Sustainability

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The term ‘sustainability’, as used in policy and common contemporary parlance, has a very European heritage, but its meanings and implications defy easy definition. While perhaps most famously the term is used in the UN’s ‘Sustainable Development Goals’, the term has roots in seventeenth century German forestry, where it was used to characterise optimal efficiency in tree planting. Since then, it has come to be strongly associated with questions of how the world’s resources might be better managed to ensure equality, prosperity, and health for future generations in an era of climate change. Anthropologists, however, have identified several intertwining issues with dominant approaches to sustainability that centre around questions of inclusion and exclusion from policies, metrics, and perceived global futures. Whose sustainability gets to count on the global stage? And what, exactly, is being sustained?

This entry identifies four main themes cross-cutting anthropological studies of how sustainability is imagined, enacted, and debated from the lab to the boardroom to the forest and the ocean. First, studies explore plurality in sustainable development, exploring conflicting ontologies and epistemologies of sustainability in diverse milieus. Second, studies address the problem of commensurability: as sustainability is measured and counted, compared and priced, how are diverse beings, contexts, people, and values made to stand in for one another? This leads to the third theme—moralities. Studies have addressed the conflicting moral projects brought about by sustainable development, as people grapple with what should be sustained and why. Finally, anthropologists have explored the kinds of futures that are imagined and made material by discourses on sustainability. Together, these studies form a body of work that refuses to take high-level discourses on sustainability for granted. They push anthropologists to ask how attention to on-the-ground realities might pose alternatives to dominant sustainable futures that remain defined by growth, extraction, and profit.

Introduction

Sustainability is one of the key terms of the contemporary moment—making daily headlines, shaping policy initiatives, business strategies, research grants, development projects, and public visions of what future prosperity and wellbeing in a changing world might look like. In our era of climate change, heat waves, floods, fires, and extinctions, and in the context of the economic, social, and political instability and inequality that characterise the Anthropocene, sustainability is increasingly—and rightly—on the global agenda.

However, the term ‘sustainability’, as it is used in common parlance today and often as the adjective in the phrase ‘sustainable development’, has meanings and implications that defy easy definition. For example, the coupling of ‘sustainability’ and ‘development’ has been so influential to how sustainability itself is conceptualised that any difference between the two terms is very often ‘decisively being let to blur into fuzziness’ (Rival 2017, 183). This coupling has been termed ‘oxymoronic’ because, while ‘development’ often denotes economic progress and growth, ‘sustainability’ usually denotes limits on material

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consumption and production. But despite this, today, the term ‘sustainability’ has becoming all-encompassing of what may once have separately been called ‘development’ or ‘sustainable development’ (Rival 2017, 183).

Perhaps because of this coupling, ‘sustainability’ has come to encompass a dizzying array of initiatives spanning access to water, gender equality, climate resilience, and economic prosperity, to name just a few (Yamada et al. 2022). It is an inherently plural term, used across politics, economics, and ecology. But despite this wide variety of ways and global contexts in which the term is used today, the word ‘sustainability’, in particular but not exclusively in its conjunction with ‘development’, tends to circulate as a tool and a goal of high-level policymaking and intervention. Anthropological approaches have therefore made important interventions, showing the social and political nature of how dominant approaches to ‘sustainable development’ have been constructed, demonstrating the friction with which such approaches to sustainability are articulated on the ground, and exploring how grassroots approaches to sustainability may offer a more hopeful way forward. The breadth of anthropological work on sustainability has therefore worked to challenge top-down approaches that have also been well described in other disciplines. Often occurring in conversation with history, political economy, science and technology studies (STS), geography, and political ecology, anthropological work on sustainability brings together longstanding debates in environmental anthropology and development studies.

To address this breadth of research, this entry begins by exploring how social scientists have understood the historical context of sustainability, before examining how anthropologies of sustainability have noted the plurality of environmental meanings and ontologies that precede and are produced by ‘sustainability’. It continues by describing two main anthropological challenges to the idea of sustainability. Anthropological scholarship has challenged the view that life can be abstracted, measured, and valued in market terms in the interests of sustainability and it has stressed the importance of attention to localised moral conflicts and the need for contextual, embedded approaches to understanding sustainability. The entry ends by reviewing anthropological work that imagines what meaningful sustainability might look like beyond the paradigms of growth, development, improvement, and progress that have harmed so many. In each case, the value of ethnography for ‘understanding what living sustainably means in practice for human societies, and what it does not’ (Brightman and Lewis 2017, v) has been reinforced, allowing anthropology to insistently ask: whose ‘sustainability’ gets to count on the global stage? And what, exactly, is being sustained?

Contextualising sustainability

Anthropologists and historians have pointed out that the concept of sustainability in its dominant form, as a term denoting the need to ensure the continued existence of the world’s resources alongside promoting economic growth, has a European heritage, with its roots in seventeenth century German forestry. It was

first used to critique the conversion of woodland to fields and meadows as forests were burned to fuel the smelting plants of Saxony, and to call for optimal efficiency in tree planting for reforestation (Brightman and Lewis 2017, 3; Bonneuil and Fressoz 2013, 22; Buller 2022, 18; Scott [1998] 2020, 11). This created the impetus to develop better measurements and analysis of forests and the development of mathematical frameworks that modelled optimal planting in the interests of *nachhaltende Nutzung* ('sustaining use') (Lewis & Brightman 2017, 3).

But when the ideals of this model were enacted—trees planted and spaced accordingly, brush cleared away—it was found that trees could not thrive. In this rigid planting scheme, pests and fungi flourished and yields of trees went down. But this did not prevent such managerial approaches to natural conservation from becoming dominant throughout the colonial era. These manifested, for example, in the desire to manage and conserve landscapes in the interests of singular species or resources, or through exclusive protected areas management regimes that still exist today (Brockington 2002; Brockington, Duffy, and Igoe 2008). Often, these came alongside the denigration of local practices in the colonised world as 'unsustainable' even when they may have in fact been *more* sustainable (Randle et al. 2017; Fairhead and Leach 1996). From its origins, then, sustainability has been defined in terms of 'use' (Ahmed 2019), and this use was often valued through mathematical and economic abstraction, and disembedded from context. 'Nature' was also considered a resource, to be 'improved' in the interests of sustaining profits into the future, and such efforts were often considered moral projects in and of themselves (Yamada et al 2022). Thus, environmental and social concerns have paradoxically been secondary to economic concerns in dominant paradigms of sustainability (Hirsch 2020).

A focus on the economic aspects of sustainability became accentuated in the 1930s, in the inter-war period. It was then that the very idea of the 'economy', as an object separate from environment and ecology, became common. This was articulated through new measurement tools such as Gross National Product (GNP), a standard measure of the value of goods and services produced by a country's citizens in a year (Tooze 2001; Mitchell 1998). GNP created the possibility of comparing and competing between the 'markets' of nation-states (Lane 2019), including for natural resources. While concerns around forestry in Saxony were abstractions, they had a material basis and referred to real, existing trees. But with the emergence of standard measures, like GNP, there was a turn to ever more abstract understandings of market exchange, focused on the idea of the national economy. In this framework, natural resources were abstracted as measurable goods with economic potential that must be simultaneously sustained and used to power economic growth.

This laid the groundwork for increasing attention to the conjunction of concerns about environmental or resource collapse with ideas about the need for economic 'development' in the post-war period, from 1945. After WWII, the US-led boom in productivity, known as the 'Great Acceleration', both relied on and furthered an enormous amount of fossil fuel extraction and expansion (Lane 2019), and came alongside US-

led neo-colonial endeavours in the Global South. These often took the form of large-scale, US-funded development schemes that had ending global poverty as their agenda but often had devastating environmental and social impacts. Such projects included infrastructures like roads and hydroelectric dams, but also the agricultural intensification and land development projects of the Green Revolution, and national development plans and loan schemes. Each aimed to ensure markets in the Global South for US-produced products as well as resources for their production (Bayliss, Fine, and Waeyenberge 2015; Rist 2014, Cullather 2013, Patel 2013).[iii]

However, the oil shocks of the 1970s, where oil supply from the Middle East was disrupted due to conflict, engendered fears of the end of the age of plenty. This was a new fear of resource scarcity which linked market-maintaining development schemes with ideologies of sustainable resource preservation. These fears of scarcity became entangled with fears of a growing population and political revolution in the Global South that could potentially threaten trade relations with the North (Cullather 2013). As noted, the tools of abstract economic comparison, such as GNP, facilitated the political construction of ideas of scarcity in relation to the world's resources. And amidst these fears of scarcity, older problematic theories about the need for population control (Malthus 1803) in the Global South were re-popularised. Contemporary anti-immigrant theories drawing on Malthusian ideas, such as of the 'tragedy of commons', also gained traction (Hardin 1968). As per this theory, 'rational' self-interest would destroy 'common' goods, and therefore, common resources needed to be privately owned and managed (Hardin 1968). These fears and theories were also called into question at the time, for example by examining how the commons had been governed historically and had actually persevered or flourished without privatisation. For example, some mechanisms to prevent the self-interested destruction of shared resources included face-to-face communication among resource users, mutual monitoring, and locally sensitive approaches to rule-making (Ostrom 1990). E.F. Schumacher's still-influential monograph, *Small is beautiful* (1973) was also born of this context of oil shocks, fears of planetary resource scarcity and population growth, and environmental and social collapse. It did, however, offer a critique of capitalist industrial growth and focused on the need for human wellbeing and local-scale approaches to technology and economic policy.

Despite these critiques, the fears of resource scarcity produced by population growth remained highly popular and were furthered by well-known environmental writers, such as Paul Ehrlich, who posited population growth as the primary driver of environmental collapse, arguing for the need for population control alongside the development of new agricultural technologies (1968). Fears of scarcity were increasingly framed in environmental terms in the image of a fragile planet with finite resources that would be outstripped by population growth. For example, the 'Club of Rome's' 1972 publication, *The limits to growth* (Macekura 2015), also re-hashed older Malthusian ideas to argue that the planet did not have enough resources to support contemporary levels of population growth and consumption, and that this would lead to global collapse. Such discourses on population—rooted in racist, colonial thought—resulted

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in the use of regimes of forced sterilisation under the guise of 'educating' women and girls in South Asia (Murphy 2017). These narratives are echoed today in the discourses of eco-fascism and the far right, as well as in mainstream economic policy which continues to call for population reduction in the Global South in light of planetary limits (Tilley and Ajl 2022). These entwined fears of population growth and environmental collapse permeated politics and policymaking in America and Europe, where policymakers increasingly predicted that population growth and migration, especially in and from the Global South, if left unchecked, would pose a major threat to the global order. It was in light of these developments that the explicit coupling of 'sustainable development'—that is, growth within ecological limits—would eventually take shape, thereby blending paradoxical or oppositional concepts of sustainability and development together.

As the post-WWII period saw the entanglement of environmental and economic concerns, a result was increasing environmental awareness and the consolidation of the idea of a 'global environment' (Selcer 2018). In the Global North, landmark events and the formation of global campaigning organisations in the 1960s and 70s such as the Campaign for Nuclear Disarmament and Greenpeace, the formation of powerful international conservation organisations like the World Wildlife Fund, and major UN conferences, helped popularise and shape public attention to the global environment as an object of concern (Selcer 2018). These were supported by notable publications and ideas that also shaped public opinion and awareness, such as *Silent spring* (Carson 1962, Benson 2020), which raised awareness of the devastating ecological consequences of pesticide use, and the popular idea of a fragile 'Spaceship Earth', characterised both by the interdependence of all life and the limits of its resources (e.g. Fuller 1969).

Each of these developments from previous decades—new tools of economic comparison, fears of global resource scarcity and political revolution, the impetus for developing infrastructures and technologies for ending global poverty, and increasing environmental activism and awareness—meant that by the 1980s, the stage was set for one of the first and most important explicit institutional uses of the term 'sustainable development'. This was in a report by the World Commission on Environment and Development, entitled 'Our common future', also commonly referred to as the Brundtland Report after the author, Gro Harlem Brundtland, the then-prime minister of Norway. The report defined sustainable development as, 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. It makes generalised references to 'the effects of human activities', arguing that the 'limits' that 'we' face as humanity are not absolute limits in the earth's resources, but limits 'imposed by the present state of technology and social organization on environmental resources', both of which can and should be 'managed' and 'improved'. The report might be interpreted as a call to action, but many have argued that these kinds of calls for *technological* fixes for the crisis in sustainability (or 'techno-fixes', sometimes called 'techno-optimism') make the problem out to be the solution (Rist and Camiller 2014, 196). While perhaps grounded in a desire for change, this institutionalises a managerial view of sustainability

(Brightman and Lewis 2017, 5; Rajak 2020) that masks the political origins of layered contemporary crises through making intwined crises in poverty and ecology out to be technical problems rather than political ones, just as 'development' did decades previously.

It is therefore worth understanding more of the context for this report and its more recent criticisms. By the 1980s, neoliberal paradigms for development were coming to the fore with 'structural adjustment policies' that aimed to 'free' national economies from the 'constraints' of government welfare programs and which resulted in enforced austerity measures whose underlying assumption was that countries had been living 'beyond their means' (Rist and Camiller 2014, 172). A 'strange alliance' resulted between the World Bank, NGOs, and philanthropists, which encouraged the public to believe 'in the harmless – even positive – character of a procedure [sustainable development] with catastrophic effects' (Rist and Camiller 2014, 173). Thus, 'sustainable development' relied on the political production of the idea of material scarcity and planetary limits, which by the 1980s was constructing poverty as a technical problem to be fixed by Global North's technical and fiscal interventions and improvements in 'market' flexibility and integration (Li 2007). Such problematic legacies can often be seen in contemporary sustainable development initiatives that may seem 'obviously sensible' yet have profound epistemological and on-the-ground consequences (León Araya 2021; Howell 2017). They include intra-governmental initiatives like REDD+ ('Reducing Emissions from Deforestation and Forest Degradation in Developing Countries'), which aims to protect forests by paying countries and companies to keep them standing, as well as 'payments for ecosystem services' (PES), in which donors pay individuals or communities for seemingly ecological forms of resource management. They also include work done by NGOs as they try to impose sustainable development through microfinance, entrepreneurship, and market integration (Dolan and Rajak 2016a; Schuster 2015).

For these reasons, anthropologists have argued that sustainability discourse often covers up 'destructive practices' (Tsing 2017) and the inequality that these practices rely on with universalising claims to the improvement of 'humanity' (Eriksen 2022). Yet the depth of sustainability's inextricable yet paradoxical link with (economic) development, and the phrase's assumed humanitarian and self-evident moral character, has continued to be marked by institutional milestones like the 1992 Rio Earth Summit, the 2000 Millennium Development Goals, and the UN's 2015 adoption of the 'Sustainable Development Goals'. Some ecological movements have repurposed this term to lobby for land rights and justice today, including agro-ecological movements across Latin America (Rival 2017), and Indigenous projects of planning for sustainability and social justice (Whyte, Caldwell & Schaefer 2018). However, the mainstream global sustainability industry continues to be characterised by troubling partnerships between the private and public sector; and state, NGO, and private sector violence against environmental defenders (Silva Menton and Gilbert 2021; Igoe & Brockington 2007). This situation has led some to argue that 'perhaps the most useful contemporary working definition for sustainable development is this: an effort to extend capitalism with often token attention to environmental or economic constraints' (Hirsch 2020, 3). However, because of

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the plurality of ways that sustainability circulates as either a meaningful critique of 'unsustainability' *or* as a tool of corporate greenwashing, anthropologists have found that they must both attend to critiques of dominant framings and their construction, and to the visions of a meaningful sustainability that these may mask—visions that anthropologists may be uniquely placed to bring to light owing to ethnography's potential to understand the worldviews of all those working in and affected by sustainability from a grounded perspective.

Plurality

Anthropologists have utilised ethnographic research's potential to highlight that, despite top-down attempts at sustainability that assume a one-size-fits-all approach to environmental management, the landscapes, institutions, and 'communities' into which 'sustainable development' initiatives land are plural, constructed, and contested, and with different political and historical contexts (Li 2007; Mosse 1999). For example, in Cape York Peninsula, Australia, different ideologies of land use and management clash in the use of fire to manage the landscape. Here, Aboriginal traditional owners, park rangers, and cattle graziers work in 'uneasy coalition' (Reardon-Smith 2023). While Aboriginal landowners may burn the land for environmental purposes and to create custodianship, park rangers burn to create firebreaks, and cattle graziers burn to protect and encourage pastures.

The failure of top-down approaches to sustainability to attend to these sorts of local concepts and methods of environmental management has led to the erasure of local lifeways, despite the frequent celebration of such initiatives as successful (West 2006; West, Igoe, and Brockington 2006; Brockington 2002; Brockington, Duffy, and Igoe 2008). In East African Rangelands, 'community based natural resource management' initiatives, in which local people are asked to set aside land for conservation in order to increase wildlife and hence attract tourist revenue, have not demonstrated any useful environmental outcomes, despite being celebrated on the international stage. Furthermore, the financial returns from such initiatives have accrued to foreign and state actors, not local communities (Homewood 2017). In British Columbia, 'sustainable' fishing policies deny First Nations Gitxaała peoples access to their ancestral fisheries, despite the fact that they have managed these fisheries sustainably for generations. Surveillance, in turn, focuses on First Nations fishers, while leaving illegal commercial fishers unchallenged (Menzies 2016).

Anthropologists have thus shown how plurality, and the work it takes to navigate, can be masked by top-down approaches to sustainability, leading to real-life harms and exclusionary practices that may cause additional environmental damage. A key focus in this area has been on the UN's REDD+ schemes, which aim to foster forest protection by paying for their sustainable management. In Suriname, anthropological work with local communities has demonstrated how Indigenous 'cultures of ownership' mean that the debates surrounding land ownership—and hence entitlement to inclusion in REDD+ schemes—do not easily

match with Indigenous forms of relationality and sovereignty (Brightman 2019). In Central Kalimantan, Indonesia, tensions are produced by REDD+ projects when they land among Indigenous Ngaju people, where they sit uneasily with local values of autonomy and equality (Lounela 2020). Researching from the other side of the negotiating table, STS scholars have drawn attention to the contingent, situated, and 'theatrical' nature of UN climate negotiations that have led to and continually shape the implementation of REDD+ schemes (Ehrenstein 2018a). Such processes leave little possibility for the inclusion of Indigenous voices (Howell 2017).

These arguments link to older debates about 'green grabbing' (Fairhead, Leach, and Scoones 2012), in which land is 'grabbed' from local communities for ostensibly sustainable projects, like plantations whose crops are destined for biofuels or solar parks, while local communities still experience dispossession (Makki 2014). They also recall much older pejorative demarcations of local resource-use practices as unsustainable, to justify colonial interventions. For example, swidden agriculture in Southeast Asia was prohibited by colonial authorities as the burning and seeming abandonment of land was seen as destructive. Other allegedly more 'sustainable' land uses that offered more consistently predictable profits for colonial centres, such as plantation agriculture, were promoted (Yamada et al. 2022; Randle et al. 2017) despite these being less environmentally sustainable (Dove & Kammen 1997). Labelling something as 'unsustainable' or 'sustainable' can be a powerful political move (Fairhead and Leach 1996). It can mask the plurality of ways that people manage, use, and dwell in their environments, and impose hegemonic ideas of environmental responsibility that stem from the Global North (West 2006; Chua et al. 2021; León Araya 2021). This has been documented in the Himalayas, where justice needs have been sidelined through the IPCC's imposition of scientific knowledge production from the Global North that marginalises Indigenous historical and environmental knowledge and experience (Chakraborty and Sherpa 2021).

Many argue that sustainability, therefore, ought to be reconceptualised as the 'process of facilitating conditions for change by building and supporting diversity – ontological, biological, economic and political diversity' (Brightman and Lewis 2017, 2), and reflecting 'pluriversal' politics, a politics that prioritises the existence of many distinct ontological and epistemic worlds (Escobar 2020; 2011; de la Cadena and Blaser 2018). Some have sought to enact such politics through meaningful collaborations on the ground. Anthropologists working on orangutan conservation have sought dialogue with conservationists in order to practically envision just futures through 'mutually transformative dialogue' (Chua et al. 2020). Such dialogue might usefully help to encourage the broader realisation that '[s]ustainability is an English word' (Maldonado, Meza, and Yates-Doerr 2016), and foster greater sensitivity to collaboration and understanding across diverse positionalities (Chua et al 2021). Anthropologists have therefore usefully demonstrated the need for attention to the plurality of, and the nuances in, grassroots approaches to sustainable conservation, and collaborative land and resource management in the face of top-down approaches.

Commensurability

Just as top-down approaches to sustainability tend to flatten plurality, many sustainability projects also work through imperfect processes of making things, people, and places 'commensurable', that is, measurable by the same standards, so that they can be assigned comparable value, and may substitute for one another. This process of 'commensurability', sometimes also referred to as 'comparity', is used to make decisions on how to mitigate or offset the effects of certain actions to produce sustainability (Carse 2021; Schinkel 2016). Carbon measurements are a common metric through which this work of creating commensurability is done in sustainability interventions. Decontextualised from time and space, and in many cases from carbon itself, 'carbon' is objectified in order to be traded or exchanged in the form of permits, credits, or 'offsets' including in, but not limited to, REDD+ schemes. Not only does this mask the plurality of interests and value clashes that have gone into carbon trading systems (Dalsgaard 2013; Lane 2012; Ehrenstein 2018b), but appealing to 'carbon' becomes a way to compare and make commensurable entirely different forms of life and 'different actions across spheres' (Dalsgaard 2013, 83; Neale 2023). Through these processes of commensurability and comparity, 'carbon' has become *the* 'standard': the metric of comparison used to put a price on almost all human actions, each of which are considered to produce 'carbon' or avoid producing it in some way.

Anthropologists attending to these processes have pointed out that once carbon is 'fetishised'— that is, made to seem of transcendent importance—it is able to circulate in financial markets and in the development sector. Furthermore, carbon offsets, insofar as they make the world commensurable (Cointe 2024), help pass the responsibility for climate change to the Global South, while absolving the individual off-setter in the Global North who can continue emitting (allegedly) guilt and consequence-free (Dalsgaard 2013, 86). This process is commonly referred to as 'carbon colonialism' (Parsons 2023) as it leaves intact or reproduces the history of long-distance resource extraction from the Global South to the Global North (Ehrenstein 2018b). In this way, the maintenance of carbon markets becomes an 'end in itself' (Machaqueiro 2017) rather than a meaningful way to create sustainability.

The practice of making things commensurable with carbon is also shown by social scientists to shape the work of contemporary science, in particular the common practice of 'sustainability by substitution' (Ulrich 2023). This is the practice of seeking sustainable substitutes for harmful substances or materials (Abdelghafour 2024, Pihl 2024, Kotzen 2024, Ulrich 2024). For example, metabolic engineers work to harness the metabolisms of microbes to encourage them to produce useful compounds that might become substitutes for petrochemical compounds. Sustainable chemical compounds, which are to be produced by these microbes, are thought of as 'drop ins', meaning they must be made *almost* commensurable with their unsustainable cousins, but without the carbon (Ehrenstein and Rudge 2024). This 'logic of substitution' (Ulrich, Rudge & Ehrenstein 2024; Ulrich 2023) creates both the conditions of possibility for the research itself, by making it 'sellable', as well as the impossibility of its meaningful success. Low-carbon alternatives

must be made commensurable to their high-carbon versions: able to scale up to slot into the political, economic, social, and physical infrastructures derived for the circulation and trade of fossil fuels over centuries (Ehrenstein and Rudge 2024; Mitchell 2009; Boyer 2014). In short, sustainable substitution is often 'about commensurability and competition' much more than about sustainability (Ehrenstein and Rudge 2024, 15).

Work on commensuration has been crucial to scholars working on waste, recycling, and 'circular economies'. For example, black soldier flies are, like microbes (Ehrenstein and Rudge 2024), envisioned as 'living technologies' for waste processing. The larvae should eat organic waste, eventually emerging to become adult flies who might also become a protein rich food for agricultural animals or a human nutrition supplement (Zhang 2020). All waste can thus become a potential source of value, as scientists develop a 'chemical gaze' in which waste is seen not in terms of its material or origin, but as a store of potentially useful and valuable chemical compounds (Landecker 2019). Organic waste can also be made profitable through making it commensurable with animal or human food. Agricultural residues can even be made commensurable with high-value aromatic compounds. The latter occurs through the labour of other-than-human metabolisms, producing a 'logic of circularity' (Zhang 2020). This work of commensuration found in circular economies becomes linked to entrepreneurial efforts by NGOs, as in plastic-waste-to-'funky-home-accessories' initiatives in Cambodia (Jensen 2023). Despite circularity being a 'patchwork effect of multidirectional movements', through the necessary work of scaling up for international markets, this multiplicity and its potentials are obstructed by visions of universal integrated markets (Jensen 2023).

But, it is precisely these markets that count on the global sustainability stage. They often operate by making various actions and things *morally* commensurable. For example, they create moral comparability through the lens of carbon, as individuals come to believe that they can measure their own actions and choices through carbon as the moral arbiter in which one individual action can offset another (Dalsgaard 2013, 83). Each of these ethnographies demonstrates that an unsustainable status quo is maintained in situations in which novel technologies and materials must align themselves with the infrastructures of the capitalist carbon economy. They also envision alternative possibilities and potentialities. Alternatives may lie in the labour of non-human beings, the multi-directional relations brought about by material circulations, or the critical political task of revealing flawed logics of commensurability. The next section turns to the moral economies revealed in such acts of subverting the dominant paradigms of sustainability.

Moralities

Sustainability is well-suited to being constantly reconfigured in line with diverse, often conflicting, moral positions (Yamada et al. 2022). Sustainability discourse is often characterised by 'virtuous language' that makes it difficult to criticise specific sustainability measures (Kirsch 2016). The paradox of 'sustainable development' as 'common sense' has, for example, allowed for the unabated acceleration of dispossessory

plantation dynamics in Costa Rica's pineapple industry (Araya 2021). New plantations are deemed necessary for sustainable economic growth and the increasing use of new technologies on plantations is used to portray them as 'green' and modern, providing a cover of legitimacy that hides the dispossession and violence also produced by plantations (León Araya 2021, 112). The same is true of how sustainability is mobilised as a moral narrative by the mining industry. Coal mining companies market themselves as corporations who care through funding conservation projects designed to 'offset' their emissions. However, these 'sustainability measures' may actually facilitate the corporations' ability to extract more fossil resources from the earth with impunity (Kirsch 2010).

Anthropologists have also turned their attention to how moral boundaries are drawn *by* sustainability initiatives, by attending to who the beneficiaries and losers are, who is included and who excluded in these initiatives, and by examining the moral underpinnings that underlie sustainability discourse. Questions around sustainability's moral projects surface frequently in studies of renewable and clean energy provision. In the context of a wind park development in Mexico, resident communities, state officials, corporate representatives, and environmental experts each attempted to assert 'ecoauthority', laying claim to an ethical, renewable future (Howe 2014). This created tensions, notably between local and global environmental knowledge (Howe 2014, 383). Comparable is the positioning or emergence of the 'solar good', in which solar power becomes inextricably linked to ideas of development and humanitarianism: the 'good' formulated in market terms and the language of inclusion in the market for the 'bottom billion', i.e. the world's poorest people (Cross 2019). Solar power constitutes a seemingly 'ethical-economic utopia' that affords the 'opportunity to express care for others and the environment while also fulfilling a fiduciary duty of care to investors and shareholders', all with the magic of converting sunlight to power (Cross 2019, 48, see also Günel 2021, Abdelghafour 2024). This masks the fact that the new global demand for solar technology is producing new forms of precarity, inequality, and environmental damage through extractivism and toxic waste (Mulvaney 2019; Bedi 2022; 2018), *alongside* its potentially useful implications for social justice movements and the decolonisation of energy (Lennon 2017; Kinder 2021). These debates raise questions around how dominant ideas of the moral good of sustainability may be overshadowing meaningful efforts towards energy justice.

These ethical debates link with longstanding anthropological work on 'corporate sustainable responsibility' (CSR), a moral economy that legitimates corporate power (Dolan and Rajak 2016b; Rajak 2011; Gardner 2015; P. R. Gilbert and Dolan 2020). Similar issues are revealed in voluntary certification schemes such as the Roundtable on Sustainable Palm Oil (RSPO), Sustainable Mining, or Fairtrade certifications (Archer 2022; Dolan 2007; Ruysschaert and Salles 2016; Delabre and Okereke 2019; Kirsch 2010; Gardner 2015), as well as in the underregulated 'Alternative Investment Market' (Anbleyth-Evans and Gilbert 2020). In West Papua, it is both conventional and 'green' palm oil plantations that dispossess Marind people from their forests and lands (Chao 2019). In the Kenyan fairtrade flower industry, although Fairtrade

certification is 'predicated on values of partnership and interdependence', it also constructs ideas of a 'distant poor' in contrast to the consumer as 'agent of progress and transformation'. At the same time, the language of 'ethics' is used 'as a mode of governmentality over the African "other"' (Dolan 2007). Similar contours exist in the coffee industry, where regimes of governmentality are produced by commodity chains which rely on images of 'primitivity and poverty' to sell coffee from Papua New Guinea to overseas markets, obscuring the structural relations that are the root of this poverty (West 2012). Sustainability labels can thus set up geographic imaginaries that build on histories of inequality. This is the case in New York City where the 'false promises' of sustainability contribute to exclusive gentrification (Checker 2020), and in the Bahamas where sea level rise was paradoxically and strategically reconfigured into 'opportunities for more tourism-based enterprise', such as the creation of 'sustainable' tourist visitor farms that appeal to 'sustainable imaginaries' but may exacerbate issues of environmental injustice and food sovereignty (Moore 2019, 1–3).

Such schemes work through constructing a moral Other—whether utopian, primitive, or poor—with sustainable development offering both a solution to, and an increasing difference from, them (Li 2023). Communities deemed 'unsustainable' are often demonised, made abject, or viewed with disgust. In Jamaica, 'single-use' plastics are never only single-use for those who rely on them, and yet their demonisation and banning reflects the racial, social, political, and economic geographies of their production and use (Gibson 2023). In India, narratives of disgust mask how e-waste is recycled, in which toxicity links with the unevenly distributed hazards of urban life (Perczel 2024). In Bulgaria, Roma are equated by officials with the trash that they supposedly 'steal' from recycling bins (Resnick 2024). In the Sundarbans, India, crab fishers are vilified by local authorities for supposedly endangering the delicate ecosystem with their centuries-old fishing practices (Mehtta 2021). There, the authorities' denunciations of 'greed' against the fishermen are in fact a mere scapegoat in a context of the local authorities' impotence against real environmental harms, like a proposed international shipping lane through the delta (Mehtta 2021, 552). This gets to the heart of anthropological questions about sustainability, which as with Anthropocene anthropology, encourage not only the interrogation of localised moral projects, but also attention to how and where their borders are drawn, and in whose interests.

Futures

Questions that anthropologists ask about moral projects of sustainability are very often linked to questions about the future—what kinds of 'sustainable' futures are imagined, how, and by whom? In short, whose futures get to matter?

To answer these questions, some have turned to examining finance—such as the public-private partnership called the Insurance Development Forum, or weather insurance start-ups—to explore how futures are imagined and made material by risk specialists and modellers (Vaughn 2023; Schuster, Bernardou, and

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Bueno 2023). In the UK and South Africa, the language of 'political risk' used in financing extractive industries replaces older colonial ideas of an African 'lack'. This is used to create immovable ideas of 'best practice' including 'restricted [African] host government ownership' (Styve and Gilbert 2023). Rooted in lingering colonial anxieties, this amounts to 'futurework', whereby mining financiers determine potential threats to anticipated revenues, all the while masking alternative futures with long historical antecedents—such as Third World sovereignty over national resources (Styve and Gilbert 2023; Gilbert 2020). Others have explored how carbon credits make *potential* future actions equivalent to real actions, based on assumptions that someone *would* have acted otherwise; this comparison of the real with potential future creates possible value by referencing non-existing action (Dalsgaard 2013; Buller 2022, Cointe 2024). Such studies indicate that 'one of the defining qualities of our current moment is its peculiar management of time' (Adams, Murphy, and Clarke 2009, 246).

A particular focus for anthropologists has been the utopian promise of the aforementioned 'techno-fix'. In agriculture, for example, sustainability discourse justifies new technologies like improved oil palm seeds that will supposedly be more sustainable as they create higher-yielding fruits that will create more oil from less land. These technologies are inspired by the Green Revolution, the post-war attempt to increase global agricultural production by technological means, and promise to do little to challenge entrenched inequality or existing plantation dispossessions (Chao 2018b; Flachs 2019). In Masdar City, Abu Dhabi (an experimental eco-city), technologies such as renewable energy currencies, driverless personal rapid transit, or carbon storage helped put forward utopic visions of a renewable future that were in fact 'a thinly disguised version of the present' (Günel 2019, 13). In the UK, oil company executives promote 'win-win synergies between growth and sustainability' that allow visions of a future in which salvation through technology will allow for fossil-fuelled business as usual to continue, while abdicating oil company executives of responsibility (Rajak 2020). Each of these ethnographies show how sustainability discourse 'thrives on crisis and relief', mobilising visions of an 'impending disaster that is tempered by the promise of technological resolution' (Yamada et al. 2022, 12), not unlike the narratives of development that preceded and co-constitute it.

Other ethnographies have laid bare the cruelty of desires for the future in a context of limited choice. In Baltimore, imagining a cleaner future happens in a context of a longstanding 'winnowing of options' for residents close to a planned waste-to-energy plant (Ahmann 2019, 329). The plant is posited as 'renewable' despite its emissions of lead, mercury, fine particulate matter, and carbon dioxide. At the same time, the development promises to 'solve' Baltimore's trash problem by converting waste to energy, while providing jobs for local residents (Ahmann 2019, 329). As aspirations are pinned on this development, a 'subjunctive politics' is created, whereby aspirations for the future are shaped by an 'affective pragmatism'—the felt need for choice within a context of limited options—among people who 'feel they have been cast aside' (Ahmann 2019, 330). Anthropology thus demonstrates the need to understand how the success or failure of

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energy transitions is linked to whether and how they fit with local worldviews. They also demonstrate the profound ambivalence of hope and optimism in a context where the least bad is all that's on the table. Anthropologists, too, are encouraged to attend 'to the many future orientations that shape our politics' (Ahmann 2019, 341), and to demonstrate the need to understand that the success and failure of energy projects are linked to local contexts shaped by global realities.

Ambivalences and contingencies also shape future-oriented scientific work in Brazil, where sugarcane scientists grapple with paradigms of growth, development, *and* environmentalism, sometimes using their work with sugarcane as an 'excuse' to develop other, more radical research outcomes that might offer the 'space for doing something potentially different in the future' (Ulrich 2023, 443). Different visions of growth, in short, might offer alternative futures beyond *economic* growth (Ulrich 2023, see also Kaşdoğan 2020). Scholars working with and as activists have similarly pointed to the situatedness and stickiness of aspiration and hope, whether as realised through the power of art and storytelling (Vaughn 2021), the transitional nature of youth (Eriksen 2021), or ethical self-formation (Harms 2022). For some, sustainable futures are imagined as a battle (Gard 2018); for others, as a refusal to hope (Chao 2018a). For still others, futures cannot and should not be imagined without an insistence on the need to stay close to the present (Bond 2021). Such studies show how 'we are seeing the emergence and proliferation of new ways of thinking about the future, and new ways of linking the future with the present or the past' (Mathews and Barnes 2016, 10).

How, then, do anthropologists envision a truly sustainable future beyond false utopias? Many advocate for attention to new forms of more-than-human interdependence, such as might be found in Anthropocene 'patches' and 'ruins', or as revealed by unlikely forms of interspecies kinship (Tsing, Mathews & Bubandt 2019; Tsai 2019; Tsing 2015). Others hope for 'a transition to an altogether different world' that has space for spirituality, self-organisation, inter-being, and co-emergent relationality, as an alternative to the 'modern dualist, reductionist, and economic age' (Escobar 2011, 138). Models for a sustainable future often seek inspiration from Latin American and Indigenous political theories such as *buen vivir*—representing the coming together of centuries of Indigenous struggles—that force attention to dignity and social justice for all (Escobar 2011, 138). Indeed, implicit in many of the critiques of global sustainability that anthropologists outline are visions of alternative futures grounded in local realities and in meaningful conceptualisations of what environmental justice might look like 'beyond development and progress' (Lewis & Brightman 2017). It is often the case that in radical visions for the future, the term 'sustainability' is dropped in favour of a more encompassing vision of *environmental justice* (Checker 2020, Gilio-Whitaker 2019, Dhillon 2019, Gilbert 2021).

Conclusion

Sustainability is historically tangled with colonialism and imperialism, dispossession and land grabbing, as

well as managerial approaches to conservation that tend to make 'nature' into a resource subsumed by economic concerns. It has been 'riddled with tensions and contradictions from the outset' (Escobar 2011, 137), often working more to sustain the global status quo than achieving meaningful environmental and social justice and flourishing in the context of climate breakdown.

Anthropologists, through attention to the moral boundaries and borders produced by sustainability, have shown how dominant paradigms of sustainability produce ideas of 'too many people' or 'not the right people'. Such paradigms often present ideas of the need to limit the behaviours of some to grow the wealth of others, or of the need to control and manage people and their lands in the interests of the global elite, as self-evident moral goods. Sustainability's institutionalisation as a moral good through its coupling with development has reinforced these issues: constructing the environment as a technical problem to be managed through carbon credits, risk management, fortress conservation, or exclusionary land management initiatives.

Against this backdrop, anthropology has sought to explore both the construction of difference through sustainability and the complex and thorny work of navigating difference in sustainability projects. Not only does this challenge sustainability's 'ideology of progress and development' (Brightman and Lewis 2017, 2), but it also forces us to value the plurality that characterises the landscapes into which sustainability lands, that goes into constituting sustainability initiatives, and that marks definitions of sustainability itself. Thereby, anthropological work often has a keen eye for the workings of power. It highlights power relations in the reduction and streamlining that goes into making things (carbon, people, forests) commensurable, and in the forms of governance reliant on secrecy and hierarchy that actively work to hinder the achievement of environmental justice and further the profits of extractive corporations (Anbleyth-Evans and Gilbert 2020).

In revealing these workings of power, anthropologists have forced attention to alternative and more radical modes of sustainability beyond dominant paradigms, grounded in environmental justice and grassroots solidarity (Checker 2020). Together, these studies form a body of work that refuses to take high-level discourses on sustainability and their false promises for granted. They push anthropologists to ask how attention to on-the-ground realities might offer glimpses of meaningful sustainable flourishing that may pose alternatives to futures defined by growth, extraction, and profit, and encourage us to hold power to account so as to hold on to the goal of environmental justice.

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[1] Anthropological interventions into this landscape of international aid and development are worthy of their own encyclopedia entry, and have focused on its discursive power, geopolitical implications, institutional practices, and neoliberal transformations. Some key texts are Crewe and Axelby 2012; Dolan 2005; Ferguson 1994; Gardner and Lewis 2015; Li 2007; Escobar 1995; and Mosse 2004; 2011. For a review of the topic, see Mosse 2013.

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