

Is climate change policy fit for purpose? Beyond green capitalism and liberal environmentalism.

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Abstract Though international policy-makers have addressed environmental degradation and climate changes for many years, it is questionable whether current policies are scientifically, socially, politically or economically adequate to resolve the existential climate crisis now facing Earth and its human and non-human inhabitants. This chapter analyses policies as more-than-human assemblages. These assemblages are analysed in terms of their comprehensiveness, measured against the breadth of current scientific and social scientific knowledge of anthropogenic climate change. Two policy positions on climate change are assessed using this methodology: 'liberal environmentalism' and 'green capitalism'. Neither is found to be adequate as a policy to successfully counter the threats to the climate produced by human activity since the industrial revolution. In their stead, the chapter offers a way to develop a scientifically and politically adequate climate change policy, and what this may entail.

Keywords Climate change – Policy Assemblage – Sustainability – Green Capitalism – Posthumanism

1. Introduction

Since the end of the last century, sustainable development policy discussions have gained significance due to recognised environmental degradation and human-induced climate change (IPCC, 2014; United Nations, 2016). International treaties aim to curb greenhouse gas emissions, and efforts to combat various forms of pollution, from nitrous oxide to plastic waste, are integral to 21st-century policy (Chasek and Downie, 2021; Gunningham, 2019).

This chapter offers a critical assessment of such policies on sustainability and sustainable development. The starting point is a ‘posthuman’ (Braidotti, 2013: 5-6) or more-than-human ontology that aims to re-privilege the interests of non-human animate and inanimate matter, while acknowledging the part humans play in the Earth’s ecosystem. Humans, from this perspective, ‘are *part of* the environment, not separate from or in opposition to it’ (Fox and Alldred, 2020b: 123). This ontology also supplies a materialist conceptual framework that enables us to develop a ‘micropolitical’ analysis of policy in terms of the capacities produced by a ‘policy-assemblage’ (Ureta, 2014).

Having established this framework for inquiry, the chapter explores in detail two of the sustainability policy assemblages that have dominated discussions of climate change in recent international fora: ‘liberal environmentalism’ and ‘green capitalism’ (also known as ‘climate capitalism’). It analyses micropolitically what each policy aims to achieve, but also discloses what is excluded or ignored in each perspective. This analysis supplies a critical assessment of how this policy will impact on sustainable development. These critiques provide the basis for the chapter’s conclusion, which will set out a more-than-human assessment of what is required socially, economically and politically for environmental sustainability.

2. Social science, posthumanism and the environment

Social scientists have explored environmental and ecological issues from different angles over the years. Initially, they viewed the environment as a backdrop for human activities

(Dunlap and Catton, 1979; Walker, 2005: 80), and sought ways to manipulate it for human benefit (Hoehner et al, 2003, Swinburn et al, 1999). Next, they delved into how the physical environment, such as climate and geography, influenced human existence (Urry, 2009), or studied the psychological and social impacts of the built environment (Halpern, 2013). More recently, they have examined the impact of human activity on the environment (Dunlap and Catton, 1994: 24), during the anthropocene era (Steffen et al, 2007), acknowledging that humans are part of the environment, and still governed by the same physical laws (Stevens, 2012: 580).

These approaches have typically maintained a distinction between humans and the environment, resulting in an anthropocentric perspective (Stevens, 2012: 8) that places society conceptually above the environment (Walker, 2005: 80). Some scholars have attempted to challenge this anthropocentrism in environmental sociology (Benton, 1991; Shove et al, 2012; Stevens, 2012; Walker, 2005). However, in this chapter it is the ‘new’ materialism (Fox and Alldred, 2017; Coole and Frost, 2010; Latour, 2005; Thrift, 2008; van der Tuin and Dolphijn, 2010) that most decisively transgresses the distinction between humans and ‘environment’, and provide a basis from which to establish a post-anthropocentric and more-than-human policy to address anthropogenic climate change.

One entry point into this materialist and more-than-human perspective is Rosi Braidotti's work, which argues that human interests are intertwined with those of other living beings and the Earth itself. Braidotti advocates for a materialist feminism that is relational, embodied, and embedded (Braidotti, 2011: 132-136), as well as a posthumanism that moves beyond both traditional humanism and anti-humanism (Braidotti, 2013: 37). While humanism prioritised secular human reason over religious authority (Carroll, 1993: 117), anti-humanism criticised this focus for its exclusionary and exploitative tendencies (Braidotti, 2011: 82, 88-89; 2013: 23). Braidotti proposes a posthuman project that recognises the vital capacities of all matter, animate and inanimate, for self-organisation and becoming (Braidotti, 2011: 16; cf. Bennett, 2010). In this view, matter is in a constant state of being affected and affecting other elements. Braidotti's work provides an eco-philosophical foundation for a ‘new’ materialist ontology centred on relationality and becoming (Braidotti, 2011: 41).

This new materialist perspective involves two key shifts: firstly, it moves away from essentialism towards an emphasis on relationality, and secondly, it recognises the capacity of non-human entities, including things, organisations and ideas, to exert agency traditionally attributed only to humans. In this framework, new materialism rejects the idea of pre-existing, fixed entities like bodies, animals, and even governmental structures. Instead, it views them as relational materialities that take shape and continuity through interactions with other materialities (Deleuze, 1988: 125; Delanda, 2006: 3). Events and interactions are understood as *assemblages* (Bennett, 2005: 445) or arrangements orderings (Buchanan, 2017: 465) of *relations* among bodies, things, social institutions, and constructs. These relations are fluid and in constant flux, emphasising the dynamic nature of the world and challenging static and essentialist perspectives (Deleuze, 1988: 128; Lemke, 2015).

New materialism challenges the traditional notion of ‘agency’ by emphasising that all elements within an assemblage, including humans, possess the ability to influence or be influenced by other interconnected components (Deleuze, 1988: 101). In this perspective, humans no longer hold exclusive agency. New materialist scholars extend this concept to include expressive elements like beliefs, desires, feelings, values, ideologies, and discourses, which can materially impact other parts of the assemblage (Coole and Frost, 2010: 28; DeLanda, 2006: 12-13). The assemblage's collective ‘economy’ of *affects* (Clough, 2004: 15), as it combines both human and non-human elements, dictates its capabilities. These *capacities* for action, interaction, or emotion do not stem from inherent qualities but arise from the interactions between these elements (Barad, 2001: 96; DeLanda, 2006: 10-11). What any human or non-human, animate or inanimate relation can do depends entirely upon the extent of its affects with other matter.

This conceptual toolkit of relations, assemblages, affects and capacities supplies a monistic ontology of nature/culture (van der Tuin and Dolphijn, 2010). This consequently elides conventional differentiation between humans and their ‘environment’ (Latour, 1993), with human bodies, cultures and societies part of the environment. This more-than-human, materialist ontology of environment can be applied both to theorise sustainability (Braidotti, 2013: 5; Fox and Alldred, 2020b), but also to assess critically different policy propositions addressing sustainability and climate change (McCann, 2011).

3. Policy and the policy assemblage

Policy can be understood as material-semiotic engagements with a social or natural issue or event such as environmental pollution or climate change (Shore and Wright, 1997: 30-31), that – in some way – aims to materially affect that event (Taylor-Webb and Gulson, 2012: 87-88). Unlike analyses of policy development and implementation explored at a macro-level of stakeholders (Burstein and Linton, 2002) or institutions (Wiktorowicz 2003: 618), a materialist perspective affords a means to explore policy, policy-making and policy implementation *micropolitically*, addressing the affective movements in policy-making or policy implementation (DeLanda, 2006: 87; Patton, 2000: 68; Widder, 2012: 125).

Cultural geography scholars have explored policy-making in terms of a ‘policy assemblage’ (McCann, 2011; McCann and Ward, 2012; Prince, 2010; Ureta, 2014), and this suggests a basis for such a micropolitical approach. According to this perspective, a policy may be understood as an unstable and dynamic assemblage, comprising social actors, networks and institutions (Prince, 2010: 173; Ureta, 2014: 305). However, while these advocates of policy-assemblages have cited materialist authors such as Deleuze and Guattari and actor-network (ANT) theorists, this understanding of a ‘policy assemblage’ is under-theorised (McCann and Ward, 2012: 43). A more thoroughly new materialist grounding has subsequently supplied the concept with more analytical gravitas, allowing exploration of ‘*how* policies assemble micropolitically, and what they can do’ (Fox and Alldred, 2020a: 273). This approach assesses the interactions between a more-than-human *event* such as global warming and the *policy* developed to somehow influence or change this event.

So, for instance, anthropogenic climate change can be analysed as a more-than-human ‘event-*assemblage*’. Using current natural and social science understanding of the climate, this assemblage comprises a range of human and non-human elements. The principal elements in such an arrangement can be depicted as follows (in alphabetical order):

atmosphere; fossil fuels (coal, oil); greenhouse gases; humans; industry; oceans; the Sun

This climate change event-assemblage is a consequence of the *affects* between these human and non-human elements. For example, the affect between fossil fuels and oxygen during industrial production generates both energy and greenhouse gases. These latter trap heat in the atmosphere, intensifying its 'greenhouse' effect. This 'affect economy' (Clough, 2004: 15) amplifies solar heat absorption by Earth's oceans, exacerbating climate change.

Policy-making aimed at addressing a complex event-assemblage – such as anthropogenic climate change by reducing greenhouse gas emissions, can also be seen as an event in its own right, and consequently also an assemblage. This 'policy-assemblage' includes various human and non-human elements, including scientists, scientific evidence, and diverse other stakeholders (Baer, 2012: 267; Dror, 2017; Yearley, 2014). Again, this assemblage can be depicted as an arrangement of various elements, including (in alphabetical order):

audience; evidence of climate change; experts; money and economics; policy documents;
policy-makers; relevant natural and social science theories; stakeholders; social and political
processes

Policy assemblages on topics such as anthropocentric climate change may also include consumers, energy producers, governments, the media, previous policies, as well as the political commitments, views and beliefs of all those concerned. This assemblage will be constituted by the affective interactions between these human and non-human elements. For instance, evidence of climate changes from scientific studies and experts will affect policy makers, as will politics, economics and their own commitments.

Unpacking these event- and policy-assemblages and the affects that constitute them allows an assessment of how a policy has emerged, and what are its main foci, but also what it emphasises or ignores. As a consequence, this also supplies a means to assess what a specific policy can do, what it cannot do, and thus whether it is *effective* and *adequate* to address an event of concern such as anthropocentric climate change. The following figure illustrates the interactions between an event and a policy to address it, according to this assemblage analysis.

Insert Figure 1 about here

Beginning with the event-assemblage (EA), the development of a successful policy (for instance, to address the negative impacts of human fossil fuel use on climate change) requires that a policy-assemblage (PA) is capable of identifying relevant affects in an EA (for instance, how industry's use of fossil fuels affects levels of carbon dioxide in the atmosphere). Recognising these affects enables policies to comprehensively address an issue of concern. Thus, it has only been since scientists linked levels of 'greenhouse' gases in the atmosphere to industrialisation that this affect in a climate change assemblage could be identified by policymakers.¹

However, the figure also indicates a second stage in the event/policy interaction. Once developed, a PA need to be *adequate* and *appropriate* to influence the EA it aims to address. If it does not have this capacity, then a policy will be ineffectual or even irrelevant (Dror, 2017: 34-35). For instance, while a global policy to use renewable energy sources rather than coal or oil for industry will reduce greenhouse gas emissions, a policy to raise tea prices to limit how often citizens boil water will be *inadequate* to reduce greenhouse gases significantly, and *ineffective* if they choose to drink coffee instead. The capacity of a policy to affect an EA will also be shaped by other human and non-human elements in the PA. For instance, if a policy to introduce renewable energy generation from solar or wind power is not adequately resourced, backed by fiscal policies or poorly promoted to stakeholders, it will not significantly impact energy use by industry or car-owners.

To summarise, this assemblage approach to policy addresses the affects that produce both events and policy. By analysing how EA and PA interact and affect each other, the adequacy of a policy can be assessed, and hence its likely success or failure to counter the effects of an event. This opportunity is the basis for the assessment of environmental policy assemblages in the remainder of this chapter, as it considers two popular policies – 'liberal environmentalism' and 'green capitalism' – and whether either is fit for purpose to counter the anthropogenic climate crisis. For each of these positions, after a brief description, the analysis will apply the following steps:

- Using up-to-date and comprehensive natural and social scientific evidence, identify the component material elements in the event-assemblage and the affects between these elements. In the case of liberal environmentalism, the chosen EA is environmental pollution from the waste generated by a consumer society; the EA assessed in the case of green capitalism is global warming generated by using fossil fuels to generate energy for industry, housing and transport.
- Analyse the policy assemblage to identify which affects in the climate change EA it addresses, and those it does not affect.
- From this, offer an assessment of if the policy position is effective and adequate to address the EA in question, by assessing whether what it can do (its capacities) is sufficient to actually resolve the challenge posed by the relevant EA (waste, climate change).

4. Liberal environmentalism

Liberal environmentalism (Bernstein, 2002; Collard and Dempsey, 2022) is well-represented in many past and present ‘good citizen’ environmental initiatives. These aim to nudge or more radically change human behaviour, and have included anti-litter campaigns, current efforts to reduce plastic waste, and charities that seek to protect endangered species or habitats such as the world’s rainforests (Yearley, 2014: 5). It was the starting point for United Nations policies on sustainable development (Bernstein, 2002: 3)² as well as the ‘green capitalism’ approach that is considered in the following section.

Bernstein (2002: 1) described liberal environmentalism as a compromise. On one hand, it formulates policies and actions to counter the impact of human activity and consumption upon the environment (Yearley, 2014: 98), while on the other does not offer a critical analysis of how socioeconomic development/growth contribute to environmental depredations (Bernstein, 2002: 4; Collard and Dempsey, 2022: 1546; Talshir, 2012: 18; Whitehead, 2014). Sometimes, consumer sentiment is harnessed to encourage business into more environment-friendly practices, such as removing plastic micro-beads (harmful to marine life) from cosmetic and health products (Dauverge, 2018). Waste recycling policy supplies a relevant illustration. Recent UK policies around waste recycling aim to maximise domestic and commercial efforts to reduce, reuse and recycle waste products (from industrial

by-products to discarded or worn-out goods to product packaging) via incentives and penalties. Such policies may be promoted in terms of both reducing pollution and supplying economic benefits:

A key priority for the Government is to boost growth in the economy whilst continuing to improve the environment. ... Moving towards a more resource efficient, circular economy offers scope for innovation, sustainable growth and saving money, as well as reducing the impact on the environment (Department for Environment, Food and Rural Affairs, 2013: 5).

This policy from the UK government sets out a series of measures (from charging for plastic shopping bags to investing in waste prevention and reuse schemes), with the explicit programme aim to improve the environment and protect human health (ibid).

Micropolitically, this waste policy assemblage engages with affects in the waste EA in two ways. First, it embraces the positive aspects of the non-human natural and physical environment, while at the same time sustaining a privileged position for humans and their economic activity. Second, the policy assemblage focuses primarily on citizen behaviour, at the expense of any critical assessment of why human economic activity impacts negatively upon the environment. In the case of waste management, there are no criticisms of Western society's culture of rampant consumption, built-in obsolescence, or industry's use of plastics for manufacture and packaging to minimise overheads. Together, these two affective movements sustain a dualism between humans and the environment', congruent with a long-held Western perspective on the environment as a physical resource to be exploited for economic and social advantage.

These priorities provide an analytical entry-point to assess how the liberal environmentalist policy-assemblage interacts with environmental event-assemblages (see Figure 1), and to measure this interaction against a more comprehensive 'waste production/reduction event assemblage'. Continuing with the example of recycling and the DEFRA policy document quoted above, this more comprehensive EA comprises at least (in alphabetical order):

consumers; culture of consumption; economic activity; environment; government;
industry; market economy; natural resources; producers; profit; waste;

Such a critical approach would regard 'waste' within a market economy as due to the affect driving producers in a capitalist economy to continually seek profit from the exploitation of environmental resources, and a consequent need for continued growth in both production and consumption (Pearce et al., 1989: 10). However, the liberal model of a waste-event *excludes* such key social, political and economic affects within the waste assemblage. From a critical perspective, liberal environmentalism's focus on recycling policies is only a minor part of the solution: a sticking plaster on the damage that industrial production wreaks on the environment. These gaps in the liberal environmentalist policy-assemblage challenge its adequacy and appropriateness as a viable intervention, whether to address waste or for global challenges such as halting anthropogenic climate change. By excluding from analysis the economic and political aspects of the dynamic interactions between human culture and the natural world, such polies are rendered inadequate as a means to address one of the core drivers of anthropogenic climate change: the capitalist mode of economic production..

5. Green capitalism

The liberal environmentalist policy position has more recently morphed into policies that may be designated as 'green capitalism'. This latter has been a perspective favoured by policy-makers of multiple political hues, though most vociferously by politicians on the right and entrepreneurs. Simply put, while liberal environmentalism ignored the effects of a market economy upon the environment and climate change, green capitalism considers a market economy as the means by which the world can be rescued from the current climate crisis (Tienhaara, 2014; Zysman and Huberty, 2014). It is reflected in the rapid shift of the car industry toward electric vehicle and battery manufacture, and the embrace by the political Left of renewable energy production as a new growth industry providing jobs and cheaper energy (Russon and Prescott, 2021).

Two versions of green capitalism have emerged. The first of these suggested that climate change was a failure in how markets should ideally operate (Stern, 2007: 1). This revisionist turn was best represented by the work of Nicholas Stern, former chief economist at the World Bank and a former senior UK Treasury civil servant. In Stern's (2007) assessment, capitalist markets failed due to the ability of greenhouse gas producers, mainly Northern nations, to limit global climate change consequences while impacting regions not responsible for emissions. He proposed market intervention via regulation, taxation, and international cooperation through three strategies: implementing efficient carbon pricing/trading, fostering low-carbon technology innovation, and employing incentives and disincentives to alter consumer and business behaviour (Stern, 2007: xviii-xxi). With these tweaks, a market economy can become the environment's saviour (see also Pearce et al., 1989: 153-171).

The second and more radical version of green capitalism transformed liberal environmentalism into a 'neoliberal environmentalism'. Proponents of this policy position argue that ingenuity, entrepreneurialism and capitalism's unending quest for profit together are the only means to reverse climate change (Prudham, 2009: 1596). These features, according to green capitalists, have created widespread prosperity through industrialisation, as technological innovation enhanced production and consequently capital accumulation. Green capitalism is distinctive in 'the increasing incorporation and internalisation of ecological conditions into the circuits of capital accumulation' (Prudham, 2009: 1596). Zysman and Huberty (2014: xiii) suggest synergy between a capitalist free-market and the environment, within a 'green spiral', that:

reflects a process of mutually reinforcing feedback between climate policy and industrial interests, in which the development of new infrastructure and energy approaches creates new economic clienteles who then become advocates for further action. ... These green industrial interests help stabilise policies in place and push for new policies, offsetting opposition from interests tied to the pre-existing system.

These green spirals can fuel new technologies and methods of production, according to Zysman and Huberty. However, success will depend upon 'immediate material gains ... that can sustain the search for broad growth opportunities capable of supporting our long-term

goals for the economy, the environment, and the planet at large' (Zysman and Huberty, 2014: xiv).

The continuities between these two green capitalist turns in environmental policy emerge when analysed micropolitically. In both analyses, capitalist economics *is* part of the climate change assemblage – unlike the liberal environmentalist perspective, which ignores this affective link. At the same time, green capitalist policies de-couple environment sustainability from economic development and growth: the latter do not really feature in these green capitalist policy assemblages. In addition, both recognise that markets can and should alter how they operate, so that they enhance the environment rather than destroy it. While Stern (2007) saw governmental regulation and interventions as key to re-direct the flows of capital away from production of greenhouse gases, neo-liberal environmentalists consider the quest for profit within a free market as having the in-built affective capacity to move economies towards low-carbon energy technologies.

Once again, the interaction between event and policy assemblages illustrated in Figure 1 can be applied to this policy position may be applied. In a green capitalist conception, the climate change event-assemblage (EA) comprises at least (in alphabetical order):

capital; climate; consumers; developing and developed nations and governments;
economic growth; energy; entrepreneurs; existing energy technologies; greenhouse
gases; industry; innovative green technologies; material resources ('the
environment'); market economy; means of production; profit; the Sun;

As can be seen, the green capitalist version of the climate change EA incorporates many elements excluded from the liberal environmentalist event-assemblage considered earlier. The principal affect in the green capitalist policy-assemblage that interacts with this EA links entrepreneurial efforts to transform raw materials such as aluminium and lithium into 'green' innovations such as solar panels, electric vehicles and wind turbines. Such products can then compete and eventually replace technologies generating greenhouse gases, and thereby halt global warming (Fox, 2022).

However, this policy-assemblage (PA) excludes from attention some other key affects that a comprehensive analysis of anthropogenic climate change identifies. By reconstituting the environment as a resource for capitalist production, and humans simply as workers or consumers, this event-assemblage is ‘capitalocentric’. Concerns with environmental sustainability are replaced with an overarching concern for economic development, which is treated as the basis for worthwhile human existence: any benefits for the environment are an added bonus. Inherent problems deriving from the market competition baked into a capitalist mode of production, including an incessant need for growth (Bosquet, 1977: 166) and consequent wastefulness (Yearley, 2014; 106) are ignored as fundamental causes of environmental degradation and greenhouse gas emissions, while national and global inequalities in wealth and well-being linked to a capitalist mode of production are also un-addressed.

The development of electric vehicles (EVs) supplies a good example of this capitalocentric affect-economy. While EVs can play a major part in reducing the production of greenhouse gases by drivers, this green capitalist approach ignores the environmental costs of extracting resources, in particular lithium and other rare elements for EV battery production, mostly in global South developing countries (Sovacool et al, 2019: 213). The shift to mass production of EVs (while supplying car manufacturers with a welcome opportunity for innovation and hence profit) will also result in substantial increases in waste: not only when EV batteries (which are only 50 per cent recyclable) reach the end of their useful life in approximately 10 years (Richter, 2022), but also the wastage of billions of redundant fossil-fuelled vehicles and all the vehicle production plants that EV manufacturing s will replace over the next twenty years. Furthermore, the EV industry depends upon rapid energy-intensive market growth, while cut-throat competition between major vehicle manufacturers will lead to further wastage as uncompetitive corporations fail or are taken over (Fox, 2022). These economic aspects of the shift to EVs challenge the capacity of this kind of technology-driven initiative to drive down greenhouse gas production.

This analysis of the green capitalist policy-assemblage supports the views of many scholars, who have argued that it is highly questionable whether green capitalism is adequate and/or

appropriate to achieve anything approaching net zero carbon use (Blakeley, 2021; Harris, 2014; Keen, 2021; Prudham, 2009; Smith, 2016), and is indeed part of the problem underpinning anthropogenic climate change.

6. Discussion: towards a more-than-human climate change policy

A policy-assemblage (PA) approach has provided a micropolitical analysis of two of the principal policy positions on environmental sustainability and sustainable development in current political discourse. This novel methodological approach allowed comparison between the affect-economies of liberal environmentalist and green capitalist PAs with the event-assemblage (EA) that they aim to address: anthropogenic climate change. This assessment revealed that neither liberal environmentalism nor green capitalism PAs fully engaged with the complex natural and social assemblage behind anthropogenic climate change and other environmental impacts. Neither, it may thus reasonably be argued, is consequently adequate or appropriate as a climate change policy.

However, this micropolitical perspective to policy analysis offers further opportunities not available in approaches such as a discourse analysis of policy statements (Gasper and Apthorpe, 1996). Not only does it enable evaluation of policies, but also the means to devise an adequate and appropriate policy assemblage. This concluding section develops a more-than-human policy assemblage that can supply a feasible way forward to address environmental sustainability and the climate crisis, acknowledging humans as an integral though not privileged *part* of environment (Fox and Alldred, 2020b).

Micropolitical analysis indicates that both liberal environmentalism and green capitalism PAs retain an anthropocentric bias, despite their claims to address the needs of the non-human 'environment'. In the former, the environmental damage caused by human actions are not subjected to critical assessment and the focus is upon further human action to ameliorate this damage. In the latter, human ingenuity, as demonstrated by both technological advances *and* the emergence of the capitalist economic mode of production, is hailed as the saviour of a climate unwittingly damaged by previous human technologies and the same economic model.

Earlier, this chapter offered a critique of anthropocentric ontologies of environment, and developed a more-than-human alternative that dissolves the dichotomy of human/environment. From a more-than-human standpoint, humans and their culture are integral to the environment, deserving equal consideration without privilege or exclusion (Fox and Alldred, 2020b). This perspective does not prioritise current or future human needs but acknowledges humans' distinctive abilities within the environment, such as attributing meaning to events, practicing altruism, innovating technologies, and employing reason for theorizing and foreseeing future events (Fox and Alldred, 2021; Schmidt, 2013: 189-190). Sustaining these positive unique capacities will be part of the task of any successful climate change policy.

This more-than-human ontology supplies a foundation upon which to design a climate change PA that has the capacity to overcome the anthropocentrism of existing policy positions. Such a comprehensive climate change EA comprises (in alphabetical order):

animals; atmosphere; capitalist economic model; competition; consumption; Earth;
global North; global South; governments; greenhouse gases; growth; humans;
ideologies; industry; market; nations; natural resources; oceans; plants; profit; Sun;
waste; wealth and health inequalities

To be similarly comprehensive, a more-than-human PA needs to engage with the complex affect-economy in this EA, and devise actions that effectively address these affects, while also aligning itself with a broader perspective on environmental sustainability. While the development of such a policy would require extensive discussions among governments, experts, and stakeholders at both global and national levels, certain overarching affects crucial to this policy framework can be swiftly identified and integrated.

First: this PA should recognise the challenges currently facing many life-forms and habitats from human development and population expansion. Policy needs to respond swiftly and comprehensively to the negative environmental impacts of the industrialisation of production, the unending extraction of natural resources, and the pollution caused by waste products.

However, this needs to go hand-in-hand with local and global income redistribution, to assure basic living standards for all humans, regardless of social contexts or nationality.

Second: it should acknowledge the part that human altruism, ingenuity and technology can play in replacing means of production that are generating greenhouse gases and otherwise damaging the environment and non-human species (Fox and Alldred, 2020b). But as a necessary qualification to this, a further acknowledgment is required: that it has been the capitalist market economy – with its objective of capital accumulation and consequent need for incessant growth – that together drove the industrialisation that in turn resulted in environmental degradation and the current climate crisis, and continues so to do (Baer, 2012; Bosquet, 1977: 166). Human ingenuity and innovation needs to be de-coupled from capitalism and its pursuit of competition, economic growth and profit, with concomitant social, economic and political transformations required.

These affective movements supply a basis for a comprehensive policy approach involving incremental actions, spanning from local to global levels, to tackle the multifaceted impacts of climate change across natural, biological, social, economic, and political realms. These actions are not standalone choices but are intricately interconnected, forming a coherent strategy to effectively address climate change complexities. Importantly, this is a long-term, worldwide initiative that hinges on political determination, effective leadership, and collaboration among diverse stakeholder groups to achieve success.

Such a policy assemblage to counter anthropogenic climate change – assuring both environmental protection and sustainable development, encompasses several interconnected threads.

A first strand emphasises the use of fiscal and regulatory mechanisms to incorporate the true environmental costs of goods and services into their pricing. This approach aims to minimise the extraction of new environmental resources and promote recycling and reuse. The focus is on strengthening protection for non-human resources, acknowledging the interconnections between environmental and human well-being.

Second, the programme highlights the importance of supporting environmentally-friendly technologies by offering tax incentives and promoting the global sharing of intellectual property. Key infrastructure sectors like transportation, food production and energy generation and distribution should be managed independently of market forces to facilitate more rational resource consumption. The expertise and technology required for efficient recycling and the replacement of non-recyclable materials, such as plastics, should be shared globally.

However, the programme must also acknowledge the need for intervention in capitalist markets through legislation, regulation, and taxation, reintroducing 'market distortions' that neoliberal advocates have sought to eliminate over the past 200 years (Fox, in press). It aims to eliminate wasteful production processes and encourage the production of long-lasting and sustainable products. The proposal also advocates for regional trading zones, like the European Union and ASEAN, as alternatives to global free trade that often favours wealthier nations.

Alongside these economic and political intervention, a final strand of the programme would ensure human social and economic security by addressing wealth inequalities. It suggests the implementation of universal basic income schemes as a means to replace existing welfare and means-tested benefits systems. This would be financed through higher rates of taxation on personal income, corporate profits, and penalties for environmental pollution. Additionally, population growth management and migration policies aligned with global environmental objectives are considered essential.

Implementing this ambitious programme will necessitate extensive collaboration and alliances, both domestically and internationally. Depoliticising climate change policy and empowering organisations such as the United Nations and the IPCC with authority and resources could facilitate its implementation. Moreover, the cooperation and support of countries in the global South are seen as crucial for the success of these challenging policies.

In summary, such a comprehensive climate change policy-assemblage represents a comprehensive approach to address environmental challenges, wealth inequalities, and sustainable development. It recognises the need for significant changes in taxation, regulation, and international cooperation to transition toward a more sustainable and equitable global future. While challenging, this policy perspective is urgently required to make global and national climate change policies fit for purpose, and to reveal liberal environmentalism and green capitalism as at best sticking plasters, and at worst insidious ideologies that will carry the world toward inevitable climate catastrophe.

Conclusion

The chapter has questioned the effectiveness of two of the principal current international policies to address the urgent climate crisis. These policies were explored from a holistic perspective, considering the comprehensive scientific and social understandings of anthropogenic climate change. Methodologically, it applied a 'policy assemblage' analysis, and used this to evaluate the liberal environmentalist and 'green capitalist' policy perspectives. Both were found inadequate as approaches to combating climate threats resulting from human activity. Instead, the chapter has suggested a more comprehensive, and scientifically and politically sound climate change policy, as an effective approach to address the pressing environmental challenges faced by both human and non-human inhabitants of planet Earth.

Notes

1. Knowledge of a topic such as anthropogenic climate change will never be perfect, due to the highly complex physical, biological and social affect-economies in event assemblages such as these, as yet not fully understood by scientists and social scientists.
2. Liberal environmentalism was a foundational principle in UN sustainability policies since the 1970s. The *5th Assessment Report of the Intergovernmental Panel on Climate Change* (IPCC, 2014) reaffirmed the dual objectives of socioeconomic development and environmental sustainability. While non-human life relies solely on environmental sustainability, human well-being depends on both elements (IPCC, 2014: 137). The United Nations' (2016) *Agenda for Sustainable Development* reiterated these goals and outlined 17 sustainable development objectives. Surprisingly, 13 of these objectives focused primarily

upon improving human life quality, including poverty eradication, gender equality, and access to clean water and energy. Only three goals were directed toward environmental concerns. Notably, the strategy relied heavily on economic growth rather than wealth redistribution between the global South and North. However, the assumed positive link between economic development and environmental protection has been widely questioned (Rees, 2003) and sometimes found to be contradictory (Wallis, 2010; Yearley, 2014: 104).

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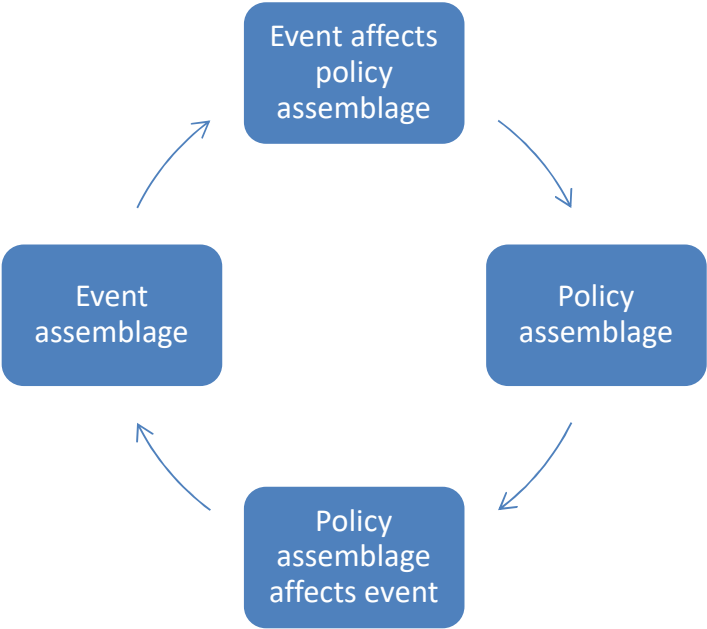
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Figure 1. How event- and policy-assemblages interact



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