Still, she never met these workers and likely never grasped how their lives were entangled with hers in largely invisible ways because the global industrial system keeps these realities largely hidden. My paternal grandmother spent her working life in a factory banding cigars and, certainly, also never met the farmers or paper mill workers responsible for the products that occupied her hands and hours. I'll never know if either of these women gave those human connections any thought at all. Even today, most of us in the US are so fully preoccupied with a life of work and consumption that we have neither the time nor the impetus to reflect on the webs of production to which we belong. And if we try to do so, the modern global economy has by default inserted many complex degrees of separation.

This structural segregation between the social and ecological costs of modern industrial living also keeps our own precarities

out of sight. But they are there, just beneath the surface. This is eloquently illustrated in Alice Friedemann's 2016 book *When the Trucks Stop Running*. As a global travel systems engineer and the granddaughter of the peak oil scientist Francis Pettijohn, Friedemann opens her in-depth study into the US economy's reliance on an extensive system of constantly moving diesel-powered trucks with an apocalyptic scenario: What would happen in the US if "the trucks stopped running?" Through a sector-by-sector imaginative exercise, Friedemann shows readers how society would break down in about two weeks' time. Friedemann then goes on to systematically review all possible green technological alternatives to diesel-fueled transportation, concluding that there are no viable alternatives to this sector's oil dependency. This is bad news indeed for the green transition movement in the many countries around the world whose economies rely on a constant flow of trucking, though many in the public spotlight have thus far chosen to deny or ignore this reality.

Friedemann (2021) also weighs in on the magical thinking behind other objectives of the green technology transition movement in her next book, *Life After Fossil Fuels*, with her disenchanting calculations about the impossibility of keeping complex industrial production chains going without fossil fuels. In short, few aspects of any of the ideas to save the pace and scale of modern life are impractical or ineffective alternatives when one does the math on the energy input and output ratios for all of these celebrated technologies, from solar panels to wind turbines, electric vehicles, and biomass. Manufacturing alone uses over half of all fossil fuel energy and about half a million products are made from fossil fuels themselves. That's one half of the reality check that systems analysis provides. The other no less dire half is the human and ecological costs.

An Ethics of Care

This latter point distinguishes ecofeminism sharply from neoliberal environmentalism, which lends itself to very different applications in practice. While there is a history of scholarship that traces the relationship between extractive industries and violence among those who live and work at the end points of extraction

(see, for example, recent theoretical reviews of these longstanding dynamics in the growing literature on “necro-politics” in Mbembe 2019), there has been a recent shift toward highlighting the presence of this violence in the extractive industries necessary for green “renewables” (which Friedemann and others rightly point out are more accurately coined green “rebuildables”) that would serve as the main mechanisms behind a green transition (Shapiro and McNeish 2021). Ecofeminists understand that no form of mining is good for the environment or for the people who live near mining and who depend on the water sources used and contaminated by mines. This includes the mining necessary to build electric car batteries, solar panels, and wind turbines, most of which will benefit people in the Global North who are blind to the harmful social and ecological effects of these industries but may feel assuaged by knowing that they can emit less carbon in their own communities while keeping the internet streaming in their houses (Kirsch 2014).

One task of an ecofeminist approach to social and ecological injustice, therefore, is to make visible the systems that weave together privileges and luxuries on one end with harms on the other. Scholarship like that generated by the Environmental Justice Atlas and the work of organizations like Yes to Life, No to Mining help to bring these effects into light. The aim of ecofeminism is to consider the cost of these systems when formulating just solutions. Here, work on re-localization and reducing activities that cause harm is fundamental if we are to take care of the natural world that we depend on. This is a different approach than social justice movements that want to make global industrial capitalism more equal. Ecofeminists believe in pursuing greater equality but aim to do so within a transformative system of living more gently in sustainable ecological balance. Because so many of the products and practices made through industrialization have been intrinsically harmful to our natural world, ecofeminism envisions a world beyond harmful systems, striving for equality and care for both people and the planet.

Another task involves vital ontological work on the importance of care for each other and for our common home in nature. An ontological analysis makes clear how all policies and systems are

rooted in world views that forward particular values. Ecofeminists advocate for policies rooted in the values of care and for justice and equality, including women's rights, but also for policies rooted in principles that will serve to nurture the natural world instead of depleting it. These policies are based on reducing the detrimental ecological effects of industrial life, reducing pollution, reducing waste, and reducing other unnecessary harms. An examination of our formal educational curricula in the US demonstrates how far off we are from cultivating a civic consciousness of care for the natural world in the global North. In a study of local public schools' civics curriculum in the state of Massachusetts, my students and I found that classroom texts are overwhelmingly supportive of viewing the accumulation of financial wealth and social prestige as the end-goals of civic life and portrayed neoliberal market politics as the foundation for democracy. In the sciences, students are taught that extractive industries and destructive environmental practices represent an advance in modern technology that should be celebrated and expanded. One ninth grade geography textbook, *Prisoners of Geography* (a very American title for the nation with the biggest per capita population of mostly nonviolent criminals that industry is allowed to profit from), highlights the melting of the polar ice caps as one effect of global warming but assures students that there is a silver lining to this: the wealth of minerals to be mined waiting underneath. In the California Test, a standardized test commonly taken in eleventh grade, a short block on science notes that "there is reason to suspect that the ocean floor is a treasure trove of natural resources." It goes on to refer to a UN report on the possible "peaceful uses of the seabed and the ocean floor" and includes in these "peaceful uses" the mining of gold, iron, titanium, petroleum, manganese, cobalt, nickel, and copper. The understanding students derive from texts like these is that we are entitled to this wealth of natural resources. But to those who live closest to the harmful effects of mining, including those in island nations, this industry is anything but peaceful. These proposals also run counter to the goals of sustainability. Indeed, they threaten all human and non-human life that depends upon the integrity of the ocean for their survival.

There are many ways to promote an ethic of care and many approaches to making care a priority. Some point to scientific studies that show consuming less is better for people's health and well-being, for nurturing connection, and for easing financial and time constraints. Others draw on a long-standing counter to evolutionary theory's emphasis on competition, arguing that cooperation and living in mutual community is the key to our species' survival. Environmentalists have written scores of books making all kinds of arguments for the fact that the Earth's ecosystem is in critical condition and that the worst effects can only be averted if we act now. Many have embraced the creation of smaller spaces of shared consciousness. While continuing with the work of educating the wider public on the difficult realities of ecological decline, they are also investing in building resilient communities and social relationships.

Joanna Macy's "work that reconnects" is one longstanding example of ecofeminist thinking and action oriented towards an ethics of care. In her 2012 book *Active Hope*, for example, Macy encourages readers to find hope not in false promises of life as we know it continuing on unabated or thanks to technological saviors, but in a sober acceptance of the realities of ecological decline and an investment in a culture of mutual care. Other communities have sprung up to embrace care and a cooperative spirit in the face of ecological crises and the social threats that come with them. In the US, the All We Can Save Project and the Council for an Uncertain Human Future facilitate community dialogues and circles of learning and reflection for thinking through what a just ecological transition that is founded on an ethics of care could look like. In Europe, the Deep Adaptation group, inspired by the work of sustainability scholar Jem Bendell, provides a safe space for those who are "collapse aware." That is, those who accept that the current levels of industrial production and consumption will shift in the face of increasing ecological crises and social conflicts. The community holds space for thinking through how to support equitable and humane responses to this. At the very least, these social initiatives and communities represent ongoing conversati-

ons on the ethics of common care. There are many more proposals that embrace these ethics and present a more sustainable way for communities to live in ecological balance by re-localizing subsistence and reducing production and consumption in the areas of the world that are driving overshoot.

Living in Balance

Ecofeminist approaches turn away from grandiose technological proposals for a “green transition” for all of the reasons outlined above, pivoting toward practical strategies for re-localization.

Navdanya in India is one visible example of the work being done to protect and expand food sovereignty and security through support for healthy organic farming and seed saving at the local level (Shivhare and Agarwal 2022; Trauger 2015). This kind of local work is vital because, in addition to building up the sovereignty and security of local farmers and working to reduce hunger, it counters the excessive greenhouse gas emissions, food and energy waste, and degradation of soil and water integrity caused by industrial agriculture and food production (Horrigan, Lawrence, and Walker 2002; Lamb et al. 2021; Popp et al. 2014). This represents a paradigm-shifting pivot away from the global organization of food chains. In a short period of time, this globalization caused nations once able to subsist on a diverse range of locally produced food to be ushered into a “cash crop revolution” in which they must rely on precarious global export/import markets (Roessler et al. 2022). This has led to increased vulnerability, greater reliance on harmful chemicals, and the shipping of products around the world in refrigerated containers to satiate a new cultural taste for counter-seasonal and extra-local products (Friedland 1994). This new global paradigm has, in turn, increased the loss of food security and food sovereignty as multinational corporations have taken control of production (Shiva 2016a, 2016b). It is important to note here that although many praise the Green Revolution as necessary for saving the lives of millions presumed to be threatened by food scarcity, before the introduction of the Green Revolution in industrial agriculture, agronomist and Nobel laureate Norman Borlaug expressed reservations about the

corporate takeover of patents and genetic material that would be utilized in its implementation. Shiva (2020) makes the case that this re-localization is important not only for food security and ecology but also as a social solution that can foster local-level democracy, community participation, and inclusion.

A transition such as this would not come easily. It would require a phenomenal multi-level restructuring of the food economy. But there are models for how this work is already being done. In addition to the example of Navdanya, Brownhill, Kaura, and Turner (2019) have documented the efforts of Shiriki women in Kenya to break free from the cash crop coffee commodity farming industry introduced through colonization and then expanded by World Bank programs in the 1980s. They show how women began to grow more diversified crops that could maintain soil integrity while meeting a community's food needs in local markets. In the years since, the Shiriki people have continued to resist international organizational and industry pressure to grow other cash crops that would benefit urban and biotech markets. This has been difficult to accomplish as interlocutors have learned how to package these ventures as "woman friendly" and in other ways that appeal to the working poor in rural Kenya (Brownhill, Kaara, and Turner 2019).

There are also wonderful examples of permaculture efforts around the world designed to expand food access through gardening in suburban and urban spaces. These projects reduce food precarity as well as the distance food must travel to the consumer and help regenerate local land. David Holmgren (2018), one of the early advocates for permaculture who helped to coin the term and globally expand the practice, has recently worked to advance the movement for retrofitting the suburbs into sustainable and local food-producing environments. Ideas like these offer phenomenal system transforming possibilities in countries like the United States, where it is estimated that food travels an average of 1,500 miles from farm to plate and 50% of food waste is estimated to occur at every step of the production chain. Permaculture offers a practical vision for what requires a seemingly impossible social shift. The US is a top emitting nation and a bastion of suburbia in which the most

watered crop in the nation is the sprawling monoculture known as a lawn. Lawns disrupt habitats, drink up chemicals proven harmful to human health and the environment, and are responsible for another huge source of fossil fuels emissions: gasoline-powered lawnmowers. This and other machinery necessary for maintaining lawns produce very high emissions of hazardous air pollutants, criteria pollutants, and carbon dioxide (Banks and McConnell 2015). In my conversation with transportation-systems engineer Alice Friedemann about what we could do to become less dependent on the trucking system, she responded that people don't want to do what needs to be done—farming. Before we became a nation that emits excessively high levels of carbon dioxide, about half of the county's citizens were growing food.

As plant scientist and systems-analyst Stan Cox has carefully documented, this transformation would not have to occur without a historically recent model. In his 2013 book *Any Way You Slice It: The Past, The Present, and the Future of Rationing*, Cox provides an impressive in-depth examination of how citizens in the US and the UK rapidly re-localized their food systems through what were then called “Victory Gardens” due to the economic constraints of World War II. As Cox demonstrates, we could transition our food system quickly if we had to because it has already been done with an impressive degree of multi-level organization.⁹ In collaboration with energy engineer and Greenpeace advocate Larry Edwards, Cox also devised a “cap and adapt” plan for the United States to immediately reduce its dependence on fossil fuels through a graduated ten-year managed phase-out of oil, gas, and coal (Edwards and Cox 2019). Mechanical engineer Susan Krumdiek (2020) provides another model in her program for “Transition Engineering”. Prior to beginning this work, Krumdiek developed patented hydrogen technology designs for the US military. She explains that she shifted the direction of her work after being asked by her son what she and her fellow mechanical engineers were doing to head off the climate crisis his generation would have to bear the brunt of. She

⁹ An organization called The Climate Mobilization has incorporated this and Cox's other work into its policy proposals in the US. See, for example, the Victory Plan (Silk 2020).

was compelled to reflect deeply and meaningfully on the applications of her trade and admit that, in reality, they were not doing much. This led to her book and to the creation of the Global Association for Transition Engineering, a global foundation which proposes redesigning energy systems to reduce energy use instead of attempting to meet increased demand by building more low-emission energy generators. Krumdiek is going against the grain by trying to get institutions to sign on to this approach.

In Conclusion

US civil and human rights activist Shirley Chisholm once stated that all discrimination is at its root the same thing: anti-humanism. An ecofeminist framework enables us to add here that the othering, objectification, and subjugation of nature is also anti-human because we are dependent upon the integrity of our planet for our own survival.

Despite the longstanding insights of ecofeminist research, theory, and dialogue, and the many promising models and living examples of resistance and transformation, there remain deep-seated obstacles to a sustainable, caring, and balanced shift in the current global industrial paradigm.

Veronika Bennholdt-Thomsen (2019) noted five significant cultural and structural impediments to embracing a subsistence economy, which would be a gentler and more sustainable alternative to the extractive violence of global industrialism. These are a disregard for women's work in the modern sexual division of labor; a disregard for peasant farming; a disregard for nature; the colonialist looting of resources from the natural world and the displacement of Indigenous peoples living in harmony with it; and a "collective and neurotic fear of scarcity" that inhibits engagement with the principles and practices of subsistence living. Broadly speaking, it is safe to say that a great number of advocates committed to various aspects of a "green transition" share a commitment to caring for the planet, and for some, caring for the planet's most vulnerable. But the various solutions offered can sometimes diverge drastically.

In my research on the “forbidden knowledges” of climate and ecological science and policy work, I have been struck by the extravagance of some of the most magical proposals—a floating rainforest bubble off the coast of Helsinki, Finland (Ratti Associati 2021) or the suggestion that we can power the world’s wasteful suburban homes with hydrogen that requires “only the amount of water used in a flush of a toilet” (Katanich 2021). These solutions go beyond magical thinking; they exhibit a desire to continue to play god with the fate of our planetary biome. Furthermore, we have many solutions that are known to be effective, lower cost, and simpler to execute that are not being pursued because they do not fit within a growth paradigm, are not profitable to those in power, and challenge the standard of living that has defined the industrial age in the Global North especially.

Ecofeminist analysis pushes past much of the unjustifiable faith invested in technological solutions, calling into question the problematic logics that propose that the same ethos that has brought about our present age of crises may also drive the solutions to these crises. Instead, ecofeminism offers a sober perspective on what we know has already proven sustainable and harmonious for people and the planet. Ontology and biology are foundational to an ecofeminist sense of justice. So too is the final element of care that brings us back to the imagery we started with, the suffering child at the heart of the city of Omelas. In institutional studies we often discuss the concept of “decoupling,” the disconnect between policy objectives and actual practice or effective implementation. There are all kinds of social factors that help to explain how and why this might occur to different degrees and in different settings. You can think about each of these explanations as falling along a spectrum between not knowing on one end, not having the necessary resources in the middle and, at the far end, not caring. Because we live in complex societies governed by social structures, individuals knowing and caring can only go so far. Change requires a critical mass of support, as well as building proper social systems to support the capacity for caring on a meaningful scale so that we can focus on nurturing the diversity of life necessary to sustain a

more peaceful world. We must ask how much of the violence and suffering of our present extractive age must be seen and known before we are inspired to look beyond it.

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JUSTICE IN SPACE

Arturo Escobar

On the Ontological Metrofitting of Cities

Introduction: Earth and the City

About three years ago, I started a presentation at the Annual Meeting of the American Association of Geographers by making a case for “re-earthing” cities:

Earth has been banished from the city. By “Earth” I mean—based on indigenous cosmovisions as much as on insights from contemporary biological and social theory—the radical interdependence of everything that exists, the indubitable fact that everything exists because everything else does, that nothing preexists the relations that constitute it. Earth signals the capacity of life for self-organization, life’s ceaselessly unfolding flux of changing forms, forces, behaviors, and relations, and the fact that entities, processes, and forms are always in the process of dependent co-arising. I take this notion of Earth as the horizon for a renewed living praxis, and as the basis for the essential act of human dwelling.¹

I went on to discuss the exile of Earth from the city as a reflection of a twofold civilizational anomaly: the construction of cities on the basis of their separation from the non-human living world, particularly since the classical Greek polis; and the tendency towards the historical deprecation of everything that is not the

¹ Arturo Escobar, “Habitability and Design: Radical Interdependence and the Remaking of Cities.” *Geoforum*, no. 101 (2019): 132-140, 2019, p. 132.

city, such as all forms of rural life, indigenous and ethnic cultures, nomads, migrants, vagabonds, squatters, and all those who refuse to abide by modern norms and rules of inhabitation. My question was whether this civilizational anomaly could be reversed. In times of civilizational crisis caused by the wearing down of relationality, largely originating in urban life, shouldn't we look for important clues for rethinking cities in those vilified spaces found at the margins, or beyond the confines, of cities? Today, the project of rethinking, remaking, and re-politicizing urban habitation needs to be undertaken based on the experience of those at the epistemic, ontological, social, and spatial interstices and peripheries of cities, including the more-than-human.

Occidental modes of dwelling have eroded the systemic mode of living based on radical interdependence. It is thus imperative that other modes of dwelling be found, imagined, and designed by incorporating relational modes of living into urban landscapes, within an open and broad communal conception. As I contended back in 2018, doing so would require an ontological reorientation of design, away from its functionalist and instrumental tendencies and towards relational principles and goals. This would imply recasting architecture, urbanism, and urban design as cultural, technical, and political practices for relational and pluriversal forms of inhabiting.

The present-day making and remaking of cities, at a faster pace and at larger scales than ever before, continues to be modelled on outworn spatial frameworks. Where do we go for clues to different paths for the city? This question is currently being explored by the "relational turn" in urban studies, which according to Ash Amin and Nigel Thrift, involves "seeing the world as a constellation of existential assemblages, each requiring ideas, tools, and sensibilities that do justice to their own integrity, rather than to some fiction of a universal standard or objective method."² This frame is ably

² Ash Amin and Nigel Thrift, *Seeing Like a City* (Cambridge, UK: Polity Press, 2019), 31. Some of the main works associated with this turn include AbdouMaliq Simone and Edgar Pieterse, *New Urban Worlds. Inhabiting Dissonant Times* (Cambridge, UK: Polity Press, 2017); AbdouMaliq Simone, *Improvised Lives. Rhythms of Endurance in an Urban South* (Cambridge, UK: Polity Press, 2019).

encapsulated by the expression of “seeing like a city.”³ Seeing like a city calls for an on-the-ground epistemology appropriate to urban relational ontologies, including the distributed intelligence enacted by socio-technical systems; staying close to the networks of relations rather than privileging top-down theories, employing methods of observation and intervention appropriate to the “rhizomatic ontology” of the city;⁴ an ethnographic sensibility driven by a commitment to seeing the city from the spaces of the broken, or the spaces of the expelled;⁵ and the emergent concern with re-earthing the city, its materiality, and the more-than-human.

Designing as a Praxis of Worlding in Transition

Design is, itself, in crisis within a world in crisis. Hence, we might construe it as a practice in transition at the service of larger socio-ecological and civilizational transitions. In order to do this, however, we need to consider design as ontological. According to Terry Winograd and Fernando Flores, “We encounter the deep question of design when we recognize that in designing tools we are designing ways of being.”⁶ Design is ontological in that by designing tools, “We” (humans) design the conditions of our existence. We design tools, and these tools design us back. “Design designs,” is the apt formula given to this circularity by Anne-Marie Willis; “we design our world, while our world acts back on us and design us.”⁷ This applies to the entire range of objects, tools, institutions,

³ Mariana Valverde, “Seeing like a city: the dialectic of modern and premodern ways of seeing in urban governance,” *Law and Society Review* 45, no. 2 (2011).

⁴ Laura Forlano, “Decentering the Human in the Design of Collaborative Cities,” *Design Issues* 32, no. 3 (2016): 165. See also Laura Forlano, “Posthumanism and Design,” *She-ji. Journal of Design, Economics, and Innovation* 3, no. 1 (2017): 16–29.

⁵ Tony Fry, *City Futures in the Age of a Changing Climate* (London: Routledge, 2017); Saskia Sassen, *Expulsions. Brutality and Complexity in the Global Economy* (Cambridge, MA: Harvard University Press, 2014).

⁶ Terry Winograd and Fernando Flores, *Understanding Computers and Cognition* (Norwood, NJ: Ablex, 1985), xi.

⁷ Anne-Marie Willis, “Ontological Designing: Laying the Ground,” *Design Philosophy Papers* 13, no. 1 (2006): 80.

and discourses of human creation. To put it in the context of cities, as former UN Habitat director Joan Clos put it, “we have created the city, but what we have not thought enough about is how the city is recreating us.”⁸

Design and architecture are wedded to a Cartesian ontology of self-sufficient subjects confronting an external world made up of pre-existing, self-standing objects that we can control at will. The notions of representation, object, and project belong to this ontology. What we know as “objects” arise from the dualist ontology that separates mind and body, observer and observed, humans and nonhumans. Relatedly, the idea of “project,” as Alfredo Gutiérrez puts it, has enabled modern design to “monopolize the relationships with tomorrow” since “the future can only be reached through project, which ends up capturing every possibility of existence, ‘projecting’ over the entire Earth, like a disease, the unique Western world which denies all others. Because for the West there are no other worlds, only unfinished fragments of itself.”⁹

What would become of design if it were to be based on the fundamental insight that the world does not exist “out there,” separate from us, but that it co-emerges with every one of our actions, albeit within a complex dynamic of causality, contingency, and historical drift? Such an awareness would require a practice of design in which objects, representations, and projects cease to be foundational to the making of life. Instead of a type of design that undermines the relational making of space and things through practices that prioritize measurement, optimization, productivity, efficiency, and control—many of these normalized and enforced at present by an algorithmic rationality—design needs to reengage with the making of life with all of those—humans and not—which are involved in the particular contexts and situations of the designing act.

⁸ Richard Sennett and Joan Clos, “A Conversation.” In UN Habitat and Richard Sennett eds., *The Quito Papers and the New Urban Agenda* (New York: Routledge, 2018), 167.

⁹ Alfredo Gutiérrez Borrero, “When Design Goes South: From Decoloniality, through Declassification, to Dessobons.” In Tony Fry and Adam Nocek eds., *Design in Crisis. New Worlds, Philosophies and Practices* (London: Routledge, 2021), 56–74.

Ontological Metrofitting and the More-Than-Human City

Dualist and relational ontologies convey diverse forms of being-in-the-world, in space and in territory. In applying these notions to cities, Tony Fry proposes an ontologically oriented framework—which he calls metrofitting—for rethinking and remaking cities after the exhaustion of the European city as design paradigm. Fry’s starting point is the ontological defuturing effect of modern design, by which he means design’s creation of a world-within-the-world that is structurally unsustainable. As a response, he posits a movement of repair towards “Sustainment,” understood as a post-Enlightenment project of a scale as great or greater than the Enlightenment which acknowledges the dialectic of social metabolism, change, and repair:

If, as it is the case, humanity has to adaptively change in order to survive, then there have to be ontologically designing environments that prompt and support this process... As such, [the agenda of metrofitting] has to explore the indeterminacy of the city, its fragmentation, its porous ages, its creative and destructive metabolism, the risks to which it is exposed, what has to be learnt, what can be repaired, and by whom, the politics of change, and the imperative of acting in time... [In sum] the remaking of cities, as action and outcome, is a means of our own remaking.”¹⁰

Metrofitting entails the remaking of the city based on the relational worlds on which all life depends. This means seeing the city as a historical and metabolic designing event with which metrofitting has to engage. For Fry, the remaking of the city stands upon its unmaking, which in turn implies an ontological transformation of our being in the world. Consequently, “a far more substantial and foundational strategy of change is needed in which ontological design and metrofitting are elemental—one grounded in the project and process of the Sustainment.”¹¹ The remaking of planning

¹⁰ Fry, *City Futures*, 16.

¹¹ *Ibid.*, 123.

and design in domains such as renewable energy, urban food, transportation, bio-waste management, air and water quality, housing, and so forth will become essential to restoring biophysical balance to urban living. This has to happen in the spirit of newer visions of the city as open, permeable, and always being un- and re-done.

Biophilic urbanism provides another starting point, which involves the massive re-earthing of cities—their infrastructure, activities, knowledge, institutions, and governance.¹² Succinctly, biophilic cities are seen as places profusely endowed with easily accessible and abundant nature, capable of enticing residents into integration with nature through multisensory environments. Biophilic design aims at sustainable urban metabolism based on closed-loop philosophies, actively engages in bioregionalism and ecological restoration, and reimagines cities as entities that harbor natural shapes and forms, encompassing diverse types of built structures. All these elements need to be thought about at the levels of building, block, street, neighborhood, community, and region. Even interstices and excessive pavement can provide a means to re-earth the city, including for urban agriculture (e.g., the proliferation of urban gardens and “agrihoods” in Detroit over the past two decades of economic crisis and a new wave of white flight, or, more ambiguously, the recently introduced “superblocks” in Barcelona).

Nonanthropocentric perspectives on the city—taking a stand for reframing the city from the perspective of the living nonhuman—add new dimensions to the relational remaking of cities. The stakes of this are incredibly high, as they involve going beyond what Sylvia Wynter has called the “mono-humanist” view of the human:

¹² I adopt the term “re-earthing” from Timothy Beatley, *Biophilic Cities. Integrating Nature into Urban Design and Planning* (Washington, DC: Island Press, 2011), and *Handbook of Biophilic City Planning and Design* (Washington, DC: Island Press, 2016), although I take it in an explicit ontological way. Beatley retains a certain naturalized notion of nature as separate from humans, and in this way his proposal goes halfway towards re-earthing visions based on radical interdependence. The same can be said for the large handbook of urban ecology, taken as a whole: Ian Douglas et al. eds., *The Routledge Handbook of Urban Ecology* (London: Routledge, 2021). There is a need for urban studies to broach in earnest the question of the nonhuman specific to the cities, reimagining cities as living entities through ontological metrofitting.

the human as secular, liberal, and bourgeois, best embodied by the Western white male.¹³ This anthropocentric and modern/colonial view of Man is the default setting of all types of modern design, including architecture and urbanism. Cultural and social critics rarely take notice that modern Universal Man exists in a designed space. To rethink and remake the city from the perspectives of “the multiplicity of Other”¹⁴ and “multispecies urbanism” challenges the norms and forms of the urban environment arrived at historically through anthropocentric mono-humanism. Addressing the dependence of urban freedom for the privileged on the unfreedom of racialized and gendered forms of labor and a whole range of “undesirable bodies” is but a place to start. Other cities, other designs are possible when imagined from the perspective of the multiplicity of others that inhabit it.

This also applies to nonhumans, where a multispecies urbanism finds inspiration in urban plants, soils, and urban and peri-urban agroecology, as they evince practices of care and repair and aims to “defragment landscapes for urban more-than-humans by intentionally maximising the surface and subsurface as habitat and food.”¹⁵ Cogent examples of this are present in the visions of Colombian architect Harold Martínez Espinal, whose proposal for “a new fusion of country and city” rests on a deeply relational perspective. His starting point is what he sees as a crisis of habitability stemming from “occidental modes of dwelling” (including urban Latin America). Recuperating our ability for terrestrial habitability requires, for Martínez Espinal, a form of being in the world that overcomes the disembodied and decontextualized way of being created throughout Western history. Crafting other forms of dwelling would involve “collective *habits* that allow for the creation of cities where the urban is able to fuse as a collective

¹³ Sylvia Wynter, “Unparalleled Catastrophe for Our Species?” In Katherine McKittrick ed., *Sylvia Wynter: On Being Human as Praxis* (Durham: Duke University Press, 2015), 9–89. For a discussion of Wynter’s concept, see Arturo Escobar, “Reframing Civilization(s): From Critique to Transitions,” *Globalizations* (November 30, 2021), →.

¹⁴ Afaina de Jong, “*The Multiplicity of Others, Who is We?*” (2021), →.

¹⁵ Debra Solomon, “*A Multispecies Urbanism Manifesto, Who is We?*” (2021), →.

entity with its natural *habitat*... These would be cities where humans, like the rest of living beings, would exist simply as inhabitants of a living soil, to whom they owe an *ethos* of reciprocity and complementarity, that is, of associative interaction.”¹⁶

Martínez’s vision for “a new fusion between country and city” can be realized through multiple designs. His own architectural and design proposal calls for multistory buildings fitted with corridors with movable shelves for planting foodstuffs (vegetables, herbs, and other plants), and surrounded by food gardens and green areas, with places for collective gatherings. The idea is to establish circulation “from the garden to the corridor and from this to the kitchen and the dining table.” The design is intended to introduce a peasant view of the soil into the city, reconstituting the apartment building and the neighborhood as what could be called *rurban territories*. Martínez’s vision of rurbanization is based on the notion that “to inhabit is to live communally, crafting and sustaining an environment.”¹⁷ His design objective involves “a novel architectural language, capable of carrying out a loving associative interaction with natural landscapes.”¹⁸ By linking together habitability, design, space, ontology (relationality), and ultimately, ethics and care, he articulates a cogent framework for urban transitions to the pluriverse. By seeing the human as the inhabitant of a living universe, rather than the occupier of a passive soil, he moves decidedly into a post-dualist conception of the city. His framework constitutes an architectural praxis for transitions based on a renewed commitment to an ethics and aesthetics that stems from the deepest meaning of life itself: relationality.

¹⁶ Harold Martínez Espinal, *Del hábito, al hábitat y al habitar* (Cali: Editorial Universidad del Valle, 2016), 22. The full architectural and design proposal can be found in Grupo CU:NA, *La fusión campo-ciudad desde un nuevo concepto de vivienda* (Cali: Editorial Universidad del Valle, 2021), coordinated by Harold Martínez and the architect Verónica Iglesias García. See Escobar, “Habitability and Design” (2019) for a fuller discussion. Martínez Espinal did a graduate program at the Bouwcentrum Rotterdam in the 1970s.

¹⁷ Harold Martínez Espinal, *Habitabilidad terrestre y diseño* (Cali: Universidad del Valle, 2013), 156.

¹⁸ Espinal, *Del hábito*, 21.

Six Axes for Design-Oriented Socioecological Transitions.

The present is an exciting moment for design. It is emerging as a crucial domain for thinking about the production of life and the making of worlds. But the power for making life and constructing worlds have been wrested away from common people. Modernity has entrusted the production of collective life to experts in a process that has been organized by the State and intimately linked with capitalism. The results, while impressive on many grounds (technoscientific and economic development) have been disastrous for humans and nonhumans, as the consequences of anthropocentric ways of producing, consuming, and living are becoming painfully clear.

Current intellectual-activist debates in Latin America suggest six axes or principles for transitions to a nonanthropocentric pluriverse, and many of these can be seen as taking place in many regions of the world. Each of these axes is connected to pressing issues and open questions in social theory, design, architecture, and urbanism, with the overall guiding principle of reclaiming the power over making life based on the awareness of the radical interdependence of all that exist.¹⁹

Recommunalize Social Life: Globalization has been a relentless war against everything communal and collective, a market-driven individualizing force. It is necessary to re-attune the making of life to the communal condition of existence; we exist in communal entanglements that make us kin to everything that is alive. If we see ourselves communally, we cannot but adopt care and compassion as ethics of living. The emphasis on recommunalization might be translated into design guidelines for resilient communities, or

¹⁹ This is a very short rendition of a much longer argument. For a complete set of references, see Arturo Escobar, "El pensamiento en tiempos de pos/pandemia." In Olver Quijano, ed., *Pandemia al Sur* (Buenos Aires: Prometeo Libros, 2020), 31–54; Arturo Escobar, *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds* (Durham: Duke University Press, 2018); Arturo Escobar, Michal Osterweil, and Kriti Sharma, *Designing Relationally: Making and Restor(y)ing Life* (London: Bloomsbury, forthcoming).

in terms of life projects in communities of place that are at once rooted, open, and mobile.²⁰

Relocalize Social, Productive, and Cultural Activities: Delocalizing pressures have intensified dramatically with globalization, with dire ecological and social costs. There are multiple ongoing efforts to relocalize activities and reclaim a degree of autonomy over eating (food), learning, healing, dwelling, and energy. This involves transformations of production systems, revaluing the commons, and reweaving ties between country and city, all of which can be tapped into through appropriate designing interfaces.

Strengthen Autonomies: A measure of local autonomy is needed to prevent recomunalization and relocalization efforts from being re-absorbed by newer forms of delocalized re-globalization. Autonomy is a radicalization of direct democracy oriented to reconfiguring power in less hierarchical ways and based on principles of sufficiency, mutual aid, and the self-determination of the norms of living. Design can be recentered on the autonomous production of life and livelihoods through designing coalitions that enable selective de-globalization, going back to the notion that every community practices the design of itself.

Depatriarchalize, Deracialize, and Decolonize Social Relations: Patriarchal capitalism is naturalized through the concrete designs of the worlds and institutions that we inhabit and that entrap us. To depatriarchalize and deracialize social relations requires practicing a feminist and antiracist politics centered on the collective production and reproduction of life. Actively incorporating this politics into practice is essential for repairing and healing the tapestry of interrelations that make up the bodies, places, and communities that we all are and inhabit, based on interdependence and care.

²⁰ The notions of life projects and communities of place are found in Latin American activist literature, as well as in Ezio Manzini, *Design when Everybody Designs* (Cambridge, MA: MIT Press, 2015) and *Politics of the Everyday* (London: Bloomsbury, 2019). The term “design coalitions” is also Manzini’s.

Re-earth Life: Earth is reemerging as a horizon for a renewed living praxis and the basis for the essential human act of dwelling. There are many expressions of the intensely felt need of re-integrating with Earth. The struggle against terricide invites us to imagine different worldings, propitious to the reconstitution of the entire web of life, the sustainment of territories, and communalized forms of economy, wherever we are. From “designing with nature” to newer forms of Earth-wise design and re-earthing cities, design needs to reencounter with Earth, and in some cases, resacralize design.

Construct Meshworks Among Transformative Initiatives and Alternatives: The convergence of genuinely transformative alternatives from below needs to be encouraged, fostering the creation of self-organizing meshworks, or networks of networks, among them. Such alternatives attempt to break with the dominant system and take paths towards direct forms of political and economic democracy, localized self-reliance, social justice and equity, cultural and knowledge diversity, and ecological resilience.

These axes aim at the creation of dignified lives in rural and urban territories. They are an antidote against destructive globalization and the normative middle-class ways of life, characterized by compulsory individualization, agonizing consumption, and ever deeper heteronomous grafting of digital technologies onto our bodies. Worldwide, middle-class enclaves are offered as the ideal to which everybody should aspire. Their individualizing and decommunalizing effects are nefarious on ecological, emotional, and spiritual grounds. They also often harbor deeply patriarchal, racist, politically conservative attitudes and behavior. Architecture and urban planning face a huge challenge to denaturalize this seductive model and come up with designs that enable social and ecological reintegration, restoring to sociospatial life a measure of meaningful connection to place. As landscape architect and urban planner Randolph Hester wisely put it, explaining the rationale for his notions of “endemic design” and reattachment to place, “attachment to place exerts the most positive influence on the design of community.”²¹

²¹ Randolph Hester, “Reattach! Practicing Endemic Design.” In Lynn Manzo and Patrick Devine-Wright eds., *Place Attachment* (London: Routledge, 2021), 208.

Brief Outline of Pluriversal Designing

There is no doubt that design has played an important role in the consolidation of an ontology of inherently existing objects, and of individual subjects intent on creating and using them, rendering them into “scarce” commodities, extracting value from them, hoarding and discarding them, turning them into waste, and so forth. Design has contributed hugely to laying down the unjust and exclusionary social orders that naturalize and enact such an ontology. Today, the results are everywhere for all to see in the treatment of most humans, Earth, and life, as objects, by force if necessary, but preferably through biopolitical management, technoscience, politics, and design; and in a world of obscene social inequalities, untold destruction of the Earth, profligate consumption and waste, and a paroxysm of profit making. Can design be seen in support of the life-making and world-making potential of struggles to relocalize, re-communalize, and re-earth social life? What would it mean to design outside the hegemony of the liberal, secular, and rationalistic ontology of capitalist modernity?

Designing practices based on the fundamental insight that the world does not exist “out there,” separate from us, but that we construct it with every one of our actions should contribute to disrupting those worlding practices that make the world one. Making (designing) pluriversally fosters forms of objectless-oriented and non-representational designing that challenge the power of a globalizing economy where only One World and One Human fit. Such designing practices would forcefully contribute to transitioning to the pluriverse, or a world where many worlds fit, with a multiplicity of others and all living forms. Let’s consider, to end, the following set of propositions on designing from, in, and for the pluriverse:

1. Designing pluriversally means designing with/in/from a world of many worlds, with an active awareness that constructing worlds under the premise of ontological separation negates the possibility to exist and thrive to what is ontologically different.²²

²² I have developed this set of propositions with Marisol de la Cadena. See Marisol de la Cadena and Arturo Escobar, “Notes on Ontological Excess: Towards Pluriversal Designing.” In Martín Tironi ed., *Resonancias tectónicas desde el Sur: Del diseño centrado en el usuario al diseño centrado en el planeta* (2021). See also Escobar, Osterweil, and Sharma, *Designing Relationally*.

2. Designing pluriversally implies designing relationally, or based on the premise that life is constituted by the radical interdependence of everything that exists.
3. Designing pluriversally places in parenthesis the modern notions of representation, object, and project, opening possibility to non-representational, non-object centered, and non-projectual designing praxes.
4. Designing pluriversally works for the reconstitution, healing, and caring for the web of interrelations that make up the bodies, places, cities, and landscapes that we are and inhabit.
5. Designing pluriversally is mindful of the conditions of generalized individuation, de-localization, de-communalization, and de-placing effected by modern forces, including urbanism and planning. Conversely, it contributes to the recommunalization of social life and the relocalization of activities such as eating (vs. “food”), healing (vs. “health”), learning (vs. “education”), dwelling (vs. “housing”), and livelihood provisioning (vs. “economy”).
6. Designing pluriversally aims to heal the ontological uprootedness from body, place, and landscape through forms of making that contribute to re-embodiment, re-placing, and re-earthing life.
7. Designing pluriversally means regaining the capacity for making life autonomously, instead of outsourcing it to institutions, experts, the State, and the capitalist economy. It strays away from a world centered on dualistic being and having—the historical project of objects/things—while favoring the historical project of relations and of dwelling in place.
8. Designing pluriversally fosters a departure from anthropocentrism, figuring conditions for all earth-beings to flourish. It instills a sense of being at home in a world that is alive, creating spaces for re-imagining ourselves as pluriverse and as community.
9. Designing pluriversally contributes to dismantle the mandate of masculinity that is at the core of the object-driven ontology

- of modernity. It practices a feminist and anti-racist politics that pragmatically privileges collective and communitizing modes of making and acting centered on care.
10. Designing pluriversally takes seriously the struggles for social justice, respect for the Earth, and the rights to life and being of human and non-human entities.
 11. Designing pluriversally involves learning to think and make with those who rise in defense of their life territories, strengthening their life-making and autonomy-oriented practices.
 12. Designing pluriversally requires a renewed awareness of how the creation of conditions for life-sustaining co-existence will necessarily have to engage with the dominant logic of unsustainability and defuturing.²³
 13. Designing pluriversally understands that it needs to go beyond the grammar of “problems” and “solutions,” particularly as it pertains to civilizational challenges such as climate change, which are ontologically *unframeable, unthinkable and incalculable*.²⁴
 14. Designing pluriversally resists translating the inexhaustible reservoir of non-representational practices into the grammars of modern design, letting them come into the foreground as instances of the relational making of life.
 15. Designing pluriversally renders the project of re-earthing cities into a historically plausible, intellectual, political, and technical process under the rubric of creating spaces of healing, re-communalization, and mutually enhancing relations with the Earth.
 16. Designing pluriversally contributes to civilizational transitions from toxic to healing existence. This reorientation will take a lot of work, and only slowly will pluriversal designers discover the considerable potential of acting from interdependence and care.

²³ Tony Fry, *Defuturing: A New Design Philosophy* (London: Bloomsbury, 2021).

²⁴ Bayo Akomolafe, “What Climate Collapse Asks of Us,” 2020,

17. Designing pluriversally has as a general goal mobilizing for a new way of dwelling on the Earth.²⁵

Where is Here? is a collaboration between Het Nieuwe Instituut and e-flux Architecture following *Who is We?*, the Dutch pavilion at 2021 Venice Architecture Biennale.

²⁵ This formulation guides the current work of a small group that includes Fernando Flores, Terry Winograd, Don Norman, B. Scot Rouse, and Arturo Escobar, gathered around the formative insights of computer network technologies and design originally formulated in the book by Winograd and Flores, *Understanding Computers and Cognition* (1985).

Patrick Devine-Wright

Decarbonisation of Industrial Clusters: A Place-Based Research Agenda

Abstract: Decarbonisation of industrial clusters is crucial for climate change mitigation and net zero policy goals, involving the deployment of technologies including hydrogen and carbon capture, utilisation and storage. Industrial clusters co-locate large-scale facilities for electricity generation and distribution, oil refineries and the manufacturing and distribution of products including fertilisers, glass, plastics and aerosols. Given the geographical, co-located rationale of industrial clusters, this perspective argues that adopting a place-based approach is fundamental to the success of industrial decarbonisation. The *place-based approach* offers two significant advantages. First, it provides conceptual and methodological tools to guide industrial decarbonisation in ways that are grounded in the social sciences. Second, it can assist with joining up diverse policy goals - mitigating climate change, enabling economic prosperity and reducing regional inequalities. Three conceptual pillars of this approach are identified - ontology, place-making and sense of place. An illustrative case study draws on this approach to critically assess the emergence of the concept of 'SuperPlaces' in UK policy discourse. The article concludes by proposing a research agenda that can inform policy making and practice in ways that go beyond a superficial or ephemeral appropriation of place. In doing so, this agenda can enable emissions reduction in ways that are considered fair and acceptable by local communities.

Key terms: Place, Industrial clusters, Decarbonisation, Net zero, SuperPlaces

Place and Net Zero Policy Discourse

Industrial decarbonisation is a worldwide challenge of high significance for energy and climate policy making. Industrial clusters, where large-scale facilities for electricity generation and distribution, manufacturing and distribution are co-located, are key geographical hubs of economic activity. In the UK, such clusters employ around 1.5 million people and export goods and services valued at £320 billion [1]. Yet they also have severe climate impacts, with the six largest UK industrial clusters emitting approximately two thirds of all UK industrial emissions [1]. Decarbonising industrial clusters is a daunting challenge, given that many clusters contain facilities (e.g. cement, chemicals, iron and steel) that are considered ‘hard to decarbonise’ and involve the deployment of hydrogen as well as carbon capture, utilisation and underground/sea storage (CCUS) [2,3].

UK climate policy has rapidly evolved over the past few years to adopt a ‘net zero’ framing and 2050 legal target [3–5]. Policy aims to deploy CCUS and hydrogen rapidly and at scale in two industrial clusters by 2025, four clusters by 2030 and to achieve one fully net zero cluster by 2040, and competition has been encouraged between industrial clusters for state funding in a sequencing process [5]. However, the meaning and value of a net zero policy goal has been contested [6].

Although endorsed by the UK’s Climate Change Committee [4], net zero has been criticised for legitimising the ‘business as usual’ exploitation of fossil-fuels, principally natural gas, in what has been described as a ‘burn now, pay later’ approach [7] that relies upon breakthrough technologies instead of instigating a fundamental shift to ‘absolute zero’ [8].

This perspective argues that a place-based approach is fundamental to the success of industrial decarbonisation. It can provide conceptual and methodological tools which aid understanding of industrial decarbonisation’s social, psychological and political dimensions. This approach is grounded in the extensive literature on place across several social and spatial science disciplines, no-

tably human geography, environmental psychology, architecture and land-use planning. What ‘place’ does is provide an ontological foundation for industrial decarbonisation that conceives technology deployment as an act of place-making. This foregrounds the locatedness of industrial facilities alongside host community lived experiences, emotional attachments and senses of identity. Places – understood as complex assemblages of social, psychological, environmental, political, economic and infrastructural relations - precede and shape how industrial decarbonisation unfolds, as well as being affected in turn by technological deployment. Integrating social science theory on place with policy and industry strategies on industrial decarbonisation can provide a robust conceptual foundation for understanding the remaking of spatially concentrated high carbon sectors. It can also inform a just transition that respects the right of host communities that are impacted by infrastructure proposals to co-produce the futures of the places where they live, work and take leisure. The article has three sections. First, it sets out key pillars of a place-based approach to industrial decarbonisation, namely ontology, place-making and sense of place. Second, it provides a brief case study of an emergent place-related discourse within UK industrial decarbonisation – the concept of ‘SuperPlaces’. Finally, it scopes for the first time some of the urgent research questions that a place-based approach to industrial decarbonisation can address.

Scoping a Place-Based Approach to Industrial Decarbonisation

While a comprehensive analysis is beyond the scope of this Perspective, here I focus on three inter-related pillars that provide useful starting points to chart a place-based approach to industrial decarbonisation: ontology, place-making and sense of place.

Ontology

Ontology refers to how ‘reality’ is defined and conceptualised [9]. For decades, researchers have argued that geographical locations

are more than simply a backdrop or container within which important events occur [10]. From this perspective, space is a constituent element of reality, particularly processes of social, behavioural and technological change [11–13]. Applying conceptual approaches from diverse social and spatial science disciplines can provide ways of understanding key dimensions of industrial cluster decarbonisation.

Human geographers use the concept of spatial imaginaries to describe the ‘stories and ways of talking about places and spaces that transcend language as embodied performances by people in the material world’ [14: 509]. Spatial imaginaries come in three forms: imaginaries of specific places in the world (e.g. London), idealised spaces (e.g. world cities) and spatial transformations (e.g. gentrification) [14]. In relation to energy transitions, it has been argued that how we imagine energy futures – in terms of different technological propositions such as hydrogen, wind energy or CCUS - is inevitably intertwined with how we imagine collective social and geographical futures [15]. What this means is that researchers need to attend to the ways that socio-technical pathways of industrial decarbonisation, as set out in policy and industry discourse, invoke particular places (e.g. Grangemouth, Merseyside and Humberside in the UK), idealised spaces (i.e. industrial clusters) and spatial transformation (i.e. how industrial places might be transformed through deployment of technologies such as hydrogen and CCUS).

Environmental psychologists use concepts such as place attachment to draw attention to ways that places become meaningful and important in people's lives. People who live, work and take leisure in particular geographical locations develop emotional attachments to those places, which become important for their sense of identity and belonging [16–18]. What this means is that we need to regard industrial clusters not only as sites of technology deployment but as places that people – residents, workers, visitors - might feel attached to and call ‘home’. From this perspective, industrial clusters are places around which people may collectively and protectively mobilise either to instigate or prevent unwanted change [19] leading to important questions about agency, and how

changes to ‘home’ places are decided upon in terms of equity, fairness and transparency.

Viewing industrial decarbonisation in terms of places has important consequences [20]. It makes the abstraction of ‘net zero’ concrete by emplacing it in the world in specific (and interconnected) geophysical contexts such as estuaries, ports, coasts and undersea or underground spaces, as well as human settlements with diverse communities and histories (e.g. of industrialisation and/or de-industrialisation). From this perspective, industrial clusters are particular assemblages of multiple characteristics – material, social, cultural, historical, economic and political - that are not easily comparable or substitutable [21]. Using place in this way is not simply about what is ‘local’. Place is relational, unbounded and continually changing, drawing attention to connections and flows between places, as well as the politics of struggles to conserve or re-make places [22]. Taking a place-based approach to industrial decarbonisation would attend to local matters but necessarily situate these within broader flows of resources and people across spatial boundaries, in particular regional, national and international borders.

Place-making

Place-making refers to the dynamic process of making, unmaking and re-making places over time. It is relational, involving assemblages of actors across local and non-local areas in coalitions of mutual interest [23] both to instigate or oppose different socio-technical pathways. How industrial clusters are named, described or invoked by actors proposing or contesting the process of decarbonisation is, therefore, a key area for academic scrutiny. Several studies have illustrated the value of viewing the deployment of energy infrastructures as acts of place-making.

Lai [24] conceptualises controversial energy projects as contexts of place-making where different actors (e.g. companies, civil society groups, local municipalities) hold contrasting visions of place futures. Through observation, interviews and document

analysis of a local movement for renewable energy in Taiwan, she emphasised the importance of place-framing processes (i.e. the communication of contrasting visions of a place by different actors) and identity politics (i.e. how different groups identify with and appropriate place for their own agendas) in contexts of technology deployment. The analytical emphasis upon place-framing is similar to what economic geographers have referred to as 'place branding' [25], where institutions such as municipalities and economic partnerships engage in marketing that commodifies or brands specific places. Lai [24] concluded that researchers should not be overtly 'energy-centric', instead paying attention to the longer term histories of places and their political dynamics preceding energy projects, to fully understand social and spatial aspects of energy technology deployment.

Cowell [26] provides an analysis of the role of place in less controversial yet large-scale technological deployment. He undertook a longitudinal, whole sector analysis of the siting of natural gas power stations in England and Wales from 1988 to 2019. In contrast to often delayed or abandoned proposals for renewable energy projects such as wind farms across the same time period, Cowell found that over 67GW of new gas capacity was consented, with few insurmountable siting problems, and with 'place' providing an important explanatory element. He found that many gas projects re-inhabited sites of former coal- and oil-fired power stations. By conducting discourse analysis of documents from planning decisions, he found that the strategy of siting reinhabitation enabled developers to successfully mobilise arguments that gas power stations actually improved the environment, while obviating or deflecting objections based on place and landscape.

Research has drawn attention to the ways that energy projects involve stakeholders drawing spatial boundaries, often to justify where community consultation takes place or where community benefit payments will be distributed [27–29]. Groves [30] and Batel and Devine Wright [31] identify how energy projects that are linear in design (e. g. high voltage power lines, gas pipelines) often transgress national or regional boundaries, disrupting place att-

chments and identities. Drawing on case study evidence, these studies found that such boundary crossing can be important elements of discourse of objection surrounding controversial projects, not least since they frame energy projects within longstanding cultural narratives concerning colonialism, intergroup domination and subjugation between different countries (e.g. Wales as a country dominated by England in a historical UK context).

These examples illustrate the value of viewing industrial decarbonisation as acts of place-making that will un-make and re-make specific places in the world, with four important implications for research. First, it is necessary to avoid a narrow project-centric scope and instead attend to non-energy related local concerns and political dynamics that precede proposals to decarbonise industrial clusters [24]. Second, research can investigate whether proposals to site net zero technologies in already industrialised locations derive justificatory power from arguments claiming local (and non-local) environmental and economic improvements, in similar ways to Cowell's study of gas power stations [26]. Third, research can assess how transformations to industrial clusters involve stakeholders' attempts to legitimise boundary making and boundary crossing, with consequent impacts on sense of place (e.g. where public consultation occurs, the distribution of community benefits, or the construction of pipelines or shipping routes distributing carbon dioxide or hydrogen across local, regional or national borders). Finally, place-making raises important questions for industrial decarbonisation that spatially ground normative concerns about environmental and energy justice [32]. This means recognising the inevitably political dimensions of place-making, attending to asymmetries of power held by different actors inside and out with places, which materially influence their agency in influencing change. To what extent are local community groups involved in driving change (recognition justice)? How equitable, fair and transparent is the process of spatial transformation (procedural justice)? How fairly are the costs and benefits of decarbonisation distributed across spatial areas, social groups and different generations (distributional justice)?

Sense of Place

Place literature indicates that if industrial decarbonisation remakes places, then it will also impact on the lived experience, sense of belonging and identities of the people who live, work and take leisure in those places. Place attachments and identities arise from embodied dwelling and sensual experiences in place over time, with important socio-cultural and psychological consequences including health and wellbeing [16–18]. Research has shown that if these intangible aspects of people-place relations are overlooked in siting energy infrastructures, this can lead to a sense of threat among impacted host communities, followed by place-protective action, including collective protest [19,33]. Much of this body of research concerns transformations to rural areas of countryside, revealing how threats to sense of place arise from fears that energy projects are a form of industrialisation that will spoil local place character (e.g. a sense of beauty or wildness) [34,35].

Contrasting issues arise concerning sense of place in locations already transformed by industrialisation, extraction and pollution. Here, literature emphasises the challenges involved in maintaining a positive sense of identity in places that are stigmatised [36–38].

Less often studied are the ways that new technology proposals which are located in already industrialised places can impact, and potentially improve, senses of place. One notable exception is a study that showed how proposals for a new nuclear power plant were regarded positively by local residents [39]. As with Cowell [26], the new nuclear proposal re-inhabited a site of an existing nuclear plant that had been in that location for decades, and which was widely regarded by residents as central to local sense of place and the local economy [39].

Relating sense of place to industrial decarbonisation, these findings suggest ways that net zero technology deployment will impact and potentially enhance existing senses of place in already industrialised locations. Although this might suggest a consequent lack of controversy surrounding new proposals, several challenges can be identified. First, site re-inhabitation raises important justice concerns regarding the cumulative impacts of decarbonisation,

where some communities bear an unfair local cost over decades or even generations, potentially becoming ‘sacrifice zones’ to continued, state supported industrialisation and resource extractivism [40]. Second, narratives of passive or ‘quiescent’ communities, which suggest that local residents will be untroubled by new technology proposals, can overlook the subtle and contingent ways that people challenge the identity and structural relations involved in an economically dependent relationship with large local facilities [41]. Third, a focus only on local industrialised areas could overlook ways that residents draw on nearby nature spaces to forge new and emergent senses of place that escape the trauma of past industrial decline [42]. Finally, if new distribution infrastructure is required to connect hydrogen production or carbon capture facilities to sites of storage (e.g. pipelines) or onward transportation, and if such distribution infrastructures span rural areas hitherto undeveloped, then these parts of the wider assemblage of industrial clusters could become touchstones of local concern, threat and action. This has already been experienced in Ireland, where a rural pipeline designed to connect offshore gas extraction to an inland refinery was opposed by a coalition of local, national and international protestors leading to extensive and costly delays [43].

Having set out the pillars of a place-based approach to industrial decarbonisation, the next section provides an illustrative case study of the analytical power of this approach. It examines an emergent discourse in UK policy on industrial decarbonisation – the concept of ‘SuperPlaces’.

‘SuperPlace’ Discourse in UK Policy on Industrial Decarbonisation: A Case Study

In November 2020, the UK Government published a ‘10 Point Plan for a Green Industrial Revolution’ [3]. This summarised some of the key technologies designed to achieve broader net zero policy goals (offshore wind, nuclear power, hydrogen, carbon capture and storage etc.). A feature of the document was the use of a novel spatial concept – ‘SuperPlaces’ – to describe UK industrial

clusters. In this case study, materials arise from a word search of SuperPlaces in UK Net Zero policy documents published during the years 2020 and 2021, alongside a web search of the same term to trace its diffusion in media and industry discourse at different scales (see Table 1). SuperPlaces were described as geographical areas of systemic sectoral change across power generation, transportation and manufacturing industry, with these localities set within a global context of economic competition and potential UK advantage. Two key technologies were said to underlie SuperPlaces – hydrogen and CCUS – and the places repeatedly named in these policy documents – Teesside, the Humber, Merseyside, North Wales and the North East of Scotland – are regional in scale and located away from London and the South East of England [1,3,4,44].

The diffusion of SuperPlace during 2020 and 2021 reveals how a novel spatial concept emerged and spread from UK national policy into industrial and media networks, and from national to regional and local levels (see examples in Table 1). For example, in North East Lincolnshire [45], the local municipality used SuperPlace discourse to bolster its claims for national and international recognition as a ‘unique place’ for rapid transformation, innovation, and investment. Similarly, in the North West of England [46], a regional hydrogen partnership (HyNet) used the addition of new partner organisations to bolster claims for SuperPlace status, and a local council, Cheshire West and Chester, predicted transformation to the town of Ellesmere Port if the expected status of the town as a SuperPlace was confirmed by national government [47].

Drawing on the geographical concept of spatial imaginaries [14], one can identify how SuperPlace discourse combines all three types of imaginaries: idealised spaces (industrial clusters), spatial transformations (the deployment of decarbonisation technologies) and specific places in the world (e.g. Teesside). As idealised spaces, net zero industrial clusters are depicted in policy documents as industrial ‘heartlands’ replete with jobs, investment and ‘clean’ growth. As locations of spatial transformation, decarbonisation involves the rapid deployment of innovative technological propositions including hydrogen production and CCUS at scale. These

Table 1: Evolving SuperPlace discourse on industrial cluster decarbonisation used by different actors at national, regional and local levels.

Sector/scale	Actor	Timing	Examples discourse	Commentary
National policy	10 point plan for a Green Industrial Revolution (BEIS)	November 2020	Together these measures will reinvigorate our industrial heartlands, creating jobs and growth, and pioneering world-leading SuperPlaces that unite clean industry with transport and power. Producing low carbon hydrogen at scale will be made possible by carbon capture and storage infrastructure, and we plan to grow both of these new British industries side by side so our industrial ‘SuperPlaces’ are envied around the world.	<ul style="list-style-type: none"> Economic revival of declining industrial areas Multi-sectoral change Global context and economic advantage
	Ministerial speech	October 2021	This puts these places - Teesside, the Humber, Merseyside, North Wales and the North East of Scotland - among the potential early SuperPlaces which will be transformed over the next decade.	<ul style="list-style-type: none"> Transformation Regional identities Decadal time span
	Net Zero Strategy (BEIS)	October 2021	Growing new industries in low carbon hydrogen alongside CCUS and renewable energy will put our industrial ‘SuperPlaces’ at the forefront of technological development - accelerating decarbonisation in ‘clusters’, which account for approximately half of the UK’s industrial emissions. Renewable energy can also help contribute to our industrial ‘SuperPlaces’, providing plentiful low carbon electricity to enable the low carbon technologies such as hydrogen, which also offers a renewed era for our industrial heartlands.	<ul style="list-style-type: none"> Technocratic vision Set in historical context Offering potential renewal for historically industrial areas or heartlands
Technology partnership at regional level	Partnership of private and public sector organisations		The North West Hydrogen Alliance continues to go from strength to strength with the addition of five new members this month. The new members... add their weight to the North West’s call to be named a ‘SuperPlace’, a component of the Prime Minister’s Ten Point Plan. These will be locations where hydrogen production will be combined with Carbon Capture, Utilisation and Storage (CCUS) in the next few years.	<ul style="list-style-type: none"> Competitive advantage over other UK regions Hydrogen and CCUS deployment
Local policy	Municipality	December 2020	North East Lincolnshire is fast gaining a reputation as a place to invest, develop and deploy new low carbon technologies. The area is becoming nationally and internationally recognised as a leading area for low-carbon energy, and is already creating and supporting a variety of skilled jobs. Offshore wind power is being used to drive innovation in hydrogen production as part of the area’s ambitions to become a low carbon “Super Place”. Welcoming the White Paper, Council Leader, Philip Jackson, said that this was great news for the area. “We have been working hard in North East Lincolnshire for a number of years, building our green credentials and now providing a unique place for green industries to thrive”.	<ul style="list-style-type: none"> Aim to win the competitive race to become one of the first UK ‘SuperPlaces’ Technology driven change Response to climate emergency Positive outcomes at the regional level, framed in financial and economic terms
Media	Local newspaper (Cheshire Live)	October 2021	Major plans to transform Ellesmere Port into a British green energy “superplace” have been revealed. This could attract more than £1.8 billion in investment and create more than 11,000 jobs ...The region is expected to be one of the country’s first “superplaces” ...It is at the forefront of Cheshire West and Chester Council’s strategy to tackle the climate emergency. Cllr Richard Beacham, cabinet member for inclusive growth, economy and regeneration, said: “The vision for The Ellesmere Port Industrial Area is ambitious and transformational. We want the area to be a national and international exemplar for the ‘Green Industrial Revolution’ and to drive forward the new low carbon economy of the future.	<ul style="list-style-type: none"> Aim to win the competitive race to become one of the first UK ‘SuperPlaces’ Technology driven change Response to climate emergency Positive outcomes at the regional level, framed in financial and economic terms

are said to lead to the ‘reinvigoration’ of these places whose reputations will be ‘envied’ worldwide. This discourse combines emotional geographies of energy transition [48] with the rationalities of techno-economic processes. SuperPlaces clearly have a history of dirty polluting industries, yet this is overlooked in optimistic and idealistic narratives of transformation via decarbonisation.

At first glance, ‘SuperPlace’ discourse might appear a welcome recognition of the spatial dimensions of industrial cluster decarbonisation. However, there are several reasons to critique the concept. First, there is little sense of inclusive place-making in policy discourse on SuperPlaces, which overlooks the necessity to work with local residents and community organisations to co-produce place futures in ways that are both just and acceptable to host communities. Second, while the SuperPlace discourse positions industrial clusters in an international context of ‘Global Britain’ with envied world-leading industrial innovation, it has less to say about the symbolic importance of the built environment for local residents’ sense of place, identities and place attachments [17,18]. Third, the cluster sequencing process adopted by the UK government to create SuperPlaces is underpinned by a neoliberal approach that pits industrial clusters in competition with each other to attract state funding. This ethos of place competition [49] – which inevitably produces losers as well as winners – is incompatible with a policy agenda that recognises the importance of the built environment for local pride and belonging, and aims to ‘level up’ regions marked by longstanding industrial decline and under-investment [50]. Overall, the rationale for using the superlative ‘Super’ alongside ‘Place’ is unclear. While it could refer to a ‘more than local’ emphasis that encompasses bio-regional spatial boundaries across estuary, coast and marine regions, it might also indicate a US-style ‘boosterism’ that cloaks place-based infrastructure investment in superficial and gimmicky rhetoric that overlooks the realities of struggling places and communities [51].

For these reasons, it could be argued that the best way forward would be to extinguish place-related rhetoric from the lexicon of net zero policy making, ensuring that ‘SuperPlaces’ remains an

ephemeral footnote in the broader trajectory of UK industrial decarbonisation. I take a different view. A spatial ontology is fundamental to the success of industrial decarbonisation, but this does not require boosterish superlatives. Instead, it necessitates the grounding of net zero policy and practice in the substantial evidence base on place across several academic disciplines, and the development of this literature through an agenda for future research. This new research agenda is set out in the next section - viewing industrial clusters as places, and viewing decarbonisation as acts of place-making that intentionally transform particular places that have meaning and significance for the people who live, work and visit there.

A Place-Based Research Agenda

A number of research questions can inform future research taking a place-based approach to industrial decarbonisation:

Ontology:

- What spatial imaginaries of places and their transformation underpin socio-technical visions of industrial clusters and their decarbonisation? To what extent are these shared or contested by actors in different sectors at different scales?
- To what extent do proposals for industrial cluster decarbonisation justify technological changes by using references to spatial scale (e.g. by invoking regional or national identities)?
- How do concepts such as ‘SuperPlaces’ shape trajectories of industrial decarbonisation within and between clusters?
- What is the potential for place-based concepts used by policy and industry actors to substantively recognise local belonging, identity and pride, as well as net zero technological innovations and energy transitions?

Place-making:

- What framings of specific industrial places are communicated by actors proposing or contesting decarbonisation and its economic, social and environmental impacts?
- To what extent have the spatial boundaries of particular industrial clusters evolved over time? What social, political and economic relations underpin these changes?
- What role do maps play as artefacts that articulate evolving visions of industrial clusters, both including and excluding particular spaces, technologies and social relations?
- In terms of recognition justice, what is the scope for communities of practice (e.g. local workers) and communities of place (e.g. residents living close to industrial facilities) to participate in industrial cluster decarbonisation? How can future generations of place inhabitants or the local environment be given voice in decision-making?
- In terms of procedural justice, can the process of decarbonisation provide opportunities for the inclusive participation of local communities, including minority and vulnerable groups?
- In terms of distributive justice, to what extent are local communities receiving fair benefit as well as risks from industrial decarbonisation?

Sense of Place:

- To what extent are visions of industrial cluster decarbonisation grounded in and sensitive to the lived experiences, pride and identities of local communities?
- What role can spatial methods (e.g. participatory mapping) play in enabling local voices to register and articulate place-related meanings and emotions, informing technology deployment?
- Will the cumulative impact of additional industrial facilities in already industrialised areas be perceived to enhance

or threaten existing senses of place, as well as forms of distributive (in)justice?

- Could perceptions of place transgression of facilities being 'out of place' - lead to the contestation of policy or industry net zero visions by local action groups?
- Will technology proposals that transgress regional or national boundaries be viewed as threats to identity, embedded within long-standing historical narratives of colonialism and exploitation?
- How can net zero senses of place be forged with consensus and fairness between multiple actors including industry, policy and local community representatives?

Conclusions

There is much at stake in the process of industrial decarbonisation and the discourse of net zero. In the context of a Climate Emergency, rapid and extensive action is required to mitigate the negative impacts of climate change across the globe. There are many pathways towards this goal, including the 'offshoring' of existing industry to other national contexts, which serves to reduce national emissions by displacing them elsewhere, and has severe consequences for local livelihoods and communities. As the example of shale gas extraction in the UK has shown, imposed top-down solutions to energy transitions pose a risk to policies for rapid and extensive decarbonisation if they transgress place meanings and existing material, economic and social relations [52]. The adoption of place discourse in net zero policy has the potential to inform a just transition that respects the right of impacted communities to coproduce the futures of the places where they live, work and take leisure. However, this can only be achieved if net zero policy and industry strategies go beyond ephemeral and superficial appropriations of place, instead grounding industrial decarbonisation in social science theory and research, adding novel insights and providing more comprehensive and just foundations for the changes so urgently required.

Declaration of Zompeting Interest

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Data Availability

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Do Renewable Energy Communities Deliver Energy Justice? Exploring Insights from 71 European Cases

Abstract: A growing energy justice literature underlines that complex energy injustices in energy transition disproportionately affect vulnerable and energy-poor households. Literature and policies discuss renewable energy communities' (RECs) potential to enable citizen participation in energy transition and shape a just transition. Lowincome and energy-poor households could benefit from granting access to affordable energy tariffs and energy efficiency measures when participating in RECs. Recent EU legislation highlights RECs' social role in energy poverty alleviation and stipulates the participation of all social groups in RECs, especially those groups that are underrepresented under RECs' members. In this light, the energy justice framework is increasingly applied to analyse RECs' social contributions in different countries.

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Still, empirical evidence of RECs' capacity to include underrepresented and vulnerable groups and mitigate energy poverty as a particular form of energy justice remains scarce. Drawing on data collected among 71 European RECs, our exploratory research investigates how RECs engage in this social role by improving participatory procedures to enable vulnerable groups' participation and by distributing affordable energy and energy efficiency to vulnerable households. Using the energy justice framework, we explore how RECs resonate with the three energy justice tenets (distributive, recognitional and procedural) by addressing underrepresented groups and energy poverty.

Keywords: Energy communities, Energy justice, Energy poverty, EU policy

Introduction

Over the last two decades, renewable energy communities (RECs) have become critical players driving a citizen-led European energy transition [1–3]. Organised collectively, RECs engage with local households, enable local citizen participation [4] and raise social acceptance for energy transition [5–8]. Pooling their members' resources, they develop local renewable energy projects [4,9–11]. In doing so, energy communities contribute to energy decentralisation [11], and by enabling citizen participation, they contribute to energy democratisation [12,13]. Furthermore, by investing in renewable energy projects locally, they increase awareness of energy transition and create value locally by improving income streams, developing skills, building capacity and reducing CO₂ emissions [9,14–17]. RECs may also facilitate community regeneration and autonomy [18].

Concerning equity and justice, RECs are increasingly discussed as taking a central role in overcoming energy-related injustices with a democratic, equity enhancing approach [19–21]. In Europe, up to 82 million households struggle to pay their energy bills [22]. Threatened by energy poverty, energy vulnerable groups [23] are often excluded from shaping energy transition [22]. In theory, RECs can engage with vulnerable groups and address energy poverty,

e.g. by providing lower tariffs and increased energy efficiency [24]. The European legislator takes up these elements, highlights RECs' social role in energy transition and stipulates "opportunities for renewable energy communities to advance energy efficiency at household level and (...) fight energy poverty" in the recast of the renewable energy directive (RED II) [25]. RED II further links an enabling framework "to promote and facilitate the development of renewable energy communities" [25] with the obligation to ensure the participation of all "consumers, including those in low-income or vulnerable households" [25].

However, RED II refrains from providing details on how to achieve RECs' social role in practice. The national energy and climate plans (NECPs) should entail each member-state's approach to transposing RED II. Until now, only the NECPs of Portugal, Spain, Italy and Greece link RECs with energy poverty alleviation¹. Further, the extent to which above raised beneficial outcomes and RECs' social role materialise beyond good practice examples is debatable [19,26,27]. Some scholars criticise a 'romanticised' narrative of energy communities [28,29] which may be hiding shortcomings, e.g. how local communities benefit [30,31]. Especially vulnerable communities face challenges to engage in, benefit from and develop their own local renewable energy production [32–36]. Currently, only some social groups have the means (e. g. economic capital, time and know-how) to participate in RECs and benefit (e.g. through enabling frameworks) from the transition to clean energy [37]. In Germany, for instance, REC members are typically middle-aged men with high income and a technical, higher education background [38]. Other groups, predominantly low-income and (energy) vulnerable groups [23], remain underrepresented [39].

In this light, the energy justice framework [40,41] is increasingly applied to analyse RECs social contributions in different countries [42–45]. Still, empirical evidence of RECs capacity to include

¹ Based on [22] we conducted a keyword search for all final NECPs available in English as of 17th of September 2020. Keywords used include (renewable) energy community, energy poverty, enabling framework and vulnerability. We searched the relevant sections in all NECPs for any thematic connection between energy communities, enabling regulatory conditions and energy communities' role in mitigating energy poverty.

underrepresented and vulnerable groups and mitigate energy poverty as a particular form of energy justice [46–48] remains scarce. Drawing on data collected among 71 European RECs, our exploratory research investigates how RECs engage in this social role.

We apply the energy justice framework [40] as our conceptual and analytical framework [41] to study our main research questions: Do RECs in our sample aim to facilitate vulnerable groups' participation and energy poverty alleviation? If yes, how do they achieve their aim? If no, what challenges do RECs face? To answer our research questions, we apply a mixed-method approach. First, we conducted nine exploratory interviews with executive members of RECs to understand their perspectives on our research questions. Through the interviews, we got a feeling for the language and terminology used by RECs, especially for their understanding of 'underrepresented groups' and 'energy poverty'. Second, we applied the terminology used by RECs to design an online survey. Finally, in an explorative approach, we distributed the survey mainly in Germany, France, and the Netherlands and beyond using the authors' professional networks and the Engager² network to share the survey. Given the plurality of REC schemes [4,19,26] and to avoid a definition debate, we define 'REC' according to RED II. As a result, RECs in this paper are defined as legal entities, "(a) which, in accordance with the applicable national law, is based on open and voluntary participation, is autonomous, and is effectively controlled by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by that legal entity³; (b) the shareholders or members of which are natural persons, SMEs or local authorities, including municipalities; (c) the primary purpose of which is to provide environmental, economic or social community benefits for its shareholders or members or for

² Engager is a research network funded via the European COST scheme. It is aimed at developing and strengthening an international community of researchers and practitioners focused on combating energy poverty.

³ RED II does not specify these criteria and leaves the details to be defined by the national legislator. In general, open and voluntary participation means that all local citizens - citizens in the REC's proximity can participate. The same applies to effective control. Usually, effective control prevents one member from holding more than 49 per cent of shares [49]. REScoop.eu and ClientEarth provide details on these criteria in their transposition guidance [50].

the local areas where it operates, rather than financial profits” [25]. For example, reducing CO₂ emissions with increased energy efficiency is an environmental benefit; generating dividends for members an economic benefit and promoting energy democracy and investing in energy poverty mitigation a social benefit [50]. In the following, we mainly explore RECs’ social role and thus how RECs in our sample provide social benefits to different social groups.

Following this introduction, the next section introduces our conceptual approach. The methodological section 3 describes our research approach and data collection. Section 4 summarises the survey’s results. In section 5, we apply the results to the energy justice framework and our research questions. Finally, section 6 concludes and points out a need for further research.

Conceptual Approach

This section introduces the conceptual framework of this paper, linking the energy poverty debate with the energy justice theoretical framework. It describes our approach to operationalise the energy justice framework to explore how RECs fulfil the above outlined social role. Based on our research questions, we review current literature to (i) identify different elements of the three energy justice tenets (distributive, recognitional and procedural justice) and (ii) describe indicators used to assess how energy communities contribute to each tenet and with that to their social role.

Energy Poverty and RECs

In this paper, we refer to Bouzarovski and Petrova’s [51] definition of energy poverty as a household’s propensity to be unable “to attain a socially and materially necessitated level of domestic energy service”. Energy poverty research investigates unfair access to essential energy services and addresses three different categories of injustices: inequalities in income impacting energy affordability; in housing accessibility, quality and affordability driving energy needs with adverse effects on comfort and health; and in energy policy (e.g. energy tariffs, feed-in tariffs, their financing and

consumer protection regulations) increasing energy vulnerabilities [52]. We apply this understanding to explain energy poverty in our survey. Furthermore, energy poverty is increasingly embedded in climate and energy transition policies, revealing new inequalities in distributing the costs and benefits of energy transition [37,53]. In this light, deploying renewable energy generates new burdens on energy bills, disproportionately affecting vulnerable households, as investigated in Germany [54,55].

Thus, vulnerable households struggle to afford a sufficient energy service level and have no choice or voice concerning energy decisions, a circumstance referring both to a distributional and a procedural injustice [40]. Such injustices need to be recognised and addressed to realise a fair and sustainable energy transition. However, most European countries do not recognise energy poverty as an energy issue but consider it as income or social inequality [56]. Consequently, national energy policymakers are often unaware of the existence and scope of energy poverty and the existing inequalities in energy access [57].

Participation in a REC can entail lower energy tariffs and benefits from dividends and services such as access to clean electricity or heating and energy savings or efficiency advice. Thus, in combination with an enabling framework (RED II) (which may include simplified administrative and regulatory requirements, lower levies and taxes), participation in RECs may reduce the costs for energy consumption and provide an additional source of income [24]. Moreover, as every kWh not selfconsumed is one potentially sold, it may positively impact energy behaviour and incentivises energy efficiency⁴. Empowering vulnerable energy poverty.

Energy Justice and RECs

Sovacool et al. [59] define energy justice “as a global energy system that fairly distributes both the benefits and burdens of energy services, and one that contributes to more representative and inclusive energy decision-making”. Energy justice is a critical framework for

⁴ Roth et al. [58] explore how different forms of energy prosumption impact energy consumption behaviour.

identifying and analysing injustices in the energy system related to aspects such as class, race, ethnicity, age, gender or spatial and economic inequalities [36,40,41,57,60–63]. Evaluating where injustices emerge, the energy justice framework identifies social groups affected by such injustices. It further evaluates whether processes exist to reveal and reduce identified inequities [40]. Sovacool & Dworking [41] distinguish three functions of the energy justice framework: as a conceptual, analytical and decisionmaking framework to make informed energy choices. This paper focuses on the conceptual and analytical function in operationalising and applying the energy justice framework to analyse RECs' above-outlined social role. In doing so, we apply the three energy justice tenets, distributional, procedural and recognitional justice [40,48] to the REC context. We acknowledge that although the three energy justice tenets differ, there remains a degree of co-dependency and mutual reinforcement between them.

Procedural justice refers to equitable procedures that allow all local stakeholders to engage and participate in the energy transition in a nondiscriminatory and inclusive way [40]. We apply this understanding to the procedures [48,64] of RECs in our sample linked to RECs' social role. We assess the extent to which these procedures (i) enable participation of different groups and (ii) energy poverty alleviation.

RECs have the (theoretical) potential to empower (energy vulnerable) individuals to participate [24]. However, barriers to inclusive participation exist. RECs rely on volunteering [65,66] with limited access to borrowing capital [67]. Further, resources are often bound to the priority aim of contributing to the clean energy transition or yield generation [39,68]. Thus, RECs' business model, embedded in a competitive energy market, may limit their ability to open up to broader social groups. Further, motivations to set up and join a REC differ [69]. In Germany, the data available on energy communities' motivations and their members' motivation to join indicate a vast diversity [68]. In general, smaller energy communities tend to be motivated to contribute to local energy transition and environmental protection. The larger the energy community gets in terms of members or investment volume, the more financial motives prevail over social inclusion.

Linked to the organisational purpose is the role of energy communities' initiators/founders. Often steering decision-making, they significantly shape the organisational culture and introduce (informal) rules, norms, and beliefs. The organisational culture, in turn, functions as a gatekeeper and often determines who becomes a member [39]. Thus, decision-makers' biases [44] may prevent the involvement of social groups not perceived as sharing the same set of values (e.g. contributing to energy transition) or possessing sufficient financial means, as observed in Germany [39]. Neglecting their social role in addressing those affected by energy poverty or underrepresented groups represents another obstacle preventing RECs from engaging in this field.

On the other hand, there are also barriers to participation on the side of vulnerable households (however less researched). They often lack or think they lack social and economic capital, e.g. in the form of access to information, knowledge about energy communities, awareness of their potential role as members in RECs, or financial resources to invest [24,70–72]. Such a lack of knowledge is often the result of limited access to local social networks or individual initiators involved in a local REC [39,73,74]. Often experiencing prolonged financial scarcity, vulnerable households are likely to refrain from taking the financial risks [75–77] linked to investing in energy communities [78]. Necessary available time for voluntarism linked to membership is a further requirement, restricting participation [65]. In general, volunteering rates depend on education and other social factors such as peer groups [79]. Data also suggests that low income or unemployment inhibit volunteering at least for men [80]. Also, vulnerable households face other priority concerns than energy and struggle with their daily lives [75,81,82]. Thus they may refrain from envisioning their potential active involvement in the energy system. In short, vulnerable households face a set of economic, social and individual participatory prerequisites. As a result, they are often excluded from participating or exclude themselves from participating.

As a consequence, access to information and knowledge about RECs [43,83,84] and financial capital [70,72], as well as adequate

processes of decision making [64] enhance the possibility to participate. Furthermore, decision-makers should overcome biases and prejudices to support the participation of vulnerable groups, thus better address procedural justice [39,44,45]. Table 1 summarises the indicators used to assess procedural justice: Targeted information campaigns and initiatives to open up membership, e.g. through low-cost participation (low share prices or membership fees).

Distributional justice investigates where energy injustices emerge, both in production and consumption [40]. In this light, energy poverty research addresses distributional burdens of increases in energy prices [85] or the distribution of renewable energy's costs and benefits [37]. We apply distributional justice to investigate the distribution of (material) outcomes (membership diversity, lower costs, energy efficiency) to different target groups as a result of RECs' procedures [40,41,43,45,48]. RECs can contribute to distributional energy justice by granting access to their activities and services to groups that usually do not benefit. We, therefore, use the following indicators to assess distributional energy justice: member diversity, activities dedicated to vulnerable or underrepresented groups, and the provision of lower tariffs or share prices and other services (e.g. energy efficiency advice, energy savings).

Recognitional justice inquires which sections of society and their needs are ignored or misrepresented [40,48,86]. Recognitional justice focuses on understanding differences and accommodating particular needs [48]. We follow Walker and Day [48], who apply recognitional justice to the energy poverty discourse and use recognition to highlight the particular needs of social groups [87], in our survey, underrepresented and (energy) vulnerable groups. In this light, energy poverty research highlights the need to acknowledge differences in domestic energy needs and the circumstances intersections of energy vulnerabilities create, and how these exclude certain social groups [52]. Scarcity, in general, changes the way households think and make (energy) choices [75,82]. Understanding and recognising the living situation created by energy vulnerability and poverty and of respective injustices related to energy access and affordability is the basis for a successful address of vulnerable and underrepresented groups [88].

Table 1 Elements and indicators of energy justice applied to RECs.

Justice	Tenet	Elements Indicators
Procedural Justice	Access to information Access to information [43,65,83,84] Access to membership [24] Access to decision making [64] Absence of bias [39,44] Representation of stakeholders [40]	Overcoming barriers for participation: - Reduced membership fees - Lower share prices for vulnerable groups - Targeted information & engagement activities
Distributional Justice	Access to outcomes in the form of benefits & services [41,45]	Member diversity Services offered: - Energy efficiency services targeted at vulnerable groups - Lower energy tariffs for vulnerable groups
Recognitional Justice	Awareness of energy vulnerability & energy poverty & engagement of vulnerable energy consumers [52,88]	Level of knowledge about: - Energy vulnerability & poverty, the preferences, needs & living situation of vulnerable & energypoor households Engagement with energy vulnerable & poor households Addressing energy poverty in the organisational statutes

Source: Authors.

RECs are discussed as democratically legitimate agents representing the voice of a cross-section of energy consumers [2,12,20,21,25,89]. There is, however, a danger of a normative ‘localist trap’ where energy communities are considered just merely because they are local [32]. With a return to the local scale for enhanced policy effectiveness visible in the demand for energy democracy to drive a just transition and to relegitimise the underlying political process, matters of justice, e.g. providing a voice to all consumers, need to be considered as well. While local communities are well placed to serve local needs and together with ‘critical citizens’ [90] can be a riposte to globalisation, monopolistic economy and state retrenchment [32], it is essential not to neglect social inequality and its consequences. For instance, the limited recognition of groups poorly positioned to take advantage of local approaches is mirrored by the prior discussed participatory prerequisites: Some are more likely to be recognised and participate

in energy communities than others. In this light, we apply the concept of recognitional justice to understand whether existing REC procedures recognise these specific living conditions.

In doing so, we use the following indicators to assess recognitional energy justice: the level of knowledge about energy vulnerability and poverty, about divergent preferences, needs and living situations of vulnerable and energy-poor households in comparison to average-income households and how they affect participation; the engagement with energy vulnerable and poor households; and addressing of energy poverty in the organisational statutes.

Table 1 summarises the identified dimensions of the three energy justice tenets and respective indicators.

Methodology

While this paper draws upon the energy justice framework to shed light on the extent to which RECs fulfil a social role and mitigate energy poverty, the empirical data used to support this insight is derived from two approaches, semi-structured expert interviews ($n = 9$) [91] and an online survey ($n = 71$). This data was collected over six months, from mid-2020 to the end of 2020. Expert interviews were used to gain familiarity with RECs' perspective and challenges to include underrepresented groups and mitigate energy poverty. Through the interviews, we gained more profound insights into how RECs engage with different energy justice elements and understand their social role in addressing underrepresented groups and energy poverty. The interviews further helped us understand the language and terminology RECs use, particularly RECs' understanding of 'underrepresented groups' and 'energy poverty'. Finally, we transcribed essential passages of the interviews and applied content analysis to derive the below-mentioned categories of underrepresented groups.

To reach more RECs, we designed an online survey to collect additional data to answer our research questions. We used the insights gained from the interviews to structure the online survey. Our research aims to operationalise energy justice tenets while acknowledging that these three tenets are mutually reinforcing and interrelated. In doing so, we apply an explorative approach

to reach as many European RECs as possible without claiming to have gained a country representative sample. Due to the author's origin, professional network and information access, most replies came from Germany, France, and the Netherlands. The survey was available in four languages: English, French, German and Dutch.

In Germany, depending on the definition, the number of energy cooperatives varies from 2013 to 2017 between 889 and 1,024 [92–95]. To identify energy communities, most of which cooperatives, we used three sources listing existing energy communities in Germany: Bürgerenergie Jena, Energieagentur NRW and Netzwerk Energiewende jetzt e.V. We identified 1001 energy communities in Germany of which we successfully contact 727 via email. The high numbers of RECs in Germany [2] explain its overrepresentation in our sample.

We applied a snowball technique to capture energy communities beyond our German sample. In France, according to the 'Energie Partagée Association, 240 energy communities exist [96]. The survey was sent out to the French network of the regional energy agencies and two large French energy cooperatives to participate and share the survey among their networks. In the Netherlands, according to the Local Energy Monitor HierOpgewekt, 484 energy communities exist [96]. We shared the survey on LinkedIn and Twitter with 1079 and 368 connections to the energy field, generating 2157 views. We further shared the survey within the University of Twente network of energy communities and all ENGAGER members, representing all European countries. At ENGAGER, experts in energy and energy poverty come together with extensive networks in the energy field. This approach explains the additional cases from Belgium, Portugal, Ireland and Turkey in our sample.

The survey questionnaire contains 20 questions. It was designed and programmed by us to be answered online and covers four categories, each corresponding to a different information need.

The main categories:

1. Filter questions (e.g., Are you a REC?, legal form, the purpose of the organisation);

2. Underrepresented groups (e.g. Do you address underrepresented groups and how);
3. Energy poverty (e.g., Do you address energy poverty and how);
4. Your Organisation (e.g., location, number and gender of members);

We ran a pre-test distributing the survey to 10 individuals in the energy research community. We cleaned, tested and analysed the data using the computational programme SPSS to structure and display the data. We applied content analysis to both the interviews and open text replies in our survey.

Empirical results

The following section presents the results of the online survey. We structure the results according to the surveys' initial design.

Description of the final data sample

We received a total of 123 replies, of which 71 RECs completed the questionnaire. 66 cases indicate to be a REC, and 61 comply with the definition of a REC as stated in RED II, with proximity being the exclusionary criterion. 82% of the cases are cooperatives. Table 2 provides an overview of the final data sample.

The primary purpose of the energy communities in our sample is to promote clean energy, followed by regional value creation and controlling the energy supply. Thus, RECs' primary purpose is to promote renewable energy, and some respondents do not feel responsible for extending their energy-related activities to what is perceived by them as social welfare. Table 3 lists the primary purpose of the RECs in our sample.

Member diversity and decision making

Out of 71 cases, 49 cases (69%) indicate the total number of members with a median of 185 members. 42 cases (59%) provide an estimate on the percentage of female members with a median of

Table 2: Data sample overview and RECs.

Justice	DE	FR	NL	BE	PT	IRL	TUR	Total
Number of replies	51	10	6	1	1	1	1	71
Number of self-declared RECs*	49	9	6	1	1	1	1	66
Number of RECs according to RED II**	43	10	6	1	0	0	1	61

Source: Authors.

*These RECs state that they meet the definition of a REC.

**These RECs meet all criteria of the official RED II definition. To determine effective control, we asked whether members are involved in all major decisionmaking processes. Further, we apply a radius of less than 100 km as the proximity criterion.

30 female members, that is 16,2 %. When assessing the survey results through a gender lens, we observe a gender gap. In Germany, we were able to identify 1001 energy communities and collected information on the gender composition of the board for 696 energy communities. Here 580 boards are only occupied by men (83,3%), 101 occupied by both men and at least one woman (14,5%) and 15 are only occupied by women (2,1%).

Table 3: Primary Purpose of energy communities in our survey.

Type of Purpose	N	Per cent of cases
Promotion of Renewable Energies	60	85
Promotion of regional value creation	33	46
Dividend payments for members	17	24
Energy supply in your own hands	33	46
Provision of social benefits	10	14
Other, please specify*	10	14
None of the above	1	1,4

Source: Authors.

*We reviewed the 'other replies' and, if applicable, added them to the above categories.

Regarding the activities of RECs in our sample, producing renewable electricity is mentioned as the primary activity. In addition, 40 % offer these activities exclusively to members and 10 % explicitly (also) to underrepresented groups.

Table 4 provides an overview of the types of activities in our sample.

Table 4: Activities of RECs in our survey.

Type of Activity	N of cases offering activities	Per cent of cases	Among which offer this activity exclusively to members (N)	Of which offer this activity explicitly to underrepresented groups (N)
RE Electricity	38	54	12	9
RE Heating	16	23	10	2
E-Mobility	15	21	7	2
RE Aggregation	16	23	10	4
RE Storage	9	13	6	1

Source: Authors.

For ‘control in the organisation’, a majority of 68 cases (96%) report that members/shareholders control the organisation, 6 (8%) cases report that this is not the case. The general assembly is reported as the main instrument for decision making applying the one-member-onevote rule.

Underrepresented groups and energy poverty

In our sample, 30 cases (42%) report addressing underrepresented groups through their activities, 41 cases (58%) report not addressing underrepresented groups. Table 4 lists the main organisational activities of RECs in our sample and distinguishes between RECs offering these activities exclusively to members and underrepresented groups.

Table 5: Addressed underrepresented groups.

Underrepresented group	N	Per cent	Per cent of cases
Low-income households	19	22	27
Energy-poor households	12	13	17
Women	16	16	23
Households with migration backgrounds	12	13	17
Young adults	17	20	24
Other	16	16	23
Total	92	100	

Source: Authors.

Concerning energy poverty, 13 cases (18%) report addressing energy poverty, 54 cases (76%) do not address energy poverty, and 4 cases (6%) did not respond to the question.

Table 5 provides an overview of underrepresented groups addressed by energy communities in our sample. In the survey, we distinguish between addressing underrepresented groups through (i) general engagement activities targeting all citizens and (ii) specific engagement activities such as information and engagement activities targeting underrepresented groups.

Of the 30 cases (42%) that report addressing underrepresented groups, 16 cases (22,5%) report addressing underrepresented groups through general engagement activities. 10 cases (14%) indicate that participation is open for all with no distinction between different groups and their diverging needs. Here addressing underrepresented groups is perceived as being achieved by allowing everyone to participate. One case reports providing solar energy to vulnerable households without them having to contribute financially.

Six cases (8%) report offering specific engagement activities such as information material and events targeting underrepresented groups. In this regard, one case stresses the importance of explicit communication channels: “Often, we can only communicate the benefits for disadvantaged households in a personal conversation.” (open text reply). Examples of engagement activities include the setup of cafes to inform local households about energy saving and the possibilities to switch providers. Nine cases also state having separate cooperation projects with other local partners addressing vulnerable households and energy poverty. Examples include collaboration with local charity organisations and housing providers and other local cooperatives, schools, social housing organisations and municipalities.

Lower energy tariffs compared to the market price, energy efficiency and lower share prices or membership fees are particularly important for addressing underrepresented, vulnerable and energy-poor groups. In this respect, 25 cases (35%) offer lower tariffs compared to market prices; 29 cases (41%) offer at least one form of energy efficiency measures and 19 cases (27%) offer lower share prices or membership fees. 5 cases indicate low share prices as

Table 6: Services offered by RECs.

Service offered	All cases		Of which address underrepresented groups	Of which do not address underrepresented groups
	N	Per cent of cases	N	N
Lower tariffs compared to market prices	25	35	16	9
Energy efficiency advise	24	34	17	7
Energy efficiency installation	18	25	14	4
Energy efficiency funding	15	21	10	5
Lower share prices/ membership fees	19	27	13	6

Source: Authors.

a way to allow and facilitate the participation of underrepresented groups. Here 50 Euro as a share price is both perceived as facilitating and restricting the participation of underrepresented groups. Respondents further indicate 50, 250, 500 and 3000 Euro respectively as a share price low enough to facilitate underrepresented and vulnerable groups' participation. Table 6 summarises these services offered by RECs in our sample and distinguishes between cases that report addressing underrepresented groups and those that do not.

To shed light on the reasons for not addressing vulnerable groups or energy poverty, we provided different reply options combined with open text fields in the survey. Concerning reasons for not addressing underrepresented groups and energy poverty, a majority states that these topics have not been discussed yet and underlines a need to focus on core business activities (see Tables 7 and 8). In the open text replies, RECs indicate a lack of resources, mainly a lack of human resources and financial means and time to address underrepresented groups and energy poverty.

Some respondents mention that they do not precisely know what energy poverty means or who energy-poor people in their regions are, or what needs they have. In addition, a lack of resour-

Table 7: Reasons for not addressing underrepresented groups.

Reasons for not addressing underrepresented groups	N	Per cent
We need to focus on our core business activities.	8	18
We do not have sufficient means to address these groups.	7	16
We would like to, but we do not know how to identify them and what they need.	3	7
This topic has never been discussed.	15	33
Current regulations and policies hinder the involvement of these groups.	2	4
Other, please specify	6	13
Total	45	100,0

Source: Authors.

ces of underrepresented groups, usually in the form of investment capital and willingness, were mentioned and assumed by some respondents as reasons for their underrepresentation. Respondents report ‘communication’ as a significant challenge in terms of reaching underrepresented groups. Difficulties in reaching these groups were linked to a lack of knowledge about preferences and the nature and scope of energy poverty and vulnerability, and how it affects households’ energy choices. Also, biases concerning low-income groups (they are not interested, or they do not have the means) or the statement that fighting energy poverty is not the responsibility of energy communities (but of social policy) are mentioned as preventing approaches to engage with these issues.

Finally, addressing energy poverty, e.g. in the organisational statutes or underrepresented groups, is the exception and not the norm.

Implications for energy justice

We apply the survey’s results to assess the extent to which RECs in our sample contribute to prior-specified elements of procedural, distributional and recognitional energy justice. We assess the extent to which RECs in our sample engage in a social role by addressing underrepresented and vulnerable groups and energy poverty. Further, we discuss opportunities for RECs to increase their capacity to contribute to energy justice. In doing so, we ac-

knowledge that our sample does not fully reflect the broad diversity of RECs' experience at the EU level. The data available does not allow us to make a country-specific analysis or to account for spatial differences between rural and urban settings. Nevertheless, we use the available data to explore this little-studied field to understand better how RECs in our sample provide social benefits and contribute to prior outlined elements of energy justice.

Reviewing the survey's results, we argue that the first step to contributing to energy justice is recognising that the costs and benefits of and opportunities to participate in energy transition need to be distributed equally among all social groups. Unfortunately, such a distribution is far from being realised. Energy vulnerability often leads to energy poverty creating distinct living conditions that prevent vulnerable households from participating in and benefitting from energy transition. Energy vulnerable and energy-poor households are, in fact, often left behind. Applying the energy justice framework to our survey results highlights that the energy justice tenets are linked to each other, and different aspects reoccur across different tenets.

Recognitional energy justice - understanding energy vulnerability

We argue that recognising vulnerable households' distinct living situations and preferences and the specific conditions that social inequality and (energy) injustices produce is necessary for developing inclusive and empowering procedures. Only based on such recognition and understanding can procedures to engage with and include energy vulnerable households emerge. Thus, recognition is the basis for efficient procedural initiatives to overcome distributional energy injustices.

Concerning recognising the living situation of underrepresented and vulnerable groups and their possible exposure to energy poverty, RECs in our sample vary considerably. Most RECs in our sample are locally embedded, with a great majority of members in RE installations' proximity. However, this local embeddedness does not

Table 8: Reasons for not addressing energy poverty.

Reasons for not addressing energy poverty	N	Per cent
The topic was never discussed.	19	36
We need to focus on our core activities.	11	22
We do not have sufficient means to address energy poverty.	5	10
We would like to, but we do not know how to identify them and what they need.	4	8
Energy poverty is not a problem in our community.	5	10
Other, please specify:	7	14
Total	45	100

Source: Authors.

automatically translate to knowledge about vulnerable and energy-poor households' living experiences and socio-economic hardships, nor does it result in a diverse member structure reflecting the local community's social variety. This finding reflects the in section 2 mentioned danger of a localist trap where RECs are perceived as energy just and democratic merely because they act locally. The survey further points out that RECs' social role is not reflected in the organisational purposes. Both human and financial resources are limited and aligned to promoting renewable energy, likely restricting the engagement in additional activities. Also, as pointed out earlier, motivations to initiate and run a REC differ between economic, ecological, and social motives. While 7 cases mention economic purposes, energy poverty is mentioned only once. Some RECs report unwillingness to accept and engage in a social role by providing social benefits to different social groups. In general, unawareness of underrepresented groups and their needs and of energy poverty together with a need to focus on core business activities are the primary reason for not engaging in a social role (see Table 7 & 8).

Despite these challenges, 30 cases (42 %) report addressing vulnerable households and providing social benefits. However, among the RECs addressing underrepresented and vulnerable groups, there is a discrepancy between those highlighting the need for and challenges of setting up specific communication and engagement channels and those reporting to achieve this aim through general engagement activities. Unfortunately, due to incomplete

Table 9: Applying recognitional justice to the survey's results.

Element	Indicator	Challenges	Opportunities
Awareness of energy vulnerability and energy poverty Engagement of vulnerable energy consumers	Knowledge about energy vulnerability & poverty, preferences & living situation of vulnerable and energy-poor households Engagement with energy vulnerable and energy-poor households	Lack of human & financial resources, of knowledge about vulnerability, of social purpose Competitive market environment	Collaboration with partners to share knowledge about energy-poor households

Source: Authors.

data, we are not able to assess which approach is more successful. Nonetheless, RECs in our sample and in other practitioners' studies (e.g. Caritas Stromsparcheck in Germany) report difficulties reaching and engaging with vulnerable groups. Therefore, we argue that a lack of specific engagement and information activities targeting vulnerable groups reflects both a lack of recognition of their specific needs and highlights a procedural shortcoming that we will explore in greater depth (see 5.2).

Finally, RECs reporting to address vulnerable groups through specific measures successfully stress the importance of collaborating with partners to share knowledge and good practice. RECs further point out that a general lack of resources and knowledge often restricts the engagement with underrepresented groups and energy poverty. This highlights the potential of collaborating with partners that bring in expertise and additional resources as a condition to develop procedures that facilitate the participation of underrepresented and energy-poor groups. Table 9 summarises our findings regarding recognitional energy justice.

Procedural energy justice - participation of underrepresented groups

To assess RECs' procedures to engage with vulnerable and underrepresented groups and mitigate energy poverty, we asked whether RECs (i) offer lower membership fees or share prices (see table 6) and (ii) target vulnerable and underrepresented groups with spe-

cific information and engagement campaigns. Indeed, 19 RECs (27%) offer reduced membership fees or share prices, of which 13 (18%) report to address underrepresented groups. However, the understanding of reduced membership fees or share prices perceived as enabling broader participation varies. Respondents understand share prices ranging from 50€ to 3000€ as facilitating the participation of underrepresented and vulnerable groups. This points to a lack of understanding of the financial constraints these groups often face. Other indicators such as the average minimum financial participation of 545€ per member in German RE cooperatives [97] further highlight procedural shortcomings. Such high membership fees underpin a limited understanding of (energy) vulnerability and the exclusion effect financial membership requirements entail.

Regarding information and engagement activities, 30 RECs (42%) indicate addressing underrepresented and vulnerable groups. However, only 6 cases (8%) do so through specific information and engagement activities targeting vulnerable and underrepresented groups. The rest states to address these groups through general engagement and information activities without a specific focus on addressing underrepresented groups' needs. This is an example of how a recognitional shortcoming - not recognising vulnerable groups' specific needs - translates to a procedural shortcoming, that is, not offering targeted information and engagement activities.

On the other side, 7 RECs in our sample point out the need for specific information and engagement activities. This group consists both of RECs addressing underrepresented groups and of RECs stating not to address them. Here, challenges regarding communication with the target group such as language-used and available communication channels were pointed out but also financial restrictions on the side of underrepresented groups, e.g. lack of investment capital as a barrier for participation. Again, RECs mention a lack of human capital as a reason for not engaging in a social role: "We are volunteers and do not have extra time for this besides our projects". Further, RECs report a lack of financial resources as the reason for the lack of procedural initiatives. However, it remains unclear why some RECs report these factors and still successfully

address vulnerable groups while others report these factors as a reason for not addressing these groups. Again, the limited evidence we have points at the role of collaborating with other organisations to address underrepresented and vulnerable groups successfully. Here, a wide range of possibilities is mentioned, among which cooperation with schools, NGOs, charities, local municipalities, and other RECs.

As an interim result, we note: on the one hand, we observe a lack of recognising vulnerable groups' needs and the restrictions (financial) membership prerequisites entail. This lacking recognition leads to insufficient procedures to engage with and include underrepresented and energy-poor groups. On the other side, we observe a lack of resources prohibiting RECs from engaging in such activities. Here, a restricted business model, embedded in a competitive market environment, enhances the focus on securing economic competitiveness and survival. Further, an organisational purpose other than justice limits RECs' capacity to engage in procedures linked to energy justice.

Thus, at least for a subgroup of RECs in our sample, an enabling framework that provides tangible benefits to those RECs engaging in a social role [24] would enhance their capacity - RECs could use more resources - to engage in energy justice. Nevertheless, even in the absence of such enabling conditions, good practice examples exist: on the Danish Island of Aero [98], the local renewable energy project intends to empower all local citizens to participate. In cooperation with a local bank, they offer zero-interest loans to finance vulnerable households' membership. In the Belgian city of Eklo, the city administration buys shares of the local REC and transfers them to local energy-poor households granting them access to lower energy prices. Also, in Belgium, Pajopower reaches out to people in socially vulnerable neighbourhoods with their "Kyoto obile", driving around in a funny looking vehicle to spark people's curiosity and gain trust by being present and engage in the community. They share information on energy savings and renewables and teach locals to switch energy suppliers, to take action in their private homes and to apply for subsidies. In France, "les Amies d'Enercoop" collects donations made by members of the REC Enercoop to fund energy

Table 10: Applying procedural justice to the survey’s results.

Element	Indicator	Challenges	Opportunities
Access to information Access to membership Access to decision making Absence of bias Representation of stakeholders	Overcoming barriers for participation: - reduced membership fees -lower share prices for vulnerable groups - targeted information and engagement activities	High share prices Lack of targeted information campaigns Lack of targeted engagement activities	Collaboration with partners to share good practices Redesigning financial participation Adequate and accessible engagement tools

Source: Authors.

poverty measures. In Portugal, Coopernico offers solar installations to NGOs working with vulnerable households. Table 10 summarises our findings regarding procedural energy justice.

5.3. Distributional energy justice - benefits shared among members

We apply distributional energy justice to the distribution of RECs’ (material) outcomes to different social groups. We understand such distribution as the result of inclusive procedures based on recognising different groups needs and preferences. In this survey, (material) outcomes in the form of services are access to (i) lower energy tariffs, (ii) energy efficiency measures and (iii) energy poverty alleviation. Furthermore, given that membership often determines access, we discuss (iv) membership diversity as well.

In general, 25 cases (35%) offer lower tariffs compared to market prices, 29 cases (41%) offer at least one form of energy efficiency measure, and 19 cases (27%) offer lower share prices or membership fees. Moreover, these already low numbers are further reduced when looking at RECs explicitly offering these services to under-represented groups (see Table 6). Thus, we observe a distinction between RECs sharing their benefits and services directly with their members and those sharing their benefits and services indirectly through external activities targeting vulnerable households.

Addressing energy poverty through distributing beneficial outcomes to energy-poor households is another aspect relevant for

distributional energy justice. Unfortunately, in our sample, only 13 cases (18%) report addressing energy poverty. This may be linked to the overrepresentation of German RECs in our sample and the fact that energy poverty is not discussed in Germany. However, this also points at a general lack of awareness of energy poverty (see Table 8), challenging RECs' potential to engage in energy poverty alleviation.

In 28 cases (40%), access to the above-mentioned services is linked to membership. Therefore, membership diversity is an additional indication of distributional energy justice. Here, we observe an underrepresentation of women both among members and board members (on average less than 30 % of members are estimated (by respondents) to be female). During our interviews, it became clear that RECs often do not collect membership data to assess member diversity. Apart from gender, assessing which groups are most underrepresented and including categories such as age or ethnicity is difficult. Moreover, 41 cases (58%) report not addressing underrepresented groups at all (see Table 5). In general, on one side, energy prices and low efficiency are among the primary energy poverty drivers. On the other side, membership in RECs often grants access to more affordable energy and energy efficiency. Thus, these results highlight the importance of opening up membership to vulnerable groups to enable access to these benefits.

Moreover, 68 cases (96%) link control of the REC (and deciding which activities to focus on) to membership. A relatively homogenous member structure is likely reflected in decision-making outcomes which may reproduce biases and prejudices towards the participation of underrepresented groups (e.g. they lack knowledge or have other things in mind rather than participation). Further, RECs often rely on volunteers, among whom pensioners, often retired men with technical education backgrounds⁵. Often, these men's living reality is substantially different from those of vulnerable groups; thus, they may have a hard time understanding vulnerable groups' needs and preferences. This could contribute to biased imaginations about vulnerable groups' living situation, needs and preferences as repor-

⁵ A study in Germany confirms our findings and concludes that men volunteer more often in technical areas than women [99].

Table 11: Applying distributional justice to the survey’s results.

Element	Indicator	Challenges	Opportunities
Access to benefits Access to services	Membership diversity Lower tariffs for vulnerable groups Lower share prices for vulnerable groups Energy efficiency services targeted at vulnerable groups	Membership/ participation determines access to benefits	Social energy tariffs for vulnerable households Provision of additional services Collaboration with partners to share benefits indirectly

Source: Authors.

ted in our survey: “they do not want to participate”; “they are not interested in these topics”; “a minimum share price of 500€ is low enough to enable participation for all”. Such biases, in turn, enforce inequality regimes - interlocked practices and processes that result in continuing inequalities in organisations. Table 11 summarises our findings regarding distributional energy justice.

As a final remark, investigating RECs’ perspective in which vulnerable groups remain underrepresented does not reveal the needs of vulnerable groups. Therefore, additional efforts are necessary to explore vulnerable groups’ perspectives. Also, and this is relevant to all our findings, we must assume that only those RECs which show a specific interest in the questions raised replied to our survey. Thus, those RECs that received the survey link but did not identify with the questions raised probably refrained from participating. Therefore, respondents are self-selected, and we cannot present the perspective of those RECs not interested in this paper’s raised issue and thus do not know much about the reasons for their lack of interest.

Conclusion

The liberalisation of the energy market, although very competitive, has enabled entrants such as RECs to become new energy actors. To differentiate their role from other incumbents, they are expected to combine cost-effective and cost-competitive clean energy with greater equity and a social role. Our research engages

with the high expectations set on RECs to become democratic, transformative and equity-enhancing actors for a just transition.

RECs actively contributing to energy justice by engaging with vulnerable and underrepresented groups and providing access to their beneficial services to alleviate energy poverty remain the exception. While our research highlights their willingness, RECs express various restrictions and challenges, limiting their capacity to address energy justice. In general, we observe that, while most are locally embedded, limited understanding of and engagement with energy vulnerability prevails. As a result, the recognition of energy (in)justices, the implementation of adequate procedures to involve vulnerable groups to provide them with a voice and deliver fairer energy services are limited. In this light, RECs report financial instability, lack of personnel, and knowledge about energy poverty, limiting their ability to engage in a social role. In general, the many differences between RECs must be acknowledged. While some are interested in engaging in or already engage in energy justice, others do not resonate with the energy justice concept. Consequently, referring to RECs as equity-enhancing actors of a just transition and contributing to energy justice must be done more carefully than is currently the case. Ideally, national legislation would link enabling conditions for RECs to the requirement to engage in a social role. In consequence, RECs would gain an advantage when engaging in activities linked to energy justice.

Additional research is necessary to extend this paper's country focus to provide representative insights covering the broad geography of the different circumstances experienced by RECs in Europe. Despite the limited scope of the survey, we found some good practices highlighting the importance of collaboration with other organisations. Still, additional research could assess further the impact of EU legislation on promoting RECs' social role as key actors for a just transition. Empowering RECs to step up to their social role by addressing vulnerable households depends on understanding the many restrictions faced by RECs on one side and those of vulnerable groups on the other side. In particular, based on a thorough understanding of RECs member structure, future

research should analyse the effect of different engagement strategies on different social groups. Finally, the major challenge lies in understanding vulnerable groups' perspectives on participating in RECs to ensure energy justice for all.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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The Struggle of Energy Communities to Enhance Energy Justice: Insights from 113 German Cases

Abstract:

Background - Energy communities provide access to energy services, such as affordable clean energy and energyefficiency measures. Some of these services are of particular benefit for vulnerable households struggling with high energy prices and low incomes. European energy policy stipulates an enabling framework to support energy communities offering such services to all households, explicitly soliciting the inclusion of vulnerable and low-income groups enhancing energy justice and democracy. With transposition still pending in Germany, the question remains as to what extent vulnerable groups benefit in practice.

Results - Based on the data from an online survey among 113 German energy communities, this paper investigates the extent to which energy communities enhance energy justice and democracy in the German energy transition. We have therefore to ask how energy communities reach out to vulnerable groups and describe the hurdles energy communities face. Even though some energy communities successfully reach vulnerable households, we show that the majority struggle to

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truly reach out to these groups. In the absence of regulatory support for engaging with vulnerable groups and confronted with a competitive energy market, energy communities are focussing on remaining in business. In this context, it should also be mentioned that some energy communities do not reach out to vulnerable groups to offer beneficial services that are of particular interest for the majority of them.

Conclusion - Based on these findings, we would like to underline the need for enabling regulations to support energy communities' contribution to justice and democracy. An 'enabling framework' demands a clear taxonomy, which distinguishes different organisational and social energy community characteristics to acknowledge their social welfareenhancing role and avoid misinterpretations and potential misuse.

Introduction

The energy community literature is currently concerned with the question of whether energy communities drive a more equitable and just energy transition. The energy justice framework is increasingly applied to study different energy community processes and outcomes with respect to their potential to enhance energy justice [1]. Energy justice relates to the fair distribution of energy system benefits and burdens and to a fair and representative decision-making process [2]. In this light, EU energy policy highlights energy communities' potential in increasing vulnerable groups' access to RE and energy efficiency alleviating energy poverty: "renewable energy communities (...) advance energy efficiency at household level and (...) fight against energy poverty through reduced consumption and lower supply tariffs" [3]. RED II further highlights that all citizens, "including the most vulnerable and low-income households", should be able to participate [3].

With approximately 900 renewable energy cooperatives [4], Germany achieved one of the highest numbers of energy communities in Europe [5]. Energy communities in Germany, the diversity of their manifestations and characteristics have been studied from various perspectives: economic development [6, 7]; governance and

cooperation models [8–10]; municipal support structures [11, 12]; citizen participation [13–15] and member characteristics [16]; social acceptance of RE [17]; energy democracy [18]; regional value creation [19]; climate change [20]; social innovation [21] and more.

However, while a growing body of international literature investigates energy communities in the context of a socially just energy transition [1, 22], similar work for the German context is still growing. For example, Yildiz et al. [23] find that members of energy cooperatives are usually male with high incomes and education levels, thus illustrating that energy cooperatives are not as diversified as they are expected to be in the framework of energy democratisation. Drewing and Glanz [24] investigated energy communities' homogenous member structure and different mechanisms of exclusion. They found that among others the organisational culture and affiliation to certain social networks determines the participation and often results in the (unintentional) exclusion of other social groups. Radtke and Ohlhorst [25] reported on low levels of diversity among energy community members. Especially women and younger people are less engaged in community energy. They stress the importance of enabling policies to enhance energy communities' potential for engaging citizens across age, gender, income, and education levels.

It is the aim of this article to expand the German energy community literature by investigating energy communities' contribution to a socially just energy transition. Energy communities in this article fulfil the main defining criteria of a citizen energy community according to the German renewable energy directive (EEG 2021). According to § 36g EEG (2021), a citizen energy community (Bürgerenergiegesellschaft) consists of (i) at least ten natural persons as voting members or voting shareholders, (ii), from which at least 51 percent of the voting rights are held by natural persons who, for at least 1 year have had their registered main place of residence in the independent town or district, in which the wind turbine(s) is/are to be erected and (iii) in which no member or shareholder holds more than 10% of the voting rights.

In addition and according to RED II, renewable energy communities should provide “environmental, economic or social com-

munity benefits to its members or shareholders or to the local areas where they operate rather than to generate financial profits” [3]. Economic benefits are often quantified by investments in RE or energy efficiency or tax revenues generated; environmental benefits include reduced CO₂ emissions and increased air quality; social community benefits include access to affordable clean energy and energy efficiency [3]. In this way, energy communities are expected to contribute to the sustainable development goal (SDG) seven “affordable and clean energy” of the 2030 Agenda for Sustainable Development, adopted by all United Nations’ Member States in 2015 [26].

While economic and environmental benefits of energy communities are often highlighted [4], social community benefits are less researched. Therefore, to explore whether German energy communities contribute to energy justice in the German energy transition, this paper focuses on analysing energy communities’ social benefits. Renewable energy communities according to RED II fulfil the following definition criteria: open and voluntary participation, autonomy, effective control by shareholders or members that are located in the proximity of the renewable energy projects that are owned and developed by the renewable energy community; the shareholders or members are natural persons, SMEs or local authorities, including municipalities.

Based on data collected from 113 German energy communities through a questionnaire, we apply the energy justice framework to investigate energy communities’ contribution to a just energy transition. Doing so, we investigated energy communities’ procedures to understand whether these procedures recognise the specific needs of different social groups, in particular of underrepresented groups such as women, minorities or vulnerable households struggling with the payment of energy bills. When looking at energy communities’ procedures, we mainly ask the question whether they could help to democratise the local energy transition through providing a voice and choice to local citizens. Likewise, we evaluated whether energy communities could enable a just distribution of energy community benefits and services to different social groups. Finally, we assessed the extent to which energy communities contributed to alleviating energy poverty in Germany. Doing so, we develop indicators to assess

energy communities' contribution to recognitional, procedural and distributional energy justice. Based on this analysis, we developed policy recommendations to enhance justice in the German energy transition.

The paper consists of six sections: followed by this introduction, section two presents the energy justice framework, its links with energy democracy and its operationalisation in the context of German energy communities. Section three briefly describes the data collection methodology and the final data sample. Section four displays the main survey results. Based on the survey data, section five discusses the extent to which energy communities in our sample enhanced energy justice in the German energy transition. Based on the findings, we derive policy recommendations for enabling regulatory conditions to enhance energy justice. Section six is our conclusion.

Background

Energy justice describes “a global energy system that fairly disseminates both the benefits and costs of energy services, and one that has representative and impartial energy decision-making responsibilities” [27]. The energy justice framework can be used to identify different forms of injustices as well as different social groups impacted by such injustices [28]. The energy justice framework usually entails distributional, procedural and recognitional justice [28, 29]. Based on a previous study [30], we apply procedural, distributional and recognitional energy justice to investigate energy communities in our German sample. More concretely, we investigate what kinds of benefits and energy services energy communities in our sample offer, either to their members or external consumers (or both) and whether existing procedures enable different social groups' access to such benefits and services. In this light, in the following, three different dimensions of energy community benefits and services are briefly outlined: environmental, economic and social as proposed by RED II.

Environmental benefits and services entail the production and distribution of clean renewable energy to members or external consumers. Although to a lesser extent, the same applies to energy efficiency, renewable heating, energy storage and aggregation, or e-mobility

[5], in this way, energy communities can provide broader benefits to the local community, such as improving local environments and contributing to low carbon societies [31–33].

Economic benefits of services encompass providing clean energy and energy efficiency advice at an affordable cost to members and/or external costumers. Other energy communities focus on providing returns on RE investments to their members and primarily function as investment vehicles; decentralised energy supply plays a subordinate role. Hybrid versions of energy communities providing affordable energy services and returns on investments exist as well [34]. Further, energy communities can bring added value to the region where they are installed through providing local jobs, developing skills, promoting social cohesion, addressing inequalities, enhancing equity and autonomy [35–38].

Social benefits and services are mainly linked to contributing to a more just and equitable (local) energy transition. This entails supporting and empowering the local community, e.g., by offering energy consultations or supporting local sports events or fostering citizen participation and promoting social innovations locally [5].

In this light, energy communities are increasingly referred to as democratising energy [39]. Energy democracy is mainly concerned by involving and engaging citizens in deliberation and decision-making [40] with the intention to add legitimacy [41], local knowledge [42] and multiple stakeholder views [43] to local energy transitions. Instead of energy policy as a “technoscientific domain reserved for experts” [44], energy democratisation is an “ideal political goal, in which citizens are the recipients, stakeholders (as consumers/producers) and account holders of the entire energy sector policy” [44]. The idea is that local citizens know best about local energy transition needs and should get involved in shaping regional energy transition to raise needed investments and trigger changes in consumer behaviour to enhance energy efficiency and increase public acceptance, community trust and bridge social networks [18, 39, 45].

Likewise, energy communities are increasingly expected to help mitigate energy poverty through providing access to affordable energy services such as renewable energy and energy-efficiency

measures [3]. In this paper, we refer to Bouzarovski and Petrova's [46] definition and define energy poverty as a household's propensity to be unable "to attain a socially and materially necessitated level of domestic energy service". Although energy poverty is not defined as such by German policymakers, scholars increasingly point at different aspects of energy poverty and injustices linked to the German energy transition most prominently by an unfair distribution of energy transition costs among private households. For instance, a number of scholars show that the RE levy is disproportionately burdensome for low-income households while high income earners benefit [47, 48]. Although the RE levy was reduced at the beginning of 2022 and will likely be discontinued, recent drastic increases in energy prices spread the threat of energy poverty even further and put energy vulnerabilities related to price inflation at the centre of political debates. While the German government decided to mitigate the social consequences of energy price increase due to the war in Ukraine [49], the introduction of a definition of energy poverty nor a reflexion on the role of energy communities in this regard have been considered so far. Energy poverty is often driven by highly visible factors such as high energy prices, low incomes, and low energy efficiency. The root causes, however, go beyond these factors. For instance, financial precarity changes the way households think and make (energy) choices [50, 51]. The causes of energy poverty are complex: intersecting axes of inequality [52]—including income, gender, age, education, health status, and ethnicity but also real estate and energy markets⁴ and social welfare systems⁵ and political representation⁶—constitute households' energy-related struggles [54].

⁴ Households with low, precarious incomes often live in cheap dwellings with low energy efficiency.

⁵ Unemployment benefits in Germany (Arbeitslosengeld II) do not cover electricity costs. Electricity costs are deducted from the basic living allowance.

⁶ Elsässer et al. [53] show that policy-making in Germany systematically misrepresents the needs of low-income households.

Energy Justice and Energy Democracy

As follows, our approach to apply the energy justice tenets recognitional, procedural and distributional justice to energy communities is described. Doing so, we investigate the extent to which energy communities in our sample contribute to energy justice and energy democracy. We link energy democracy to the procedural dimension of energy justice [45]. Further, we highlight that the three energy justice tenets are interlinked and intersect with each other. The same applies to the concept of energy democracy. While there is a multitude of energy communities' theoretical benefits and services, due to restrictions in the data collection process (see "Methods" section), we focus our investigation on the elements described below.

Procedural justice looks at procedures that allow all local citizens and stakeholders to engage with and participate in the energy transition in a non-discriminatory and inclusive way [28]. In assessing energy communities' contribution to procedural justice, we focus on current energy communities procedures [29, 55] and how they enable different social groups' access to energy community benefits and services. We distinguish between direct access to such benefits and services via membership and indirect access through activities targeting individuals that are not members or the local community at large. In this light, energy democracy is closely linked to procedural energy justice [45, 56]. To assess energy communities' contribution to democratising energy, we distinguish between internal and external energy democracy. Internal energy democracy mainly concerns procedures within the energy community that enables all members to get involved in decision-making processes to exercise control [10, 45]. External energy democracy in the context of energy communities refers to the extent to which the local community in which the energy community operates is included in the way the respective energy community shapes the local energy transition. One way of achieving citizen engagement is through citizen co-ownership in renewable energy [44]. Participation in energy communities in turn is a form of citizen co-ownership [56]. Therefore, the main indicator for external energy democracy is member diversity in the energy

community. We also look at members’ geographic proximity to the energy community to understand the geographic scope of democratising energy. Further, to understand the degree to which members are directly involved in decision-making processes within the energy community, we investigate internal decision-making structures. Finally, we look at energy community activities to reach out to individuals of the local community that do not participate in the energy community as members yet.

We apply the following indicators to assess energy communities’ contribution to procedural justice and democratising energy: participatory requirements such as membership fees and share prices; member diversity and proximity to the energy community; governance structure, information and engagement activities targeting the local community and vulnerable groups. Table 1 summarises the approach to assess energy democracy. Table 2 summarises the elements identified for each energy justice tenet and respective indicators. The intersections of the two concepts of energy justice and energy democracy are highlighted with respect to the selected indicators, e.g., for internal energy democracy and procedural energy justice.

Distributional justice looks at the production and consumption of energy and where injustices in the energy system emerge [28]. For instance, distributional energy justice has been applied to investigate distributional burdens of increases in energy prices [57] or the distribution of renewable energy’s costs and benefits [58]. In Germany, it has been shown that the initial decision of the government to fund energy transition based on a tax levied on energy bills had a regressive impact

Table 1 Assessing energy communities’ contribution to democratising energy. Source: Authors

Energy democracy	Element	Indicator
Internal energy democracy	Internal decision-making [45]	Members control and engagement in decision-making processes
External energy democracy	External representation [44, 56]	Member diversity Member proximity Engagement of non-members

Table 2 Energy justice elements and indicators. Source: Based on [30] adapted by the authors

Tenet	Element	Indicator
Procedure	Access to information [42, 61, 65, 66] Access to membership [67] Representation of stakeholders [28]	Member diversity Participatory requirements Targeted information and engagement activities
Distribution	Access to outcomes in the form of benefits and services [27, 62]	Energy services offered to different social groups
Recognition	Awareness of energy vulnerability and energy poverty [54, 64] Recognition of energy communities’ role for enhancing energy justice [3]	Level of knowledge about energy vulnerability and poverty Engagement with energy vulnerable and poor households Primary purpose and responsibility for social inclusion Alleviating energy poverty

on the most vulnerable households. The latter contribute the most to the funding of energy transition while benefiting the least from RE [59, 60]. In a reference to a previous work [30], we apply distributional justice to investigate the distribution of energy community benefits and services to different social groups [27–29, 61, 62]. The main energy services are access to renewable energy, energy efficiency, renewable heating, energy storage and e-mobility. We use the following indicators to assess distributional energy justice: member diversity, and the distribution of energy services to different social groups.

Recognitional justice inquires which sections of the society and what needs are ignored or misrepresented in the context of the energy system and its transformation [28, 29, 63]. Recognitional justice focuses on understanding differences and accommodating particular needs, especially those of vulnerable groups [29]. As described, different energy vulnerabilities intersect and create differences in domestic household needs and capacities, often restricting the possibilities and choices of vulnerable groups [54]. A fair distribution of both the benefits and costs of energy services (distributional justice) and energy decision-making and governance (procedural justice) requires

recognising these differences and restrictions. Only based on such an understanding can empowering and inclusive procedures emerge that enable a fair distribution of benefits and burdens [64]. Based on a previous work [30], we therefore investigate whether energy communities are aware of energy vulnerability and energy poverty and the restrictions vulnerable groups face when trying to access energy communities' services. Doing so, we apply the following indicators to assess recognitional justice: the level of knowledge about energy vulnerability and poverty, the preferences, needs and living situation of vulnerable and energy-poor households as well as engagement activities targeting energy vulnerable and poor households. We further look at energy communities' primary purpose to understand whether they perceive providing social benefits and services and engaging with vulnerable groups as their responsibility.

Methods

This paper builds on the results of a previous exploratory research focusing on the role of energy communities in tackling energy poverty in Europe [30]. For this article, the research process in Germany began in 2021 with conducting telephone interviews with executive members of five German energy communities. The aim of these interviews was to become familiar with the current challenges of energy communities regarding their contribution to a socially just energy transition to adapt a previously developed online survey to the German context. The final survey contains 31 questions structured by four categories, each corresponding to a different information need:

1. Filter questions (information about the responding organisation' structure and purpose);
2. Underrepresented groups (information about inclusive action and services offered)
3. Energy poverty (information about energy poverty mitigation);
4. Your organisation (information about the responding organisation and its members).

We ran a pre-test distributing the survey to 10 individuals in the energy research community. We cleaned, tested, and analysed the data using the computational programme SPSS to structure and display the data. We applied content analysis to both the interviews and open text replies in our survey. In September 2021, the updated survey was sent to 900 German energy communities, of which 134 replied. The list of citizen energy communities results from online research among three major and public websites listing existing citizen energy projects in Germany: Bürgerenergie Jena, Energieagentur NRW and Netzwerk Energiewende jetzt e.V. In the end and after a thorough data processing, the sample consists of 113 energy communities. In the online survey, all responding organisations claimed to comply with the definition of ‘Bürgerenergiegesellschaft’ as defined by the German renewable energy act (EEG) (§ 36g EEG). Further, all responding organisations describe themselves as renewable energy communities as defined by RED II. A majority of 104 (92%) of cases are organised as cooperatives, three as limited liability companies and two as associations and two civil-law partnerships.

Before presenting the results and discussion, we would include some comments about limitations. The main restriction of the data sample is the low response rate of 12.5. Further, we must assume that only energy communities responded to the online survey that were interested in the main question raised, that is, participation of underrepresented groups and energy poverty. Therefore, when making statements about “energy communities”, we refer to energy communities in our sample only. Also, the responding energy communities do not have information on the socio-economic characteristics of their members and customers. As we will show below, a considerable number of energy communities offers services to external customers. However, we were not able to collect data on socio-economic characteristics of customers nor on the engagement activities targeting different customer groups. Finally, this is exploratory research and while we can address important issues there is a need for more in-depth research on the impact of different engagement activities on the local community.

Results

We structured the results section according to the above identified indicators (see Tables 1 and 2).

Member Diversity

Energy community members are usually citizens, followed by local municipalities and SMEs (see Table 3). With respect to member characteristics, energy communities stress that they often do not have detailed information on their members and thus do not know much about members' socio-economic characteristics—an observation confirming the results of a previous research project [30]. We can however note that a gender gap prevails: in 76 (67%) of cases, less than 30 percent of members are women, and in 72 (64%) of cases more than 70 percent are men. On average, energy communities in our sample have 370 members, which is 20 percent more than the average energy cooperative in Germany [4].

Decision-Making Bodies and Procedures

According to RED II and EEG, membership should be open to all citizens. And indeed, 108 (96%) respondents report that membership is (theoretically) open to all citizens; two cases link membership to the requirement to have a residence close to the energy community. And although this requirement is explicitly mentioned only in two cases; in 105 (91%) of cases most of their members are located in the proximity of the energy community (a median of 20 km).

Nearly in all cases (91%) of the members control the organisation. The general assembly is the most important decision-

Table 3 Member categories. Source: Authors

Member category	N	Percent of cases (%)
ICitizen	113	100
SMEs	32	28
Local municipalities	46	41
Schools, NGOs, associations	10	9

-making body. Further, it appears that the executive board often makes most decisions and represents the community judicially and extrajudicially. The executive board consisting of natural members of the organisation, is elected by the members and must inform the members. 21 (19%) of energy communities explicitly declare that members have a say in all fundamental decisions. In 17 (15%) of cases, members can get involved in workgroups and other tasks (usually on a voluntary basis). In 13 (12%) of cases, all decisions are managed by the supervisory and executive board, which is run by members, but members do not exercise any additional control.

Participatory Requirements, Information and Engagement Activities

Based on a previous work [30], we define underrepresented groups as low-income households, energy-poor households, young families, households with migration backgrounds and women. 28 (25%) of energy communities specifically address underrepresented groups, and 64 (57%) do not specifically address these groups. Specifically addressing underrepresented groups entails informing them about the possibility of participating and the different ways to get involved. Further, the online survey distinguishes between general engagement activities targeting the public and engagement activities and underrepresented groups specifically. 19 (17%) reply that they address such groups through general engagement and participation offers, as one respondent puts it: “We do not distinguish between these groups”. Nine energy communities address underrepresented groups with specific engagement and information activities targeting these groups while acknowledging the specific restrictions underrepresented groups might face. The remaining energy communities did not reply to the question. Table 4 provides an overview of different underrepresented groups addressed by energy communities in the sample.

Energy communities addressing these groups have on average 500 members, while those that do not address them, include below 300 members, which is 40 percent less. Reasons for not approaching underrepresented groups differ. Firstly, energy communities trying

Table 4 Underrepresented groups addressed. Source: Authors

Underrepresented group	N	Percent of cases (%)
Low-income households	21	19
Energy-poor households	12	11
Women	19	17
Households with migration background	14	12
Young families	23	20
Other	17	15

to address these groups report difficulties when trying to reach out—they often simply do not manage to reach vulnerable households. Further, when having reached them, energy communities struggle to bring across their offer. Here, the main difficulty is finding the right words (understandable language) to explain their offer and vulnerable households’ financial restrictions and living situation. As one respondent puts it: “They have other problems than participating in our energy community.” Secondly, as displayed in Table 5, the main reasons for not addressing underrepresented groups are unawareness, the need to focus on the core business activities and a lack of resources. The core business activities are reflected by the primary purpose (Table 8) and the kind of energy services offered (Table 6). Other reasons mentioned for not addressing underrepresented groups are lack

Table 5 Reasons for not addressing underrepresented groups. Source: Authors

Reasons for not addressing underrepresented groups	N	Percent of cases (%)
Low-income households		
We need to focus on our core activities	20	18
We do not have sufficient resources to address these groups	11	18
We would like to, but we don’t know how to reach these groups and what they need	3	3
This topic has never been discussed	33	29
Current regulations and policies hinder the inclusion of these groups	6	5
It is not our task to address these groups	7	6
Other	20	18

Table 6 Energy services offered. Source: Authors

Energy service	N Group A ^a	N Group B ^b	N total	Percent of cases (%)
Electricity from renewable sources	26	33	59	52.00
Electricity tariffs below market price	21	18	39	35.00
Heating based on renewable sources	14	17	31	27.00
Energy efficiency advice	12	16	28	25.00
Discounted membership fees	18	8	26	23.00
Installation of energy-efficiency measures	10	9	19	17.00
Financing of energy-efficiency measures	10	9	19	17.00
E-mobility	11	7	18	16.00
Renewable energy aggregation	8	6	14	12.00
Energy storage	7	5	13	11.00

^a Group A includes all energy communities stating to address underrepresented groups

^b Group B includes all energy communities stating to not address underrepresented groups

of enabling regulatory conditions for energy communities in general but also specific instruments such as tenant power models. When asked the question who is responsible for enabling the participation of these groups, of 68 (60%) replies, 43 (38%) replied that the responsibility for inclusion remains with energy communities, 31 (27%) with local authorities and 23 (20%) with the Federal government.

Other aspects frequently mentioned are financial membership requirements. Respondents mention a minimum financial participation from as low as 50 Euro up to 3000 Euro. Concerning financial requirements, respondents' replies and opinions are diverse: for instance, a range between 250 and 3000 Euro is perceived as low enough to allow for a broad participation of different social groups. Other respondents identified a lack of financial means restricting vulnerable groups' participation as one of the main reasons for their underrepresentation stating that even 50 Euro is a considerable barrier for low-income households. Some respondents state that they offer payments by instalments to include low-income households; others provide private loans from members to vulnerable members to help

Table 7 Energy efficiency and prices. Source: Authors

Energy efficiency	N Group A	N Group B	N total	Percent of N total (%)
Only members	21	10	31	46.00
Only external customers	4	12	16	24.00
Both	8	12	20 67	30.00 100
Affordable energy	N Group A	N Group B	N total	Percent of N total (%)
Only members	13	9	22	56.00
Only external customers	2	8	10	26.00
Both	6	1	7 39	18.00 100

them finance their share. In theory, such loans could be paid back using dividends. However, as one energy community reports during a telephone interview, it can be difficult to pay out dividends due to low profits. For a small energy community, due to financing costs, low market premium for fed-in electricity and obligatory biennial audits, the capability to pay out dividends to members is limited.

Energy Community Services Offered to Different Social Groups

The primary purpose of promoting RE is reflected by the energy services offered. Promoting and offering affordable energy from renewable sources is the main service, closely followed by energy efficiency by both energy communities addressing underrepresented groups and those that do not provide the same energy services, as illustrated in Table 6.

Likewise, among the energy communities that responded to the question, half offers energy efficiency services (advice, combined installation and financing) and electricity tariffs below the market price only to members. In contrast, the other half offers these services either only to external customers or to both members and external customers (see Table 7).

Primary Purposes

Both IMED and RED II agree that energy communities should have a primary purpose beyond merely making financial profits. Both mentioned environmental, economic and social community benefits are linked to energy communities' activities. The primary purpose of the organisations in our data sample is the promotion of RE (88%), followed by promoting regional value creation (44%) and independent energy supply (39%). When asked whether providing social benefits is among their primary purpose, only two energy communities confirmed (see Table 8).

Alleviating Energy Poverty

Of 103 energy communities that replied to the question, nine stated to address energy poverty. Among those that address energy poverty, most do so in cooperation with partners such as Caritas Germany or other Charity organisations or the local municipality, e.g., by sharing information and educating regarding energy services. One respondent addresses energy poverty indirectly through tenant power projects mostly installed on social housing. The main reason for not addressing energy poverty is unawareness of the topic (in 51% of cases), followed by a need to focus on core business activities (16%) and the statement that energy poverty is not an issue in the local community (10%). Further respondents stress that energy-poor or vulnerable members avoid talking about their situation, that current regulation does not support measures such as energy sharing and

Table 8 Primary purposes. Source: Authors

Primary purpose	N	Percent of cases (%)
Promoting renewable energy	100	88
Promoting regional value creation	50	44
Payment of dividends	26	23
Energy supply in own hands	44	39
Providing social benefits	2	1.7
Other	9	8

that energy communities do not have enough resources to address energy poverty locally. Further, tenant power models facilitated by energy communities were mentioned by six energy communities as a way of addressing vulnerable and energy-poor tenants. However, respondents stress that regulations for tenant power in 2021 were still bureaucratic restricting its wider application. Table 9 presents further reasons for not addressing energy poverty.

Discussion

In the following, we apply the above outlined results to investigate the extent to which the responding energy communities contribute to a more just and democratic energy transition. The above raised limitations, that is, the limited number of energy communities included in the sample and the assumption that only energy communities responded to the online survey that were interested in the main question, however, must be considered.

Procedural Energy Justice

Energy communities' member structure indicates whether energy community procedures enable and empower a broad participation of different social groups. With that in mind, we note that women remain underrepresented. Regarding the inclusion of other social

Table 9 Reasons for not addressing energy poverty. Source: Authors

Reasons for not addressing energy poverty	N	Percent (%)
The topic was never discussed	47	42
We need to focus on our core activities	18	16
We do not have enough resources to fight against energy poverty	4	4
We would like to, but we don't know how to reach these groups and what they need	4	4
Energy poverty is not a problem in our region	12	11
We do not know exactly what energy poverty means	3	3
Current regulations and policies are holding us back	3	3
Other	1	1

groups roughly half of the energy communities claimed to address underrepresented groups. However, the extent to which energy communities successfully enabled underrepresented groups to participate remains vague—energy communities often do not receive information about the socio-economic characteristics of their members or customers. It stands out that energy communities also claim to engage with vulnerable groups that do not have targeted engagement approaches in place. While these energy communities claim to reach underrepresented and vulnerable households, we do not have robust evidence to assess how successful such engagement activities might be.

Access to energy community benefits is granted either for members or external customers. In both cases, individual members of the local community need to be aware of the local energy community and its benefits. Therefore, engagement and information activities targeting different social groups are the primary indicator to assess procedural justice. Most energy communities target the local community through general engagement and information activities—these typically include newsletters, flyers, or information booths in public places or during public events. Energy communities specifically addressing vulnerable groups, however, stress that general information and engagement activities do not reach vulnerable groups. Based on their experience, they highlight that information needs to be presented clearly and understandably through direct communication channels. Examples for such targeted engagement activities are the setup of energy cafes, or home visits. Further, they report that vulnerable groups' precarious financial situation restricts their capacity to participate in energy communities as members. In this light, 26 (23%) of energy communities offer discounted membership fees or provide financing schemes to enable vulnerable groups participation such as payment in instalments or micro loans. They also reported that targeted engagement approaches are resource-intensive (time of staff or members to go from door to door or financial means to offer discounted member fees). However, resources, especially of smaller energy communities, are limited. Smaller PV projects are often only profitable when the produced electricity

is self-consumed; past and current energy law does not allow for energy sharing models to rely on the public grid—often a reason why such projects remain economically unfeasible. In addition, the highly regulated German energy market sets a number of requirements and obligations to be met by energy suppliers. Smaller energy communities do not have the resources to meet these requirements instead more than 100 energy cooperatives use the service of the ‘Bürgerwerke eG’ for electricity distribution and supply.

In this light, engaging with vulnerable groups often requires cooperating with other cooperatives, local municipalities, NGOs or charities. This is especially the case when energy communities try to identify and reach out to vulnerable households in the local community. For instance, in Belgium the city of Eeklo buys membership shares from the local energy community and redistributes these shares to vulnerable community members. In this way they gain access to affordable energy services. Likewise, enabling cooperation with local charities as mentioned by some of the respondents can help energy communities identify vulnerable households and therefore better adjust their communication/engagement activities.

In this light, a considerable difference between energy communities addressing underrepresented groups and those not doing this, is member size: the more members, the more likely an inclusive action would be. One explanation could be that bigger organisations have more resources necessary to address different groups. This is confirmed by the responses of energy communities that do not yet address underrepresented groups: they must commit all organisational resources to focus on their business activities, additional resources for inclusive procedures are not available. Based on the reported experiences and difficulties of energy communities when trying to reach vulnerable groups, we must assume that lacking targeted information and engagement activities hinders the successful inclusion of underrepresented groups and thus constitutes a procedural shortcoming. Table 10 summarises the findings with respect to energy communities’ contribution to procedural justice.

Table 10 Energy communities’ contribution to procedural justice.
Source: Authors

Element	Indicator	Findings
Access to information [42, 61, 65, 66]	Member diversity	Women and other groups remain underrepresented; limited awareness for targeted engagement activities (see “Recognitional energy justice”) which are resource-intensive and remain the exception; participatory requirements such as financial means pose an obstacle to engaging vulnerable groups
Access to membership [67]	Participatory requirements	
Representation of stakeholders [28]	Targeted information and engagement activities	

Energy Democracy

With respect to energy democracy, we mainly look at the extent to which the local community can shape the local energy transition through enabling co-ownership, decision-making and control. Doing so, we distinguish between internal and external energy democracy. Internal democracy is mainly about the extent to which energy community members have access to decision-making. Here most of the energy communities reported that their members control the organisation, the main decisionmaking body being the general assembly. In most cases, the executive board or the director run the daily business, prepare, and shape most decisions. In 12 (10%) of cases it seems that members’ involvement in decision-making is limited to electing the executive and supervisory board. 21 (19%) of energy communities reported that their members can

Table 11 Energy communities’ contribution to democratising energy.
Source: Authors

Element	Indicator	Findings
Internal decision-making [45, 55] External representation [44, 56]	Members control and engagement in decision-making processes Member diversity and proximity Engagement of non-members	Usually, members exercise basic control, e.g., electing the boards; additional involvement is less common and depends on the respective community; although members are usually local ones, not all social groups have the same possibilities to get involved; energy communities’ contribution to democratising energy locally remains restricted to a predominantly male group

participate in work- and project groups throughout the year and are included in all fundamental decisions. Given that 89 percent of cases are organised cooperatively, with more than 20 members, they are by law obligated to instal both an executive and supervisory board consisting of elected members of the cooperative. The same applies to the general assembly and the one member one vote rule. In the end, the cooperative law provides the basis for a democratic governance structure within energy cooperatives [68]. The degree to which energy communities provide their members with possibilities to get involved beyond participating in the general assembly and electing the executive board depends on the individual community and members' capacity (mostly free time but also knowledge) to take on additional responsibilities.

External energy democracy denotes mainly the way the respective energy community empowers the local community to shape the local energy transition. This can be achieved either through enabling membership in the energy community (co-ownership) or through additional activities such as information campaigns or community meetings to discuss RE projects. In this light, none of the energy communities in our sample report to have organised community meetings to discuss their projects with the local community (resp. with non-members of the energy community). Still, energy communities also interact with non-members that are customers of the energy community. However, none of the energy communities reported that the customer relationship includes discussing local energy projects. With a clear majority of members living in proximity to the RE installations of the energy community, we may conclude that energy communities contribute to democratising energy locally—the extent to which a diverse body of social groups benefits, however, depends on the respective energy community's procedures and whether they reach different groups. Therefore, we assume that the above-discussed procedural shortcomings with respect to reaching out to vulnerable members of the local community have an equally restricting impact on external energy democracy. Table 11 summarises the findings with respect to energy communities' contribution to democratising energy.

Distributional Energy Justice

In assessing distributional justice, we mainly look at energy communities' services and benefits and which groups gain access. Half of the energy communities in the sample offer energy services such as affordable (below market price) and clean energy and energy-efficiency measures either exclusively to their members, to external customers or both. Nearly all energy communities address citizens with their services. However, only 28 (25%) explicitly address underrepresented groups such as young families, low-income households, and women, and in this way increases energy communities' reach beyond a traditionally homogenous, male group of members. With respect to distributional justice, we thus note that although a considerable number of energy communities offer services and benefits that would be of benefits for vulnerable and energy-poor households, only a minority offers energy services and benefits to those in need. We also noted that accessing energy services and benefits is not always linked to membership: in roughly half of these cases, energy communities provide energy services and benefits to external customers as well. Thus, when looking at new ways to enhance distributional justice, one way of doing so could be linked to offering services to vulnerable households as external customers. For instance, a social tariff, as is mandatory in Portugal, could help energy communities reach the most vulnerable. The potential of energy communities to enhance energy justice thus lies in providing access to energy services and benefits to energy-poor households—which is mainly a question of enabling and empowering procedures. These in turn requires a thorough recognition and understanding of energy vulnerability and of the particular barriers, vulnerability creates. Only based on such recognition, energy communities can address procedures that prevent households from gaining access to energy community benefits and services—an observation highlighting the importance of recognition energy justice. Table 12 summarises the findings with respect to energy communities' contribution to distributional justice.

Table 12 Energy communities' contribution to distributional justice.
Source: Authors

Element	Indicator	Findings
Access to outcomes in the form of benefits and services [27, 62]	Energy services offered to different social groups	Energy communities provide a range of beneficial energy services to members and customers; only half of energy communities try to offer these to vulnerable groups while even less specifically address vulnerable groups; energy communities' potential to support energy-poor households is confirmed but not exploited

Recognitional Energy Justice

Recognitional justice is mainly concerned with energy communities' awareness for understanding the specific needs and restrictions of different social groups. In that respect, 43 (38%) of respondents found energy communities to be responsible for enabling the participation of underrepresented groups. However, with nine respondents, the number of energy communities being aware of energy poverty and vulnerability in the local community is considerably lower. Likewise, 28 (25%) of energy communities address underrepresented groups and reported to be aware of their underrepresentation. The majority, however, is not concerned with addressing these groups or finding new ways to engage with different social groups. Therefore, awareness of different social groups' underrepresentation is limited. But also, among energy communities claiming to address such groups, the understanding for the restricting living conditions varies. Most prominent is the statement of some energy communities that a minimum financial contribution ranging from 250 to 3000 Euro is low enough to facilitate all social groups' participation. Such examples fail to recognise the extreme financial precarity often experienced by energyvulnerable households. One explanation could be linked to decision-making: all energy communities reported that members control the organisation, and with that, the decisions linked to addressing underrepresented groups. Here, a homogenous, male membership base characterised by high income and education le-

Table 13 Energy communities’ contribution to recognitional justice.
Source: Authors

Element	Indicator	Findings
Awareness of energy vulnerability and energy poverty [54, 64] Recognition of energy communities’ role for enhancing energy justice [3]	Level of knowledge about energy vulnerability and poverty Engagement with energy vulnerable and poor households Primary purpose and responsibility for social inclusion Alleviating energy poverty	Energy communities usually remain unaware of local energy poverty or the restrictions vulnerable groups face; recognising energy communities’ responsibility for inclusive action does not automatically translate to specific engagement activities; energy communities’ primary purpose and business activities remain linked to producing, storing and distribution renewable energy services

vels [23, 25] might not be aware of local energy vulnerability, which is, after all, a live experience far from its daily reality. Finally, the need to focus on the core business activities reflected in the primary organisational purpose, that is “promoting renewable energy” (Table 8) and a lack of resources hinders energy communities to include energy vulnerability on their agenda. Table 13 summarises the findings with respect to energy communities’ contribution to recognitional justice.

Summing up, energy communities have a considerable potential to enhance justice in the German energy transition. At the same time, this potential has not yet been sufficiently exploited. Currently, energy communities that spend time and resources reaching underrepresented and vulnerable groups enhance justice in the energy transition but do not gain advantages from that, they do it as a form of philanthropy. As long as competition shapes the energy market and energy policy fails to provide an enabling framework to support energy communities in reaching out to low-income and energy-vulnerable households, as stipulated by RED II, energy communities face considerable limitations to engage in social actions.

Policy Recommendations

Transposing RED II is not a choice but a legal obligation. The European legislator requires member states to provide details on transposing RED II into national legislation in the national energy and climate plans. REScoop. eu tracks RED II transposition on energy communities [69]. So far, Germany has not provided a specific law on energy communities, nor does it offer enabling conditions such as reduced bureaucracy, energy sharing or simplified tenant power schemes. Especially, the latter is currently the only instrument designed to grant tenants in (urban) apartment buildings access to RE produced on site. However, due to low financial incentives and high bureaucratic burdens for house owners, tenant power, despite its advantages, fails to empower vulnerable households [70].

Despite the lack of enabling regulation, the federal court of justice highlights that the expansion of onshore wind energy was often not possible due to the outstanding commitment of locally anchored energy communities [71]. The court concludes that energy communities' function in energy transition entails increasing local acceptance of RE projects through engaging and including local communities in the process. It stresses that voting rights should be widely distributed, and a concentration of voting rights in the hands of a few large shareholders should be prevented. Thus, preferential conditions should only apply to locally anchored energy communities that need protection. However, the past attempt to provide preferential conditions for locally anchored energy communities failed. Commercial project developers founded organisations officially meeting the criteria of citizen energy communities. They thus, benefitted from preferential conditions and won the public tenders. These organisations, however, were not what the EEG defined as a locally anchored energy community, as especially the requirements for local members' control over the organisation were not fulfilled [71].

This experience illustrates the need to link additional enabling conditions with a clear taxonomy for energy communities. Both EU directives (RED II & IEMD) and national directives (EEG) provide taxonomy features (see "Introduction"). As Palacios et al. reported, more attention must be paid to the member structure to exclude

large investors or minimise the number of eligible projects [72] in order to support non-financial objectives. In addition, measures are required to promote regional benefits from project ownership, e.g., direct community compensation for the lost property value associated with the realisation of the project [72]. However, these debates solely focus on organisational characteristics. While the federal court of justice highlights energy communities' impact on public acceptance, social impact-oriented features are as important as organisational characteristics. The latest EEG revision (to be in effect starting 2023) addresses previous regulatory shortcomings and the resulting disadvantages for energy communities [73]. Most importantly, it proposes new membership requirements to guarantee that energy communities remain locally embedded; reduces bureaucracy, e.g., through exempting energy communities from the tendering process; provides funds for the initialising process of new energy community projects; increases the remuneration of PV and wind turbines and tenant power model subsidies. However, as discussed above, merely because an energy community has local members does not mean that it represents the interests of all local citizens. To prevent an already privileged group (male and high income) from getting access to preferential treatment initially aimed at recognising the diversity of local interests in the energy transition, a taxonomy must reflect 'local diversity' in the locally anchored energy community. Thus, access to preferential treatment should be linked to energy communities' social impact.

Frameworks recognising the social welfare added by an organisation already exist. For example, the concept economy for the common good (www.ecogo.od.org) uses social and ecological indicators in addition to financial indicators to account for and rank the social welfare added by an organisation. Organisations receive tax incentives when they engage in social and environment friendly business practices. For instance, energy communities offering discounted membership fees or financing options for vulnerable groups get support for their inclusive action. Energy communities that score high on a social welfare ranking would gain access to an enabling framework that includes tax benefits and access to

subsidies to finance inclusive action. Energy providers ranking low on social welfare would carry a higher tax burden. The extra tax revenues could fund grants for socially engaged energy production. Consequently, engaging in social and ecological business practices becomes an economic advantage—an incentive for energy communities to engage in social actions.

In this light, the social entrepreneurship federation promotes similar ideas in Germany. Given that energy communities apply business solutions to increase RE and drive social acceptance by increasing citizen participation, they are increasingly concerned with social businesses driving social innovation and change [5, 74]. To support energy communities as social businesses in generating social welfare, this goal must also be reflected in reporting processes. For instance, social and sustainable impact reports according to the SDGs could be mandatory for all businesses applying for public funding including enabling policy frameworks for citizen energy communities. In consequence, energy communities reporting on their impact achieving SDG 7 ‘affordable and clean energy’ would gain support doing so.

Conclusion

Energy communities are expected to contribute to a just energy transition. In contrast to commercial players, their purpose is not limited to profit-making but to provide social, ecological, and economic community benefits. The federal court of justice confirms these aspects in a recent ruling highlighting energy communities’ role in increasing local acceptance for renewable energy.

Energy communities’ contribution to energy justice and democracy mainly consists of making energy community benefits accessible to different social groups. They thus contribute to SDG 7 ‘affordable and clean energy’. However, the presented data about 113 German energy communities shows that only a minority increases access to energy community benefits to underrepresented and vulnerable groups—the main barriers for inclusive action being unawareness, limited resources, and a lack of regulatory support.

As stipulated by the European legislator, an enabling framework must support energy communities in enhancing equity and justice in the energy transition. A clear taxonomy must distinguish energy communities engaging in social action from those that do not and offer incentives to realise the expected social benefits. Additional research is necessary to understand the member structure of German energy communities and whether diversity among members drives inclusive action.

In addition, little attention has been paid to investigating energy communities' customers. Finally, it is essential to note that the welfare state remains responsible for overcoming energy-related vulnerabilities and should not shift responsibility from social policy to local energy communities. Moreover, as long as the German legislator refrains from defining energy poverty, it will be challenging to create enabling conditions to support energy communities' involvement in mitigating energy poverty.

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FH contributed to the research idea and conception; contributed to the data collection and analysis; contributed to the writing of the manuscript; revised the manuscript. RG: contributed to the conception. All authors read and approved the final manuscript.

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Consent for Publication

Not applicable.

Competing Interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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JUSTICE AND CLASS

Lorenzo Feltrin and Emanuele Leonardi

Working-Class Environmentalism And Climate Justice: The Challenge Of Convergence Today

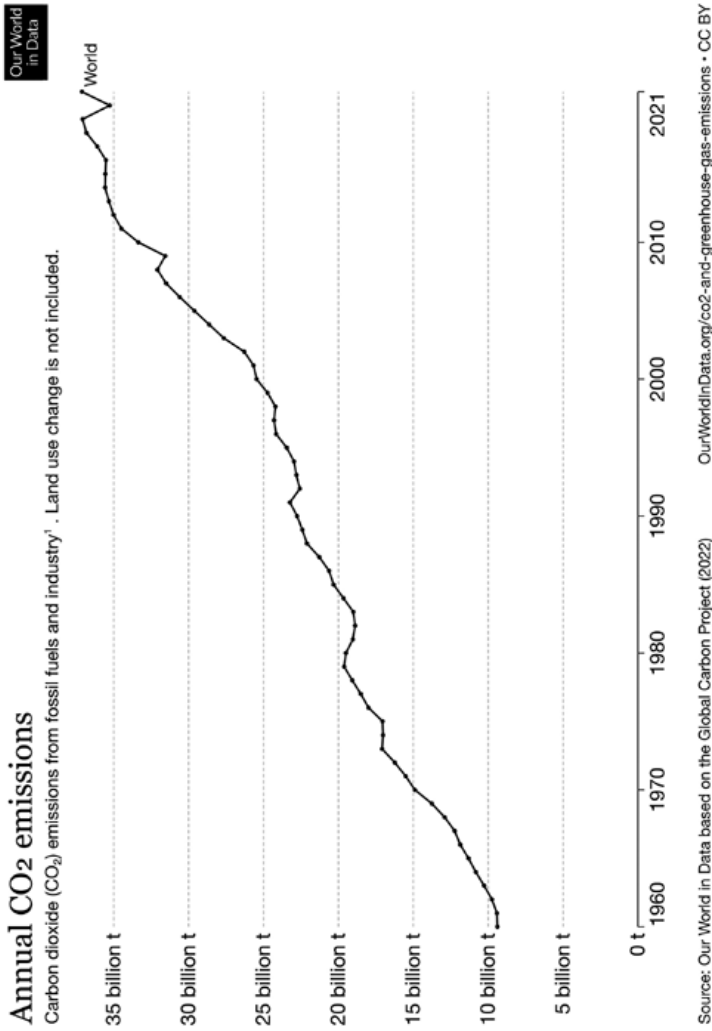
On 9 July 2021, Melrose Industries announced the closure of its GKN Driveline (ex-FIAT) factory of car axles in Campi di Bisenzio, Florence, and the layoff of its workers (more than 400). While in many such cases the workers and unions settle for negotiating enhanced redundancy benefits, the *GKN Factory Collective* occupied the plants and kickstarted a long *struggle* against decommissioning. However, what makes the GKN Florence dispute really unique is the strategy adopted by the workers, who sealed an alliance with the climate justice movement by drafting a conversion plan for sustainable, public transport and demanding its adoption. Such strategy engendered a cycle of broad mobilisations – repeatedly bringing tens of thousands to the streets – so that the dispute is still open, and the factory remains under occupation as of today. In December 2022, Milan’s Feltrinelli Foundation released a *special issue* of its *Quaderni*, publishing the Plan for a Public Hub for Sustainable Mobility drafted by the GKN Factory Collective and their solidarity research group. This article – on the failure of the ecological transition ‘from above’ and the need for a convergence between workplace and community struggles to move towards a transition ‘from below’ – was originally published in Italian as a postface to the Plan.

Introduction: the Failure of the Ecological Transition *From Above*

Since the great climate strikes of 2019, and even more so after the acknowledgment of the environmental roots of the COVID-19 pandemic, the ecological transition seems to be everywhere. While the European Union turned it into the cornerstone of its recovery strategy, the Draghi Government had even established a brand new ministry just for it. Nonetheless, a quick historical recognition is easily sufficient to dampen such enthusiasm. In fact, it is at least since 1992 – year of the renowned Earth Summit in Rio de Janeiro – that, under the aegis of the United Nations, the involved countries legislate according to a strategy that we can define as “ecological transition *from above*”. The core idea behind it is simple but ground-breaking: it is not true, as it was formerly believed, that environmental preservation and economic growth are mutually exclusive. To the contrary, the green economy properly understood is seen as capable of internalising the ecological limit, which is transformed from a ‘blockage’ to capitalist development into the ‘foundation’ for a new cycle of accumulation.

Focusing our attention on climate governance, the translation of such core idea is the following: even if global heating is a market failure, resulting from the fact that so-called ‘negative externalities’ are not taken into account, the only way to deal with it is the establishment of further markets to price – and exchange – different types of ‘nature as commodity’, for example forests’ capacity to absorb CO₂. These are not wild trips to a Platonic realm of abstract theory: such flexible mechanisms for the commodification of the climate, established by the Kyoto Protocol in 1997 and relaunched by the 2015 Paris Agreement, are still the main economic policy tool deployed by the United Nations Framework Convention on Climate Change.

Since the beginning, the promise of *this* ecological transition – applied to global heating – was ambitious and explicit: the ‘invisible hand’ of the market will be capable of reducing greenhouse gas emissions and, concurrently, of guaranteeing high profit rates.



1. Fossil emissions: Fossil emissions measure the quantity of carbon dioxide (CO₂) emitted from the burning of fossil fuels, and directly from industrial processes such as cement and steel production. Fossil CO₂ includes emissions from coal, oil, gas, flaring, cement, steel, and other industrial processes. Fossil emissions do not include land use change, deforestation, soils, or vegetation.

Source: Global Carbon Project.¹

¹ <https://ourworldindata.org/co2-emissions>.

No doubt, a quarter-century is a timespan long enough to evaluate the effectiveness of a public policy, even more so in the case of the ecological crisis, as the urgency to take decisive action in this regard is obvious. The question then is: have emissions declined?

This graph is worth more than a million words: no, emissions have not declined.

Rivers of ink have been spilled to debate the reasons for such debacle. Here are some hypotheses: excessive ‘generosity’ in the allocation of the quotas, imperfect information, ubiquitous corruption, design flaws, regulatory shortcomings. Nonetheless, the result – which is the most important thing – is crystal clear: placing the market as the pivot of economic and climate policy does not lead to a decline in emissions, but to further increases. An unredeemable fiasco. Being aware of this, we can proceed to pose the question of the convergence between workplace struggles and climate justice today.¹

The Working-Class Roots of Political Ecology

Before reaching the heart of the matter, two warnings are in order. The first concerns the fact that the ecological transition ‘from above’ suggests a compatibility – more: an elective affinity – between environmental protection and economic growth only at the condition of relegating the labour movement, with its social function of contrasting inequality, to the margins – or, worse, to the role of an actor resisting change in the name of the protection of ecologically unsustainable jobs. The subject of the green economy is the ‘self-entrepreneur’: daring, enlightened, smart. *His* innovating charge, in fact, springs from an indifference towards the shackles posed by intermediate bodies (unions in the first place) and the time-wa-

¹ By climate justice, we mean a perspective that sees global heating as a symptom of inequality on a planetary level. Such inequality can take two forms: between the Global North and South (that is, between the countries that have more responsibilities for creating the problem and those that are most exposed to its detrimental consequences) and between the social classes (the responsibilities for investments in fossil fuels, similarly to their impacts, are not equally distributed in this respect too). The earliest versions of climate justice – in the late ‘90s – emphasised the first form. Since 2019, however, there have been more attempts to articulate both forms in an international and social critique of ‘fossil capitalism’

sting red tape of institutional mediation, particularly democratic practices. This generates a tendency – second warning – to assume that the cause of labour and that of environmentalism are hopelessly at odds. The underlying idea is that the job blackmail – “Your health or your wage” – is essential to the fate of industry.

Such narrative has been given a certain historiographic legitimation but, even if the latter is not completely false, it is certainly partial and far from innocent. Dating the first widespread politicisation of the environmental question to the period between the late 1970s and the early 1980s – that is, after the great cycle of struggles of the “Fordist” phase – is in fact an implicit internalisation of the defeat of the so-called Long 1968, an extraordinary season of mobilizations which had pointed to economic democracy as the necessary condition to contrast workplace environmental degradation – including air, soil, and water pollution – in some cases eliminating it completely.

To avoid any misunderstandings, let us clarify that there is no way around the fact that such defeat happened. It is however legitimate to question its putative inevitability. Furthermore, the constant deterioration of the material bases of the biosphere’s reproduction makes it extremely urgent to look at that historical turn from a new perspective. The marginalisation of the labour movement, in fact, has not come with the eradication of industrial noxiousness. Despite decades of climate negotiations, over the last thirty years, the amount of greenhouse gas emissions has exceeded the total produced between the 18th century and 1990. It is necessary to break free from the fetish of a complicity between capital and the environment to open the space to (re)link environmental and labour movements. This is – in a nutshell – what we need, and it is perfectly exemplified by the Plan for a Public Hub for Sustainable Mobility. Against this background, reinterrogating the conflicts around noxiousness that took place between the 1960s and the 1970s allows to demonstrate that the ecological question became widely politicised *thanks to*, not *in spite of*, the labour movement. It was in the wake of harsh and innovative disputes such as those at FIAT’s painting units or Montedison’s chemical plants that the

issue of a healthy environment – first in the factory and later in the territories surrounding it – was turned from a technicality into the political stake of trade union and social movement struggles.

We can use the evocative formula ‘working-class environmentalism’ to designate the constitution of a partisan knowledge focused on the workplace. The latter thus became a peculiar type of ecosystem as the working class turned it into its ‘natural’ habitat, ending up knowing it better than anybody else. It is not by chance that the conflicts against industrial noxiousness were the first to fiercely criticise the so-called ‘monetisation of health’, that is, the notion that wage increases and bonuses could compensate for the exposure to toxic substances – sometimes deadly – and other forms of occupational hazards. It was around the impossibility of indemnifying health damage that key figures of those battles – such as Ivar Oddone in Turin and Augusto Finzi in Porto Marghera – centred enduring militant campaigns, whose trail is easily recognisable in the 1978 health reform, which established Italy’s national health service.

Two important elements must be added to the picture. The first is that the struggles against industrial noxiousness would not have had such a disruptive impact without their connection to broader mobilizations asserting the importance of social reproduction, thanks to the developments of feminist thought. The second aspect is that the labour movement did not manage to reach a unified strategy: there rather emerged a tension between the perspective of a ‘redemption of’ wage labour – supported, for example, by Bruno Trentin, who at the time was the secretary general of Federazione Impiegati Operai Metallurgici (FIOM), the largest metalworkers’ union – and that of a ‘liberation from’ wage work, embraced by the workerist organisations such as Potere Operaio first and Autonomia Operaia later.

We think it reasonable to suppose that the incapacity to reconcile these two options around the common demand for a reduction of the working day (with no wage cuts) was a significant element in the defeat of that cycle of struggles. Instead of a working-class power on the qualitative composition of production, what occurred was capital’s violent reaction: fragmentation of labour, retrenchment of the welfare state, accelerated financialisation, as well as – envi-

ronment-wise – the ecological transition ‘from above’ we have just outlined. However, as the failure of such strategy becomes manifest, the game reopens. The memory of the struggles of half a century ago takes on a renewed relevance today and the question of the convergence between workplace disputes and climate and environmental mobilisations reveals itself as an extremely timely one.

“Converge to Rise”, in and Against the Ecological Crisis

The defeat of the Long 1968 propelled us into a world of *noxious deindustrialisation*, a phrase that designates employment deindustrialisation in areas where significantly noxious industries are still operating. According to the recently updated estimates by the ILO, the global share of manufacturing employment has slowly but steadily declined from 15.6% in 1991 to 13.6% in 2021. Over the same period, fossil fuel-generated carbon emissions – which include those from devices produced by industry but used in all other sectors and by final consumers – increased from 23 to 36 yearly billion tonnes (as shown by the graphic in the Introduction). Furthermore, between 1991 and 2018, the emissions generated by industry directly shifted from 4.4 to 7.6 billion tonnes according to Climate Analysis Indicators Tool. In sum, the logic of profit resulted in both (relative) job losses in the factories, with the precarisation of employment that usually follows them, and in the deepening of environmental devastation.

The unprecedented temperatures, droughts, poor harvests, melting glaciers, and deaths caused by extreme weather that we witnessed in 2022 are the umpteenth confirmation that the situation is dramatic. We are *in* the ecological crisis, not merely as the victims of the highly unequally distributed impacts of environmental devastation along class, ‘race’, and gender lines on a global scale. We are in the crisis because, in our society, the subsistence of the working class depends on capitalist work and therefore most people depend on the infinite growth of commodity production. In this sense, the job blackmail does not concern highly noxious productive facilities only, it is rather an intrinsic

and transversal property of capitalism, which appears with variable levels of intensity in different contexts.

To pose the question of how to strengthen an environmentalism from below, we think it useful to update the method of class composition analysis along three lines: 1) an expanded conception of the working class, defined by the compulsion to sell its labour power; 2) a conception of work including both production and reproduction; 3) a conception of working-class interests encompassing both the workplace and the community (or territory).

Firstly, we consider as part of the working class all those who – dispossessed from ownership and control of significant magnitudes of means of production – live under the compulsion to sell their labour power, both for the production of commodities and for the reproduction of additional labour power, independent of whether they find stable buyers or not. Even if this conceptualisation excludes the middle class – to which capital delegates some responsibilities in the management of society – it is nonetheless broader than the narrow dominant views; broad enough to include the unemployed, reproductive workers, informal workers, subordinated intellectual workers, and dependent self-employed workers.

Secondly, following social reproduction feminism, we define as capitalist work all those activities – waged and unwaged, directly productive and reproductive – explicitly or invisibly subordinated to capital accumulation, regardless of the economic sector. The dispossessed, in fact, work either in the making of commodities (directly productive work) or in the non-directly-commodified making and maintaining of an employable workforce for capital (reproductive work). The distinction between directly productive and reproductive work is determined not by different types of concrete activities, but by the ‘frontier of decommodification’.²

Thirdly, we see working-class interests as related to both the workplace and the community or territory. The distinction between workplace and community – similarly to the one between

² For example, food is necessary to the reproduction of the workforce. Yet, growing food for an agricultural company is directly productive; cultivating it for self-consumption within a capitalist context is reproductive.

production and reproduction – is not based on different physical spaces but on social relations: the workplace is the domain of ‘workers-as-producers-or-reproducers’ while the community is the sphere of ‘workers-as-reproduced’.³ Working-class interests are often conceived as workplace-centred (job security, high wages, health and safety, etc.). No doubt, wealth redistribution via higher wages for shorter hours would help to overcome the jobs versus environment dilemma by reducing the need for jobs in the first place. Yet, in any case, workers do not disappear after leaving their workplaces. To the contrary, they return to their neighbourhoods, breathe the air outside the factories and offices, enjoy their free time by relating to the ecologies surrounding them. Working-class interests, then, do not involve only workplace rights, but also the conditions of their communities (consumer prices, welfare services, healthy ecologies, etc.).

The triple expansion of working-class, work, and working-class interests proposed here is meant to overcome those perspectives that reinforce the job blackmail. In fact, if ‘real’ work is waged and industrial only and thus the ‘real’ working-class is disproportionately male (and white, until recently), and if ‘real’ working-class interests mainly consist in keeping one’s job as it is, a way out is beyond reach. Such impasse further deepens if community mobilisations are seen as devoid of any class content, as if the inhabitants of the mostly working-class communities affected by severe environmental injustices did not have to work for a living. Conversely, an inclusive understanding of such concepts lends itself more easily to the building of coalitions among workers differentially located within the gender–race–class system.

In workerist theory, the ways in which workers are deployed, segmented and stratified in the workplace through different economic sectors, labour processes, wage hierarchies, commodity chains, etc. constitute the technical composition of the working class,

³ In some cases, a physical space is both a workplace and a community milieu to the same people. For example, the home is both a workplace for reproductive work (or for productive work too, as in remote working) and a community milieu. In others, a physical space is a workplace to some and a community milieu to others. For example, a hospital is the workplace of its employees and a community milieu for its patients.

its 'objective' side. The political composition of the working class, instead, indicates the extent to which workers as a class overcome, or not, their divisions to assert their common interests vis-à-vis capital. This is the 'subjective' side, made up of workers' forms of consciousness, struggle, and organisation. Seth Wheeler and Jessica Thorne usefully proposed to update this frame by adding the social composition of the working class, that is, the ways in which workers are reproduced in the community, for example through family, housing, welfare, and health regimes. The objective side of class composition is then bifurcated between technical composition (related to the workplace) and social composition (related to the community).

From this perspective, it is possible to analyse how the working class is segmented also in relation to environmental degradation. For example, the fence-line communities living by highly polluting industries are often disproportionately composed of the most disadvantaged ranks of the working class, in many cases racialised too, and do not necessarily have widespread access to jobs in the factories. For these working class segments, local ecological transitions would mean a welcome drop in higher-than-average cancer rates and other diseases. For workers employed in polluting industries, though, the situation is different, even if not necessarily irreconcilable. For them, ecological transitions more likely represent a risk of ending up in more precarious and lower-paying jobs.

The challenge of being *against* the ecological crisis is thus that of breaking the blackmail by creating convergences between workplace and community struggles. This step is far from automatic, as the working class is fragmented along a myriad of occupational and residential configurations, an objective reality that too often fuels divisions between trade unionism as the expression of workplace interests and 'environmentalism from below' as the expression of working-class community interests. It is about striving to re-compose such segmentations politically, building platforms of demands to articulate together workplace and community struggles.

Conclusion: The GKN Dispute and the Ecological Transition *From Below*

The struggle of the GKN Factory Collective is a key step in the construction of an alternative to an ecological transition ‘from above’ that – as it does not question the system that produced the crisis – does not have much to offer in the way of real sustainability. In fact, recovering the red thread of working-class environmentalism, the Collective gave a practical, militant demonstration that the convergence of workplaces and territories around the watchwords of climate justice is a viable strategy. Their innovative approach was in fact able to generate broad mass mobilisations, repeatedly bringing to the streets tens of thousands and thus managing to alter restructuring plans that have not encountered impactful resistance in comparable situations elsewhere. Such process goes beyond the fate of the factory itself, as indicated by the joint statement by the GKN Factory Collective and Fridays for Future to launch the great demonstrations of 25-26 March 2022:

A real climate, ecological, and social transition cannot disregard the capacity of a society to establish comprehensive and sustainable forms of planning. And such planning cannot be generated through workplace blackmails and hierarchies or in the oppression and repression of the communities – as it has been the case for years, for example, in the Susa Valley – but it must come from an awakening of radical, participative democracy.⁴

Such words grasp the systemic dimension of our predicament. Commodification, in fact, is a wedge separating capitalist

⁴ GKN Factory Collective and Fridays for Future, 2022, “25-26: Una sola data.” Another instance of such awareness can be found in the joint statement by the GKN Factory Collective and Fridays for Future calling for the second double date of convergence (the climate strike of 23 September 2022 and the national “Converge to Rise” demonstration of 22 October 2022 in Bologna): “The drought, the melting of secular glaciers, and the ever more intense heatwaves are the dramatic confirmation of the changes engendered by global heating. We are constantly struggling to reach the end of the month, against precarity, against outsourcing, against inflation, and for a dignified wage. However, the struggle for the end of the month has no sense if we do not win that against ‘the end of the world’ And it is impossible to get increasing shares of the population involved in the struggle against the end of the world if we do not join it with the struggle to reach the end of the month.”

production from life reproduction and subordinating the latter to the former. Profit does not rely on infinite growth only, but also on the capacity to produce things that people will buy. However, market consumption choices are intrinsically individualist and short term, while democratic planning is collective and potentially far-sighted. The conversion plan drafted by the GKN Factory Collective and their solidarity research group is an example of how such apparently faraway horizons can encounter, even in today's unfavourable political conjuncture, a concrete outlet: nationalisation under workers' control for the creation of a Public Hub for Sustainable Mobility.

Together with the qualitative dimension of decommodification, the quantitative, distributive aspect related to income levels and working hours must also be tackled:

We demand a reduction in working hours with no wage cuts, so that work quotas be equally redistributed across the population. It is possible to work less if everyone works, and it is a right that every worker, of today and tomorrow, should fight for.⁵

Indeed, the rising prices of food and energy over 2022 – which have generated a wave of mass mobilisations and revolts in manifold countries (Peru, Ecuador, Panama, Sri Lanka, Sierra Leone, etc.) – confirmed that no ecological transition will be possible without wealth redistribution on a global scale.

Thus, here are the key elements of an ecological transition 'from below': decommodification of production, reduction of working hours, redistribution of wealth. The convergence between workplace and community struggles, of which the GKN dispute is an example, will be a crucial node for the broad mobilisations necessary to reach the end of the month while moving beyond the end of the world.

⁵ Ibidem

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Bue Rübner Hansen

“Batshit Jobs” - No-One Should Have to Destroy the Planet to Make a Living

(An in-depth look at workers’ participation in the climate and ecological breakdown, and how this might be transformed into ecological care, and leveraged for change.)

For too long, we have related to climate change mainly as consumers and voters. We have been responsabilised as meat eaters and airplane travellers, we have been urged to vote for the party with the most green agenda, but we have never been addressed as workers. This fits well with the general idea that consumers and voters have power and responsibility, while workers... well, they just have to get on with their work.

However, this pattern is starting to change. First future workers started striking at their schools, now they are calling adults to join a worldwide strike for the climate. The Green New Deal has risen to prominence with its promises of a world of sustainable jobs, and a new report argues that a carbon-neutral economy requires a massive shortening of the work week. Yet there is little discussion about the work that destroys the planet, in a variety of different locations from tar sands and coal mines, over agro-industrial landscapes to downtown skyscrapers and airports, on cargo and cruise ships. Sometimes we hear of coal miners protesting pit closures, or

unions demanding subsidies for steel and auto industries, but we rarely hear of the guys pushing oil stocks at Wall St., the engineers designing the next pipeline, advertising agencies pimping mass consumption, or the professors teaching the next generation of petroleum geologists. Some workers could leave their jobs fairly easily, and others are deeply dependent on the next paycheck. These workers have an interest in habitable environments, but are caught in a maddening contradiction, asked by their employers to destroy the conditions of life in order to make a living. We are habituated to think of this as normal, even rational, but it's time to say openly that it is madness, and to start from there. No one has the right to do such work, and no-one should have to do it.

Techno-fixes and government action might come, but we would be foolish to rely on it being sufficient and timely, or even happening at all. The clock is ticking; climate emergency and species extinction are already in process, and so far every solution imagined by engineers and technocrats has been incapable of even slowing the countdown, and green growth remains a pipe dream. In this situation of urgency, we may thus ask: How can people within and outside destructive industries develop a common interest in abolishing the work that destroys the planet?

From Bullshit Jobs to Batshit Work

A few years back by the anthropologist David Graeber coined the term "bullshit jobs" to speak of work that workers themselves characterize as pointless, meaningless or socially harmful. Low-level service work, corporate paper-pushing, and ballooning layers of PR and HR staff inventing tasks for themselves and others are some examples. Graeber points out that bullshit jobs put workers under psychological stress, because they feel they are wasting their time and efforts, yet depend on the work for income. While bullshit jobs can be boring and depressing, they are not insane. Work that contributes to destroying the climate and environment is. We might call such work batshit work, playing on the American slang expression for madness. To call this work mad does not mean that workers are

crazy to make a living, but rather to point out that a crazy contradiction arises when making a living is also a part of unmaking life on many scales: becoming sick from pollutants, destroying local environments, destabilizing the global climate. This can be described as a kind of systemic madness, a contradiction not only between capital and labour, but within labour itself. Most businesses and consumers participate in the systemic bind of this economy: it is madness to let it continue, yet for consumers and companies set up to pursue cheap goods and business opportunities, it appears equally mad to renounce it. This reveals an important difference between batshit work and the bullshit jobs. Whereas bullshit jobs create little of value, batshit jobs are necessary for the production of most of the commodities we currently consume as well as to capitalism itself, making its abolition a much more radical and complex proposal.

The reason Graeber's approach remains useful for thinking about batshit jobs is that it is a provocative invitation to workers to re-evaluate the work they do - thus Graeber builds his book about bullshit jobs around workers' own testimonies. Rather than make an external judgement about a specific type of work, the concept of "bullshit jobs" invites workers to think about the contradiction within the work itself. It speaks to the doubt that people may already have - is what I am doing meaningful? - and invites them to imagine a future without meaningless work, and to think about how they might fight for it. This approach understands that workers' relation to work is nearly always ambivalent, and that the construction of interests depends on more than purely economic factors. Batshit work has always been marked by a different ambivalence, the profound meaningfulness of providing for oneself and one's family and degrading natural environments or one's own body in the process. As Nic Smith, a self-declared "hillbilly from Coal Country" said to a journalist:

"There's this misconception, especially with y'all in liberal media, that this 90% of people are just ignorant about climate change, ignorant about the effects of mountaintop removal and all the health effects. Keep in mind we're the ones getting cancer from the coal mining practices, not y'all, so we can kinda speak on that matter."

Unavoidably, the ambient awareness of climate change and pollution is affecting mental health. People worry, or despair at being caught in this bind between working for life and causing death, while others repress or foreclose such awareness. This does not mean, of course, that there is agreement about the problems, their sources and solutions. Rather, it suggests the existence of tensions and conflicts within individuals, communities, and between generations. And how could it be otherwise within a class putting its own bodies, minds and lifetimes on the line for other people's plans and profit?

Some Genealogies of Batshit Work

Batshit work is as old as employers and slavers demanding that their workers participate in the destruction of natural and social ecologies, but it has taken centuries to recognize that its harm has planetary implications. From the beginning, batshit work has been central to the spread of capitalism, defined as an economy built on infinite growth, propelled by competition between firms and states. The historians Marcus Rediker and Peter Linebaugh have written eloquently about the enslaved Africans and the European workers who built the ports, cleared the forests and planted the plantations of the American colonies, and how they sometimes resisted the work, or fled it to create maroon communities or live with indigenous people. It was the hands of coal miners who freed up the energy that fed the industrial revolution, but coal miners also fought within and against their work - and because coal indispensable to the whole economy, they were able to win many of their struggles. As Timothy Mitchell has argued, the structural power of coal miners played a significant role in the creation of democratic economies based upon the distribution of the fruits of fossil-based industries (Timothy Mitchell, *Carbon Democracy*, Verso). It was slow, workplace and community-based organizing and mass action that socialized the demands for the 8-hour workday, workfree Saturdays and social security, and the conditions for the laws that implemented them. As late as the winter of 1974 striking coal miners forced the British government to impose a

three-day week to conserve electricity, and played a big role in the Tory government's downfall later that year.

The 19th century also saw a literal "batshit industry" develop on Pacific islands along the coast of South America, as detailed in Gregory Cushman's global ecological history of the guano trade (Gregory T Cushman, *Guano and the Opening of the Pacific World*, Cambridge University Press). Here entrepreneurial colonists set thousands of workers, mostly indigenous, to work digging, hauling, and transporting bat and seabird droppings. Guano was needed to fertilize the European, Australian and North American fields, many of which suffered from depletion after long over-exploitation, as well as for the production of gunpowder. When many of the habitats from which guano was gathered had been depleted and destroyed in turn, agriculture turned to waste products from industrial slaughterhouses, the mining of nitrates, phosphates and potassium, and then to synthetic fertilizers based on natural gas. The global transport of first batshit and then artificial fertilizers helped maintain an unsustainable, but profitable model of agriculture, which in turn fed the workers in the industries of the North. As Cushman explains, "By jump-starting these revolutionary trends, the exploitation of Peruvian guano and nitrates during the guano age played a supremely important role in bringing an end to the ecological old regime and its replacement by a new industrial order based on throughput."

This transformation enabled a gradual decoupling of agricultural production from nutrient cycles, and exponential urbanisation. As the seeming importance and everyday proximity of ecological interdependencies declined among workers, they came to share a perception of nature close to that of industrialists and big landowners: the idea that nature is a depository of resources, external to man. Moreover, unions soon saw that the pillage of nature expanded companies' profits and thus the space within which wage gains could be won, without endangering the company's competitiveness and thereby jobs. In short, the interests of capital and sections of labour in the exploitation of nature were increasingly aligned. A profound tension arose between workers who developed a masculine pride in being at the forefront of the conquest of nature

and the expansion of “civilisation” and the workers in the colonial and neo-colonial zones who maintained a relation to the land as they were asked to degrade it.

Varieties of Batshit Work

The examples of guano – a renewable organic compound – and of the historical role of coal miners – suggest that we cannot understand what’s “batshit” about work simply by looking at what is produced or extracted. We also have to look at how this happens and what economies it helps propel. Even renewable energy production can be “batshit” if it feeds the ever-increased energy needs of capitalist production without replacing fossil fuels, and even batshit work is a potential site of political demands that exceed it. Batshit work varies. In some jobs it takes up the full workday, other times it is merely some part of it. Sometimes environmental degradation is essential to the task, sometimes the task could be done differently, and sustainably. Sometimes workers have so much power they can transform whole societies by interrupting production and grounding industry to a halt. Other workers work, like the guano workers of yore or the coltan miners today work under colonial conditions, without protections and with the constant threat of poverty, debt, ready replacement and even force. Some workers, like foremen and engineers, are well paid and command the work of others. Some workers suffer anti-social work hours and direct pollution, others the comforts and stresses of office life. Some workers are bound to communities and mortgages in regions where mining or the local airport is the only game in town, others travel the world prospecting potential oil fields. Given that most of us take part in a division of labour bound up on extractivism and fossil fuel burning, we might all ask what parts of our work are batshit work or help sustain it. Thus, even if some types of work are definitely batshit, batshit work cannot be easily delineated from other types of work, nor can the responsibility to end it be assigned to others.

The reasons for engaging in batshit work are far from irrational: such jobs provide an income, and often an identity and a sense

that one is contributing to society. All this can make organizing batshit workers exceedingly difficult. As a long term climate justice organizer told me:

I've spent hours and days talking to miners in West and East Germany. They fucking hate us with a passion, and with good reason. The problem with them is not that they work batshit jobs; it's that the energies and resources necessary to shift them from active opponents to at least undecideds may be far greater than that required to neutralise their opposition.

Such strategic thinking is essential as environmental movements prioritise their efforts. But these efforts, even when they don't prioritise addressing batshit workers, have repercussions among them. Especially among younger workers, the growing awareness that batshit work is unsustainable and harmful will have effects. The “proud coal miner” trope has come to represent all workers in environmentally destructive sectors, but within the heterogeneous world of batshit work, doubt and ambivalence will spread in an uneven way. All workers are all more than workers, and their interests and subjectivities irreducible to their role as workers. This raises the question of the internal divisions of batshit workers and shifts our attention from any abstract notion of “the working class”, towards a reflection on how they are affected by batshit work and its gradual social delegitimation, and how best to relate to that strategically.

Generation-Fuck-My-Job?

Understanding the specific physical and mental, social and ecological harm caused by different forms of work is not just up to public health specialists, social workers and scientists estimating the climate impact of whole industries. It's also a question that they themselves and the affected communities of which workers are often a part are asking themselves, and which we must ask ourselves. In short, we will need workers' inquiries and co-research to understand batshit work better. The advantage of starting

from workers' own experience is that it helps us understand what their attachment to their work consists in, how it might be undone, and the work of inquiry itself might provoke discussions among workers, or changes of mind. More broadly, it will help us better understand and find allies within the generational and gendered dynamics at play, between, for instance, the workers invested in traditional worker's masculinity, the women supporting unemployed miners on their teacher or care-worker wages, and the young people looking for alternatives to black lung and planetary disaster. Importantly, more and more batshit work is carried out under precarious conditions and within unstable communities, rather than within historic and tight-knit union-job mining towns.

In 1960s Italy, a generational gap opened up between older factory workers and a new generation of workers. While the older generation took pride in providing for their family and developing the booming Italian economy, the younger generation rejected boring repetitive work, and the authority of foremen and bosses. Unlike the parents' generation which had been brought up on discipline of fascism and the deprivations of war, the experience of factory work was profoundly dissonant with the cultural experience of the 1960s, and so young people began to refuse work en masse, starting with absenteeism and sabotage, and ending with many opting for a life of rich sociality and intermittent work over secure employment and nuclear family life (For a fictionalised reportage from this generation, see Nanni Balestrini's *We Want Everything*, Verso). Today, a generational dissonance is on sharp rise in many countries (Keir Milburn, *Generation Left*, Polity 2019). As the climate emergency and ecological collapse intensifies, we are likely to see a similar dynamic among young workers in batshit industries, but also between older colleagues of the same age, like the bird watching enthusiast and the car lover, and within workers themselves (In the Italian case, an interesting portrayal of such a contradiction can be found in Elio Petri's film *The Working Class Goes to Heaven*). In short, the question is not whether the balance between economic and ecological interests will shift, but how, what can be done to accelerate this process, and what struggles might come out of it.

The rest of this article will deal with various possible responses to these questions, from union and political demands for Just Transition or a Green New Deal, to campaigns that ecological awareness and interests starting from a conception of workers as more than workers. What is at stake is not just bringing as many workers as possible on board with a just transition, but also finding ways in which they might come to use their structural power to fight actively for such a transition, rather than against it. Collectively, workers know every nook and cranny of batshit industries, they know the points of leverage where an industrial process is most vulnerable to the disruption of strikes, blockades and sabotage. Individual workers can throw spanners in the wheels, lessen their efforts, call in sick. Collectively workers can fight to increase wages and lower profits, and grind whole industries or logistics chains to a halt. But as long as workers' interests remain aligned with capitalist profitability at any cost and so with extractive and polluting industries, they are likely to use their power to demand a greater share of the spoils, and so an expansion of the economy of spoilage.

The Paradoxes of a Just Transition Away from Batshit Jobs

Workers in heavily polluting industry are typically portrayed as backward-looking and resistant. To many, they epitomize the contradiction between labour issues and the environment. And true to this diagnosis, some unions have fought closures of batshit jobs tooth and nail, and lobbied politicians to expand their industries. But most unions realize that moves towards a carbon-neutral economy will have to happen whether workers like it or not. Thus, during recent decades, the idea of a "Just Transition" has emerged as the key to resolving this issue in practical and ideological terms.

The idea of just transition goes back a long way. In the mid 1970s, Lucas Aerospace workers facing peace-dividend-driven redundancies collaborated with radical researchers to develop the so-called Lucas Plan to use their skills and company for socially and environmentally useful purposes and (as Boggs set out) si-

milar attempts were made by US and German Green and peace activists in the 80s, drawing on the inspiration of the GI Bill which helped demobbed soldiers to access welfare, education and subsidised housing to readjust to civilian life after WW2. In the early 1990s, Tony Mazzocchi of the Oil, Chemical and Atomic Workers International Union (US) took this idea to environmental labour politics with his proposal for a “Superfund for workers”, which would fund the retraining and reskilling of workers displaced by environmental protection policies. Soon, the terminology shifted to “just transition”, which was adopted as a union demand in the first unions by the late 1990s, and by international trade union confederations in the 2000s, most visibly in their negotiating papers for international climate conferences.

Apart from reskilling and temporary unemployment support, just transition proposals typically entail demands to secure alternative jobs for workers, to protect their social rights (especially health and pensions), and policies to boost overall employment opportunities, in the overall economy or in the specific communities facing closures of polluting industries. Just Transition proposals are designed as tools in defensive fights against the negative consequences of “free market transition”. Sometimes a negotiated solution is sought with governments or employers, while in other cases, although more often related to financial failure than to environmental regulation, workers take over companies and transform production. Some recent examples are the New Era Windows in Chicago, the tile factory FaSinPat in Neuquén, Argentina, and the soap factory Viome in Thessaloniki, Greece.

The discussion of Just Transition focuses on two questions: how to avoid the negative consequences of “free market adaptation” or how to convince reactive workers to accept transitional measures? In other words, Just Transition proposals are almost always responses to situations where “unjust” transition is already happening, regardless of workers. While such proposals typically involve a vision of a better and more sustainable world, demands for Just Transition are – at least from what my research shows – rarely if ever leveraged within workplaces that are not already

scheduled for closure or regulated out of existence. Meanwhile, governments and employers have been exceedingly reluctant to close profitable industries regardless of their massively destructive effects. When they do push ahead with closures of mines and coal plants, environmental reasons are often an afterthought. When the Thatcher government closed down the pits through a violent war against mining communities in the 1980s, the key aim was to break their political power, which had long kept Tory governments in check. In recent decades, the decline of coal mining in the United States has had more to do with the rise of natural gas from fracking, cheapening of imported coal and renewables than with any government "war on coal". In such cases, mines have become so economically unviable that worker's demands for compensation have had little leverage. In a recent report from the Labour Network for Sustainability, American trade unionists report that many workers respond to Just Transition with a weariness similar to that of British miners on the subject the "regeneration" of former mining areas: as a euphemism for job-losses and community decline. Without denying the importance of single-company transitions, Tadzio Mueller points out that "there are no examples of rapid, sector-level Just Transitions that are actually considered just by those who are dependent on these extractive industries." After nearly thirty years of existence, and twenty years of increasing prominence, this is not a great track record. Mueller draws the controversial, but incontrovertible conclusion:

by all means, let's continue to search for convincing Just Transition-policy proposals. But let us always be clear that these industries need to be shut down rapidly, whether or not such proposals emerge. Anything else would turn Just Transition into the "green economy" of the left, creating the illusion that economic growth or the expansion and/or maintenance of good industrial jobs in the global North are compatible with stopping runaway climate change.

The Green New Deal

The recognition that even free market transition is neglected and "predatory delay" common, has shifted the discussion from organized labour's capacity to shape transition to the project of getting politicians elected to carry out transition in the first place. Hence the increasing interest in proposals such as senators Bernie Sanders' and Jeff Merkley's "Clean Energy Worker Just Transition Act" and the "Evergreen Economy Plan" by democratic presidential candidate Jay Inslee, and most prominently the Green New Deal, promoted by the Sunrise Movement and Alexandria Ocasio-Cortez. This is no doubt an important development. The Green New Deal is not just a plan, it has created a sense of hope and purpose among many, and opened the question of just transition as a political battlefield in which technical questions of transition are deeply intertwined with questions of political strategy and social movement mobilisation, as pointed out by Thea Riofrancos. Because without social mobilisation, the Green New Deal is likely to come to nothing.

Just Transition and Green New Deal proposals suggest that the contradictions between workers' economic and ecological interests can be overcome by a profound transformation of work. However, as long as workers' economic interests in batshit work are more clearly articulated and organized than their ecological interests, the known world of batshit work will win out over the promised world of a green and just economy. Thus coal miners might find Trump's promises to restore what they know more realistic than Sanders' promises to create a new economy. And - even more problematically - we need to discuss what transition means in scenarios and places where Green New Dealers do not win elections, including places where there are no elections. While it's possible that governments and growing sectors of capital will increase their interest in transition, experience and science tells us we would be foolish to rely on it.

In this context, it is useful to remember that the original New Deal was not government's response to the "objective" crisis of the Great Depression. As Lisbeth Cohen and Rhonda Levine have shown, the Roosevelt administration was only forced to under-

take a profound social reform of the state because workers and unemployed people turned the economic crisis into a socio-political crisis, by organizing, striking in workplaces and blockading government offices. With these actions, trade unions became an unavoidable interlocutor to the state and employers, and so the political conditions for a deal were created. This brings us back to the question of how more sustained power can be built, starting from workers and communities, and more specifically: what leverage can be built within and against batshit industries, especially those that are not scheduled for transition? Unlike the old New Deal, which found ways to re-integrate workers into an economy of mass consumption – what Brand and Wissing call "the imperial mode of living" - what is required today is the restoration, creation and valuing of social, subjective and environmental ecologies. But how?

Workers and Communities

In a world torn by inequalities and hierarchies, the idea of "common human interest" is a pious abstraction. Ecological interest building starts from where people are at, works actively to break down hierarchies and inequalities, and treats people's specific life situation in social networks and workplaces as potential sources of resistance and power. The strength of Just Transition is that it meets workers and their communities where they are. It addresses their immediate economic interests, hopes and fears, it raises expectations and offers new horizons. But whereas economic interest is seen as a matter of a present that extends into the future - the jobs that pays today, and will pay off the mortgage, tuition or pensions - ecological interests are typically cast as a matter of the future - in terms of fear of the coming environmental disaster or hope in the creation of a just green economy. It is no wonder that economic interests tend to win out.

To create ecological interests entails treating workers as whole human beings in networks of interdependency (Fridjof Capra, *The Web of Life*), in social, subjective and natural ecologies (Guattari, Felix, *Three Ecologies*). It means going beyond the masculinist

vision of the workers a separate, self-contained, economic and merely self-interested subjects. The condition of being a worker is contradictory, which means that one has to relate to workers non-working lives - the periods of training, illness, unemployment and pension that most go through - and their interests in more rest, sociality and leisure time. As one former organiser with British trade unions told me:

My own experience of talking to workers in polluting industries about just transition and greening the workplace, is that you always find people in every workplace who are extremely keen to talk about how they connect to nature and environmental issues in their non-work lives - their allotments, their bird-watching - as well as their grievances about (for example) the works bus being cut so they now have to drive to their shift work, causing more air pollution. In both the positive and negative examples, they're the people who know best how to connect with colleagues on environmental topics, and there's also this sense that people really welcome being seen as more than just a worker, as humans who have lives and interests and communities outside work, that they're invited to articulate and connect to their work.

Batshit work is not merely an income, it has costs for the workers themselves: to their health, their free-time, and to the ecologies which they enjoy and depend on. To take this seriously roots ecological interest in the present. It increases the willingness of workers to challenge the madness they participate in and to demand just transition as a matter of present necessity.

Starting from Affectedness

Pollutants in our lungs and cells, heavy metals in our organs, climate change anxiety nagging at our brains - the impact of environmental damage on our bodies, subjectivities and social relations is becoming easier and easier to see in the here and now. Even climate denialists and techno-fixers are starting to appear mad, ever more obsessive in their attempts to prove that everything is

or will be alright. Starting from this affectedness, from increasing cognitive dissonance or disaffection, is a work that gives attention to the interconnectedness between the body, subjectivity, social relations and natural ecologies, and the way they are all affected by batshit work and industries. Here much can be learned from the environmental campaigns and unions that have worked with communities affected by pollution and environmental degradation.

One example of this is the campaign against the creation of a third runway at London's Heathrow Airport (projected to have a carbon footprint the size of Kenya). This project has mobilized people who live in the villages and suburbs that would be affected by the increased noise or air pollution, or even demolition, and with airport and associated workers, often facing poor labour conditions. There's considerable overlap, of course. .. Citizens' science has played an important role in such campaigns, with citizens and activist scientists developing research aims together and combine scientific measurements of pollution with experiential documentation - e.g. sightings and smells of smog - or helping citizens to install equipment livestreaming sound pollution of Heathrow Airport. By collectively documenting how a polluting industry also affects workers and their families, the basis of transversal campaigns against the polluting industries can be developed. Such campaigns will tend to be specific to a community and workplace. But as the conscious and visceral awareness of climate change and environmental destruction spreads in coming years, such campaigns will increase in scope and power.

Another way to enhance ecological interest is to connect it to the ways people are affected by outsourcing and global wage-pressures. Learning from union and social movement experiences with organizing and acting along value-chains, specific groups of workers can see their place within translocal chains of environmental harm. There are no fossil-fuel based or extractive industries without health and environmental effects, near or far. To connect the sites of extraction and production, the lines of transport and the networks of supply suggests where one might find possible allies - other workers, other affected communities - and points at which the flow may be interrupted. It's also critically

important to avoid eco-nationalism, where proposals for the development of green national economies effectively outsource environmental harm to the countries that supply the indium for solar panels, the lithium for batteries, the neodymium for turbines, etc., while hoarding green tech patents and know-how.

Strike Against Batshit Work

As long as the condition of being affected and worried is individualized, the very act of speaking openly about these concerns can lead to radical results. The key is finding tactics and forms of organisation through which individual worry and fear can be socialized. It was the tactic of a school strike that helped transform Greta Thunberg's individualized worry and depression into a collective struggle. Extinction Rebellion has done this on a mass scale this year, but while its power of direct and viral action is impressive, it's still largely reliant on a conception of activism detached from the everyday. In very different register, Transition Towns have transformed the worry of many townspeople into the joy of doing meaningful things together, like setting up recycling systems, shared solar installations or ride sharing systems. Thus people develop an interest in community, an interest which is both environmental and economic.

The school strikes and Transition Towns are both rooted in the everyday, yet transformative of it. When school strikers strike, they don't merely send a message, they get together with the people they share the everyday with, to teach themselves to see the world differently and act collectively. In doing so, their rejection of inaction is socially rooted in their institutions and neighbourhoods. The rebellion they teach is not just a rebellion against governments and corporations, but within the everyday, against any teacher, parent or principal who wants to limit their strike. Strikes always block the production of something, and the school strikes blocks the production, the education of one of capital's most valuable resources: docile and productive workers and citizens.

Recently, Italian port-workers refused to load a Saudi ship in protest of the Saudi massacres in Yemen. "We will not be compli-

cit", one of their leaders said, revealing an awareness that business as usual is complicity, and that the refusal of complicity is power. Some workers in batshit jobs are lucky enough to have a large degree of discretionary choice in their work. Teachers teaching students for batshit work can, up to a point, change the curriculum, teach it critically, and do co-research with affected groups. Public and private managers can change priorities, and move towards more sustainable resource use and waste disposal. But in general, batshit work is more vulnerable to coordinated and uncoordinated mass action, from official or wildcat strikes and slowdowns, to sabotage and absenteeism, or to non-workers blocking logistical hubs, getting in the way of digging, chaining themselves to trees, or squatting land destined to become airports. Such movements are strongest when communities and wider society give moral and material support to workers, or when workers tell outside activists about the vulnerabilities of their industries. To engage in such actions entails strong networks of mutual aid and solidarity, from legal aid and strike funds, to everyday support for workers who have been sacked for their actions. It also entails the creation of just transition demands as urgent demands of the present.

A World Beyond Batshit Work

A society beyond batshit work means less work, and different kinds of work. A shift to different kinds of work would free millions from the physical and mental burdens of batshit work, and direct our efforts to some of the most meaningful and socially valuable work activities you can imagine: teaching and learning, care work, childcare, restorative farming, sustainable construction, reforestation, and much more. A shorter work week lowers pressure for growth, and for employment to be maintained even as aggregate throughput and labour requirements decline. Less work might mean less material consumption, but not necessarily a lower quality of life – think of the joy of playing games, music and sports, cooking, sleeping, dancing and having sex, reading and learning, gardening and hanging out with your friends, lovers, neighbours and family. A

life built up around care and conviviality would radically decrease the social demand for resource extraction and mass production. This would greatly weaken the power of capital to command our labour and to determine our present, and increase the chance that we may, some day, exit the planetary disaster of the capitalocene.

For unions, such a transition would entail a shift in emphasis from consumption-centred wage-demands towards a list of quality of life demands. Demands for a shorter work week, paid parental, education and care leave, better and free health care, free tuition, affordable housing and green energy, expropriation of empty buildings for use as cultural centres, the transformation of golf-clubs into public parks and workers' allotments, and the creation of a whole sector of sustainable jobs. All this will require a sharp break with the dogma that union-employer negotiations happen within the limits set by a company's or sector's profitability. Indeed, unions should actively raise demands that force batshit industries out of business. This may seem radical, but there is a solid history of unions demanding health and safety standards, an 8-hour workday and the abolition of child labour - while ignoring the laments of those companies that predicted it would hurt their profitability. Why should unions act differently today? Any company that cannot stay profitable while contributing to climate emergency and ecosystem breakdown is an active danger to workers' lives and does not deserve to exist.

But a world beyond batshit work doesn't only require a transformation of work, but also a transformation of production. The technical questions this raises are significant, and bring us back to a crucial role batshit workers might play in transition: like the Lucas Aerospace workers, they have much of the technical and situated knowledge required to transform transformable industries from within, especially if they learn from environmental movements' work with natural ecologies. Repurposing technology and using science to understand natural ecologies can help us develop agriculture, forestry, energy production and waste management that works with rather than against natural cycles. Such work is not only of technical, but also of ideological importance in the fight

against climate denialism and uncritical belief in technofixes and geoengineering. Now and here, alliances between batshit workers and environmentalists can occupy and transform the affective terrains which give climate denialism and eco-modernism much of their persuasive power: the feeling that one knows and trusts what nature is and the experience that science and technology brings hope and possibility. Instead of an essentialism of nature as unchanging and of science and technology as uniformly progressive, we get practices that repurpose technology and science in attention to our embeddedness in the ever-changing ecologies that constitute the web of life.

Batshit work can only be abolished if we all - workers and non-workers - take seriously its toxic effects and the power we hold to refuse and transform it. This is a matter of urgent necessity. This starts with the ways we are affected and can be empowered in the everyday. To be affected with others opens the question of collective action and the route to empowerment and rejuvenated trade unions and social movements. It changes attitudes, behaviours and social relations, in priorities, needs and desires. All of this will greatly increase the likelihood of all the strategic scenarios that Just Transition and Green New Deal proposals count on, from fights and deals with employers and governments, to electoral victories. As we know, class deals require class representatives and mutual recognition between them, and employers don't recognize unions unless they're forced to. Building ecologies and collective power will increase the chances of a planned and just transition. But even if such a transition fails – or until it works – we will need practices of collective resilience, care and solidarity.

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Emanuele Leonardi & Mimmo Perrotta

Interview Dario Salvetti

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Introduction (Nov 7, 2022)

The story of the GKN Workers’ Collective – of how it stopped an offshoring project by occupying the factory and how it galvanized labor and social movements in Italy – has already been told, in English, by Francesca Gabbriellini and Giacomo Gabbuti, on Jacobin USA. Of particular relevance is the precise description of the Sustainable Mobility Public Hub proposal (which is going to be published shortly, by Fondazione Giangiacomo Feltrinelli).

In this interview – conducted on Dec. 21, 2021 – we wanted to better understand the relationship between labor mobilizations (especially the occupation at GKN) and climate justice. In practical terms, this issue started to be posed in September 2021 at the Milan Climate Camp – the radical opposition to the Pre-COP 26 (where Greta Thunberg famously uttered her ‘blah blah blah’ speech) – and continued, with some difficulties, during the protests against the G20-Environment meeting in Rome, on October 20, 2021.

Misunderstandings and different approaches notwithstanding, both the Italian branch of Fridays for Future and the GKN Workers’ Collective kept framing their ‘juncture’ as strategic horizon, and finally things clicked on March 25-26, 2022: the first ‘joint

appointments' of struggles – climate strikes everywhere in Italy on Friday, commonly organized demo in Florence on Saturday.

In terms of numbers, it was a huge success – replicated and expanded to new actors in Bologna (October 22) and Naples (November 5). More importantly, though, is the fundamental political convergence between workers' struggles and climate justice. Such convergence is best appreciated in the two GKN-FFF 'joint declarations'. The first was released around mid-March:

“We will never again allow relocations, layoffs, precariousness to be justified with the excuse of the climate crisis. Nor will we allow a slowdown or detour in the ecological and climate transition to be justified with the defense of existing jobs. The ecological transition, if real, must also measure its effectiveness on time, and slowdown is no longer conceivable. The planet is on fire, from every point of view, and every second wasted is a crime [...] A real climate, environmental, and social transition cannot disregard society's ability to equip itself with comprehensive and eco-sustainable forms of planning. And such planning is not generated in blackmail, in the hierarchy of workplaces, in the oppression and repression of territories as has been happening for years for example in the Susa Valley [where a high-speed train has been resisted by local populations since 1991], but in the awakening of participatory and direct democracy”.

The second launched a moment of collective reflection to be held on July 26 at the Climate Social Camp in Turin:

“The reality is that climate justice cannot be achieved without touching the deepest and most dominant economic interests in society. Climate justice cannot be achieved without clashing against the dense web of economic interests at the top of society. And to achieve it, it is crucial to radically rethink the production and consumption model, which is currently based on a strong power asymmetry. Which implies, among other things: collective ownership of key sectors in order to conduct industrial policy in line with the ecological principles; necessity and sufficiency; lowering the consumption of the wealthiest, thereby protecting

the weakest segments of the population, while simultaneously decreasing the climate burden of consumption of the super-rich and establishing, through redistribution, truly universal welfare measures that recognize the importance of care activities”.

The political relevance of these words cannot be underestimated, in our opinion. Hence, we think it is interesting, now that the ‘convergence’ is a political reality in Italy and that the Sustainable Mobility Public Hub proposal will soon be publicly discussed, to re-assess what Dario Salvetti, RSU [Unitary Trade Union Representative] of GKN, told us back on December 2021.

[minimal history (2022):

March 25/26: first convergence with Fridays for Future, in Florence – 30.000 people.

July 26: participation to the Climate Social Camp in Turin.

October 22: second convergence with Fridays for Future, + Network for Food Sovereignty + Movements against mega-infrastructures, in Bologna – 30.000 people.

November 5: third convergence with Fridays for Future, + Network of organized unemployed, in Naples – 20.000 people]

From Overlapping to Convergence: Workers’ Struggles and Climate Justice at GKN

On Dec. 23, 2021, a new owner bought GKN in Campi Bisenzio, the automotive axle shaft factory occupied by the workers since July 9, following the announcement by the previous owner - the British investment fund Melrose - of the closure and dismissal of all employees. The arrival of a new owner is certainly an important result of the mobilization, which was primarily aimed at safeguarding jobs. However, the future of the plant remains uncertain, starting with what its production destination will be.

[minimal history (2021):

July 9: the factory is occupied.

July 24: first demo, in Campi Bisenzio (FI) – 3.000 people.

August 11: second demo, in Florence – 5.000 people.

September 18: third demo, in Florence – 40.000 people]

During these months of intense mobilization, the workers' collective, with the support of solidarity engineers and economists, has developed – and continues to develop – proposals for a new re-industrialization plan, as part of a Public Sustainable Mobility Hub. The details of the PSMH are not yet fully known. Its political significance, however, is very clear: it is about thinking the necessary environmental planning with the workers' heads, not over them. And it is worth noting that such thinking is based on a constitutive relationship between workers' knowledge and political ecology. The starting point is that one cannot talk about ecological transition without clearly indicating

(i) who has to bear the costs – answer: those whose investment decisions have historically produced the planetary crisis; and (ii) who decides the political direction of the transition itself – answer: the State under workers' control.

Notwithstanding the importance of the first element, however, it is the second aspect that constitutes the greatest originality of the current struggle, linked to the motto *#insorgiamo* [Let's uprise!]. Simplifying, the issue at stake is the ecological dimension of class composition: until now, environmental protection has mostly been thought of in opposition to working-class identity – especially in heavy industrial sectors. Beginning with conflicts like this, however, it becomes possible to reverse the terms of the problem: given the failure of the capitalist green economy (based on a putative compatibility between profit-making and environmental protection), only the workers' political involvement in environmental planning can give an ecological transformation of the production structure a chance to succeed.

We discussed these issues with Dario Salvetti, RSU [Unitary Trade Union Representative] of GKN, on Dec. 21, 2021. Below is a transcript of the highlights of our meeting.

The Encounter Between a Workers' Struggle and Climate Justice Movements

We have always tried to be a factory that has its own opinion on how you produce, what you produce, how much you should produce. We have never had a corporatist approach to the fact that we are a factory in the automotive supply chain; in fact, we have always experienced as a contradiction the fact that we were making a product – the axle shafts – that went on luxury cars and commercial vehicles, so it belonged to a model of development that cannot be ours. We want wages, sure; but we also want a future for our children and ourselves. In addition, the fact that we have been a factory that over the years has held out on the ground of fighting precarity and fighting for our own time off, so for Saturdays, for Sundays, for keeping overtime under a certain degree of control, has meant that many of us could be active outside the plant in various forms, not necessarily militant ones, such as volunteering or teaching football to children. We have always been linked to the surrounding territory, and this for example has also meant our participation in the mobilization against the waste-to-energy plant, which has always been very heartfelt. So even though we knew that we were starting from a very unfavorable terrain – because it is clear that when you are a wage earner who has to organize along union lines, and who has to think first of all about wages and labor rights, and it is clear that it is not on strictly factory ground that you can question the world to which the factory belongs – yet we have always had an interest about ecology.

Then it happened that the environmental issue paradoxically assumed centrality in the narrative of our class opponent – the bosses. So, willingly or unwillingly, we had to come to terms with that narrative. If the automotive sector is facing a social massacre – because we are talking about 300,000 jobs being cut across Europe, 50-60,000 of which are at risk in Italy alone and 5,000 in Tuscany

– this is happening on the basis of a putative ecological transition. This narrative tells us that our layoffs are necessary to protect the environment: in *Il Sole 24 Ore* [the broadsheet of Confindustria, the association of Italian industrial entrepreneurs] a few days after we were laid off, an article came out which basically said “you wanted Greta and now you get layoffs.” So, we had to question whether that narrative was correct or not. In fact, if they said to me, “sign your dismissal and give your daughter a cleaner future,” I would seriously think about it, because I would rather get any other job if a truly cleaner world was on the offer.

In our case, however, this narrative is not true, first of all because the product we make also goes on electric vehicles. At the European level, the need for axle shafts is increasing, because electric cars actually need more axle shafts than some endothermic cars that only have them on the front end. So, once we realized that this narrative was at the very least instrumental, we had to start looking for support in mobilization networks linked to political ecology, looking for groups that were willing first to dismantle that narrative and then – when we found ourselves being fired – to be part of our struggle.

Then there was another reason for meeting with ecological movements, more linked to the actual building of social conflict. All the great cycles of historical mobilization have coincided with a general effervescence in society, which feeds into workers’ conflict – and vice versa. When we found ourselves jobless, that July 9, we reacted by bringing 40,000 people to the streets of Florence on September 18. But a few days after we saw the mobilization around the pre-COP in Milan, with 50,000 people taking to the streets for climate justice. And then we attended the Climate Camp, and we said to ourselves, “these two movements need to add up and push the country toward a general, generalized strike.” This has only partially succeeded at the moment, but we continue to think that this is the way.

For now we are at coincidence, we are not yet at convergence, in the sense that there is a mutual will to build something together, but currently this coincides only sometimes, on given moments, in specific situations, but convergence is something more: it is when my plan of struggle already puts into account that it has to merge

with yours and therefore my deadlines are already yours and we try to make our agendas coinciding. After the September 18 demonstration, unfortunately this convergence has been very laborious, first because in reality not everyone has fully grasped how vital this element is, and second because we are all victims of fragmentation.

Now we would still like to relaunch the Sustainable Mobility Public Hub proposal regardless of the events of the dispute related to the closure of our factory. Right now, a private individual has bought GKN Florence, stating that he will probably sell us back to a company that makes machines for pharmaceuticals, so we would produce something completely different, moreover not with this machinery, which will be taken away behind the promise that more are brought in, with a social effort that is absolutely unnecessary. And it just so happens that the owner coming in is someone who claims to make the circular economy, the green economy, his guiding star. So, whether we like it or not, it is the class opponent who brings the environmental issue directly into our discussions. We are a company that comes from automotive, we are a former-FIAT, and the idea of the Sustainable Mobility Public Hub continues to interest us, we are going to try it all the way through.

The Contradictions of Wage Labour

From that 9 July, first of all we claimed to be employed and work in the very same conditions in which we were previously employed. However, since that balance had been broken – we found ourselves to directly manage the plant for several months –, and due to the strength of the mobilization around us, we were pushed to also discuss what we would like this factory to be producing, and how. Moreover, in our opinion the relationship between production and the environment is very complex: we think that the idea of the compatibility between private capital valorization and the environment should be seriously questioned, even if you produce components for green hydrogen buses. Sure, it is preferable to produce axle shafts for green hydrogen buses than for big diesel jeeps; however, the private capital valorization itself brings you to use the energy, efforts,

and research, in a direction that probably leads to environmental waste, regardless of the product you make.

Just to give you an example: from the union point of view, if there is a night shift, I – as RSU – negotiate the pay increase for night shifts; in this plant we achieved excellent increases, from the union point of view, but they brought to the contradiction that some workers want to permanently work the night shift, because otherwise they can't make ends meet. But if you ask me whether it is normal that a human being spends the night awake, in the factory, or if the night shift is healthy, well, I answer that it isn't healthy and that in a different society nobody should work the night shift and produce axle shafts, not even for the greenest bus in the world. Moreover, it is a scandal that at night you find workers that make axle shafts but probably you don't find the staff at the emergency room in public hospitals.

This is true for environmental issues, too. We are kept within a mechanism in which we cannot decide what we produce. So, in our experience there is first the defense of wage labor as such, a job that does not have the opportunity – in this society – to take responsibility for what it produces. Then there is the wage labor that would like to be made responsible for what it produces. Finally, there is wage labor which acknowledges that many of the things it does are wrong anyway.

Another example: in this plant, we have robots that save you from some ergonomic movements: they represent an improvement, because, in theory, they save you from some physical efforts. However, these robots are designed with the aim of reducing the cycle-time for the production of an axle shaft by one second. Here, as in the industrial process as a whole, your aim is to reduce the time needed. How long does the production cycle last on the machinery? 22 seconds? Your goal is to get to 21 seconds. But is it right for humanity to use research, time, matter, energy, to reduce the cycle-time by one second, as in this case? And then, what for? To give me the day off or to produce more and more?

Environmental issue, more than other topics, allow us to go all the way in this argument, which is a systemic one. Let's talk about

offshoring. Here, they will further relocate the production, but it has already been widely offshored. For our axle shaft, components arrive from all over Europe (except for one component, which is produced in our plant): we assemble it here, and then the axle shaft is moved to Melfi [a small town in Southern Italy, where one of the largest Italian automotive industrial complexes is located], where a car with 20,000 components is produced, and each component is produced with materials that come from all over the world, and then that car is picked and sent to the US. When you face this systemic mechanism, how can you really talk about zero emissions? There is so much possibility of energy and social saving, upstream, even before asking – and then of course I ask myself! – what the exhaust pipe throws out.

A Generative Conflict

Obviously, this is not a militant reality, this is not a political party, this is not a trade union, this is a factory. 400 people, that, moreover, used to have totally different roles within it: some were bosses, some were boss to bosses, some were technicians, some were assembly workers like me, and so on. Anyway, the first reaction of everybody was extremely positive. Of course, the level of consciousness of the RSU, the factory council, is not the same as the whole working collective and the rest of the assembly; nonetheless, our message has never been contested within the factory, it has remained widely accepted, some out of trust, some out of participation, some out of sympathy, and it is something that usually doesn't happen. The element that significantly changed the struggle is the fact that there is a world around this factory, a world that was there even before the layoffs, and we – as union delegates, RSU, factory council, workers' collective – had built a connection with this world, we kept this connection, that the rest of the factory sometimes understood, sometimes not, and sometimes just tolerated.

These months of occupation changed everybody – someone more than others. We had always prepared ourselves for the possibility of the closure of the factory and we introjected concepts such as machinery control, and don't let the machinery go out of

the factory, thus potentially occupy the factory, too. All this in the context of a strong union confrontation. We had all this inside us, we had generalized these ideas within the factory, even before July the 9th. Then, over the following months, many other things have become mature: we stimulated the government, by submitting a bill proposal [to regulate industrial relocation], we overtly talked about nationalization (under workers' control), we felt the need of an industrial plan of ours, and, thus, we proposed how we would like to organize the entire society. An idea produces a balance of forces, a balance of forces produces an idea, an idea produces a balance of forces. If on 9 July we were able only to organize a demonstration between the two roundabouts out here, when we overcame that gate a mobilization took place and it made possible that those ideas you deemed impossible, now seem the only desirable ones. Now a new owner arrives and says "I will save you", and many workers grumble and say: "I wanted the nationalization of the factory, under workers' control". But we haven't lost, because by now we kept the jobs; we need a different balance of forces to take a step further.

Concerning the technicians: ours made themselves available to support our research, our suggestions, the elaborations we asked them, even if they weren't autonomous in their elaboration on these points. The true relationship with technicians was with both the researchers of the Sant'Anna School of Pisa and the group of solidary engineers, as well as with the Network of Italian Workers' Buyouts: they come from outside the factory, and they made themselves available as a network of skills for us. If we ever resume production with an industrial plan of ours, we will find the necessary supportive skills there.

Trade Unions and Environmental Issues

Within our trade union – Fiom-Cgil [the main Italian metalworkers' union] – we had no quarrels on environmental issues, because, unfortunately, these topics are not discussed enough. We are all satisfied with some slogans, which we agree upon, for sure, but they represent just catch-phrases. Nowadays, the idea that envi-

ronment and labour must not be in contradiction with each other is commonsensical for every trade union, except for the most boorish organizations; but we never discuss what this exactly means and how it must be defended day by day. Environmental issues are the same as talking about peace in the world: in principle everybody agrees but, after that, the struggle against the war is much more complex. There aren't quarrels because there aren't points of discussion. Landini [the national leader of the Cgil Union] met Greta Thunberg and appointed her as honorary member of the union, but everything stopped there. Of course, we are talking about big unions, for sure someone realized important works on environmental issues, and probably I don't know them, but they aren't yet part of the common heritage of our organization.

For as far as the Italian automotive production is concerned, the problem is that the main corporation – first FIAT, then FCA, now Stellantis – decided that Italy is not a country for the mass production of cars. And this doesn't change if you move to electric vehicles. You can produce electric vehicles in either Italy or Poland, everywhere. The issue is: what is the balance of forces inside Stellantis, to impose that the production is done with a certain level of rights. The workers of the company are at the mercy of what Stellantis – once FCA – decides.

I don't think that currently there is a clarity of judgment, among automotive workers, about the electric car. There is the hope that sooner or later production volumes will grow again, because, if they really think to radically substitute all the circulating vehicles, at a certain point there will be a lot of work for everybody. But it is not true. Probably many workers don't believe the idea that the electric car will bring them back to sufficient production volumes that allow their plants to survive. And probably I don't believe it as well. And I repeat it, we are puzzled by the very concept of electric mobility. Yet, we are no engineers. Now the electric car seems a way to bring back in vogue nuclear energy, on the one hand for the electric power in the grid, that should be used to charge electric cars, and on the other for the issue of raw materials that are needed. And, finally, there is the problem of the old vehicles as waste to be treated.

Sustainable Mobility and Green Hydrogen: The Elaboration of a New Industrial Plan

In the elaboration of an industrial plan of ours, we firstly elaborated the proposal to produce axle shafts for electric buses, in a network with other plants, and in the context of a direct engagement of the State for sustainable mobility. Moreover, we discussed the issue of green hydrogen. We don't want to accidentally end up doing greenwashing; hence we just advance some hypotheses. The idea of green hydrogen come from the observation of some contradictions. Close to us, in the small town of Pontedera, in 2007, under a public patent, the first ammonia-fueled car was produced. To be precise, it was not a car, but a van for garbage collection and it was zero emission, because in that case the hydrogen is produced from ammonia. Thus, we asked: "excuse us, do these projects, this green hydrogen supply chain you want to build, exist, or not? If it exists, can we examine the relative documents and study what is still missing to start, and if it is truly green or is it only an advertisement? If it is just advertisement, we want to publicly denunciate it, and stop talking about it. If, instead, there is something to elaborate, we are here." In the automotive sector in the Tuscany region around 5,000 jobs are at risk. Thus, our idea is to create a supply chain of green hydrogen, with the start-up projects that exist in the area of Pontedera, that are all connected to the university; hence, starting from public patents, we proposed to build a supply chain that could re-employ these workers and produce green buses, ships and trains. There are projects, money, and announcements – it was said, for example, that the railway line between Florence and the city of Faenza can be powered by hydrogen – but by now these are just announcements.

Editorial note

The Papers Were Publish Formally As A Scientific Text Or An Interview:

Stefan Bouzarovski: Just Transitions: A Political Ecology Critique, dostopno na: <https://onlinelibrary.wiley.com/doi/full/10.1111/anti.12823>

Feola, G., Koretskaya, O., Moore, D.: (Un)making in Sustainability Transformation Beyond Capitalism, dostopno na: <https://www.sciencedirect.com/science/article/pii/S0959378021000698>

Arturo Escobar: On the Ontological Metrofitting of Cities, dostopno na: <https://www.e-flux.com/architecture/where-is-here/453886/on-the-ontological-metrofitting-of-cities/>

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The International Summer School of Political Ecology 2023 explored the growing inequalities and addressed the question why concepts such as environmental justice or just transition are increasingly important in discussions on how to tackle the environmental crisis without deepening inequalities. The main focus of the summer school was on the growing inequalities within and between countries, and tried to answer the questions of how to organise our societies and economy in ways that do not exacerbate these inequalities, and what kind of policies measures should be adopted, which will reduce and eliminate environmental and ecological inequalities.