How can relational, decolonial and feminist approaches inform the EU bioeconomy?

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NOTE AND COMMENT

How can relational, decolonial and feminist approaches inform the EU bioeconomy?

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Abstract

In this commentary we argue that, to transform the bioeconomy sectors towards ecologically less harmful and socially fairer outcomes, the bioeconomy policy project must be questioned, re-politicised and fundamentally reframed and reinvented. We firstly identify some of the main root causes for continuity of extractivism and injustices in the bioeconomy policy and, more broadly, in the green transition ("Root causes of today's socioecological crises and why they matter for the EU bioeconomy project" section). Secondly, we outline the largely neglected ideas and concerns emerging from relational, feminist and decolonial approaches and perspectives ("Moving beyond growth while enabling marginalised voices, knowledges, and practices that nurture web of life and wellbeing for all" section). Finally, we compile a list of 11 actions and 47 suggestions for decisionmakers, practitioners and academics to contemplate on how to cocreate bioeconomies founded on ethics of care, relationality and socioecological justice. Ultimately, the aim is to reject socioecological domination, extractivism and exploitation and foster collective wellbeing for all beings, human and other-than-human.

Keywords EU Bioeconomy · Colonialism-capitalism · Extractivism · Decoloniality · Relationality · Feminist approaches

Problematising the 'sustainable and circular' bioeconomy

The EU adopted its first bioeconomy strategy in 2012, followed by various national strategies in the EU member states. Further the policy was promoted through development and environmental programmes and projects across the countries in the so-called 'Global South', i.e. Majority Worlds. Over 60 countries have adopted their own bioeconomy strategies or are working on bioeconomy policies (GBS 2020), and multiple bioeconomy definitions and visions have been promoted and contested (Ramcilovic-Suominen et al. 2022, Vivien et al. 2019). We approach bioeconomy as a political project and a policy domain characterised by competing agendas between policy actors and societal groups, who are differently positioned to influence, and to be influenced by the policy (Ramcilovic-Suominen et al. 2022).

The EU Bioeconomy Strategy frames the sustainable and circular bioeconomy for Europe as the one that (i) reduces dependence on non-renewable resources; (ii) manages natural resources sustainably; and (iii) mitigates and adapts to climate change. This is in addition to the objectives of ensuring food and nutrition security and strengthening European competitiveness and creating jobs. As multiple EU policy

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documents show and as the EU Bioeconomy Youth Ambassadors point out *"bioeconomy is often framed as the solution to the polycrisis, (…) and a crucial part of the portfolio of solutions available to mitigate and adapt to the polycrisis"* (Bioeconomy Youth Vision 2024).

Since its inception, however, the EU bioeconomy political project has largely focused on technological innovation as a means to increase the use of bio-based resources in industrial processes with the goal of fuelling economic growth decoupled from environmental impacts (Bugge et al. 2016; Eversberg et al. 2023), as well as to respond to geopolitical security concerns (Vezzoni 2023). This narrow vision for the bioeconomy has persisted across multiple successive EU bioeconomy documents, while the concerns related to justice, inequalities, and green (neo)coloniality have been reduced to economic justice within Europe, glossed over, and/or fully ignored (Ramcilovic-Suominen 2022; Giuntoli et al. 2023).

Extensive evidence indicates that pursuing this vision has been ineffective at tackling the existing polycrises. Mubareka et al. (2023) have highlighted how economic outcomes of the EU bioeconomy, i.e. turnover and value-added in bioeconomy sectors, clearly show positive trends, while at the same time the pressures exerted over ecosystems remain very high. Further literature highlights the existing exploitative relations within bioeconomy supply chains, which have generated further injustices (Backhouse et al. 2021) and contestation by citizens and academics (Dieken et al. 2021; Eversberg et al. 2022).

We argue that, to transform the bioeconomy sectors towards ecologically less harmful and socially fairer outcomes, the bioeconomy policy project must be questioned, re-politicised, and fundamentally reframed and reinvented. To that end, we firstly identify some of the main root causes for the continuity of extractivism and injustices in the bioeconomy policy and, more broadly, in the green transition ("Root causes of today's socioecological crises and why they matter for the EU bioeconomy project" section). Secondly, we outline largely neglected ideas and concerns emerging from feminist, decolonial, and Majority Worlds' perspectives, as well as ontologies and approaches emphasising relationality and interconnectedness ("Moving beyond growth while enabling marginalised voices, knowledges, and practices that nurture web of life and wellbeing for all" section). Finally, based on these perspectives, we compile a list of 11 actions and 47 recommendations for decision-makers (Suplementary Matterial S1) and researchers alike, to explore and consider alternative imaginaries associated with the bioeconomy project.

Root causes of today's socioecological crises and why they matter for the EU bioeconomy project

The time to rethink the bioeconomy project is ripe. Failing to deliver on environmental (Mubareka et al. 2023) and social effectiveness, both domestically (Friedrich et al. 2023) and globally, the policy has generated socioecological and epistemic injustices, green extractivism, and green (neo)colonialism (Backhouse et al. 2021, Fuchs et al. 2020; Gebara et al. 2023). These effects relate to the broader systemic and historically embedded unequal economic, social, and power relations that are maintained in today's global environmental politics, governance, and global trade relations (Hickel et al. 2021). They also share common root causes, such as anthropocentrism and the myth of constant growth, the neoliberal view of the environment and the primacy of market-based solutions. These factors in turn relate to the nexus of (neo)colonialism and capitalism and an institutional and ideational domination across colonial, racial, class, and other intersectional lines.

Constant growth on a finite plant and the myth of green growth

The idea that constant growth is possible on a finite planet has been challenged and debunked over the past decade (Hickel et al. 2022; Parrique et al. 2019). The pursuit of green growth has resulted in continued socioecological and ecosystem destruction (suggesting a weak decoupling between growth and environmental damage, Hickel and Kallis 2020), as well as injustices against the racialised, gendered, poor, marginalised, and made dispensable others (Fraser 2022).

Despite the empirical evidence of the contrary (Giampietro 2019; Martinez-Alier 2022), the EU environmental and green transition-related policies still rely on this myth, favouring the dominant socio-technical imaginary of constant economic growth over socioecological and justice imaginaries (Eversberg et al. 2023; Friedrich et al. 2023). The strategy limits its focus on justice solely to European geography and perspectives (e.g. distributional justice within EU countries), which is insufficient considering the policy's global implications (Backhouse et al. 2021; Gebara et al. 2023; Fuchs et al. 2020).

The anthropocentric perspective and seeing the rest of nature as an asset and service provider to humans

Western culture from the ancient Greeks through to Enlightenment thinkers and neoliberal modernism has been imbued with a sense of human superiority (Sessions 1974). Aristotle's hierarchical ranking of animals and plants was developed through Christian scholasticism into a *Scala Naturae* (the 'Ladder of Being'), which conceived of humans just below a monotheistic God with all other animals and plants beneath.

This placing of nature as separate from and subservient to human needs (in some cases enthusing a 'God-given right' to plunder and dominate the rest of nature) has long been argued to be a primary driver of environmental destruction (Plumwood 1993; White 1967; Sessions 1974). The human-centrism also relates to other false narratives, such as racial supremacy, both of which have been used by European colonial powers to justify colonisation, appropriation, and commodification, as the history of various Western countries testifies (Moore 2017; Patel and Moore 2018; Hickel et al. 2021; Haberl et al. 2007).

Under anthropocentrism, the natural world is viewed from an instrumentalist perspective, and this value perspective has dominated modern science–policy discourse with most of it describing nature protection as a means to enable human development (IPBES 2022). Contrary to this value positionality, many people in the Minority Worlds, especially those of Indigenous backgrounds, see nature through the lens of deeper kinship and ancestry, often taking a more biocentric and relational, rather than anthropocentric perspective, where humans are nested in an interconnected web of life and equally important as other species (Mäkinen-Rostedt et al. 2023; Wahinkpe and Narvaez 2022).

The dominance of instrumental values in bioeconomy discourse is associated with framing of nature as a set of assets ('natural capital') providing ecosystem 'services' to humans. Quantifying and monetising these services is viewed as an essential step in their protection and restoration (Dasgupta 2021; Spash and Hache 2022). This approach is problematic, not only because we do not yet understand the roles and functions of all the known species, let alone the ones still unknown to us (Mora et al. 2011; Oliver et al. 2015). In addition, there are potentially perverse psychological and moral outcomes, as an instrumental approach to ecosystem management exacerbates the psychological disconnect with nature, which reduces attitudes of care, responsibility, and pro-environmental behaviours (EEA 2023, Ramcilovic-Suominen, in press). Concepts such as 'payments for ecosystem services' crowd out social norms where nature would be protected for reasons other than economic ones (Ezzine-de-Blas et al. 2019). Additionally, psychological attributes underpinning speciesism—the belief that humans are morally superior to other animals and can exploit them for their own interests—is also associated with general prejudicial attitudes and ideologies, including racism, relating to our colonial history (Dhont et al. 2016; Everett et al. 2019).

The (neo)colonial and capitalist underpinnings of today's socioecological crises

The emergence of capitalism as a social system is tightly linked with the colonial project, the associated destruction and plunder of wealth and resources, enslavement, and appropriation of various forms of life (Danewid 2023; Ramcilovic-Suominen forthcoming; Rodney 2018). It led to erasure and denial of personal and collective histories and identities, languages, sexualities, knowledges, and the ways of knowing and being of the enslaved and colonised native and Indigenous populations and their territories, across the 'Global South' (i.e. 'Majority Worlds'), which was produced in these violent encounters, as inferior to the 'Global North' (i.e. 'Minority Worlds') (Escobar 1995).

European coloniality and domination over most of the planet enacted and normalised primitive accumulation and appropriation of wealth, minerals, agricultural commodities, humans and oother-than-human species, and forms of life for capital and profit of the white European patriarchal and heterosexual elite (Lugones 2007), which founded the powerful block of modern European states. This was partly enabled by the primitive accumulation, socioecological destruction and violence for economic gains, and their normalisation in European regions, but it was further exacerbated and enabled by the colonial constructs of 'uncivilised savage' and 'vacant or unproductive lands' (Fanon 1925-1968, Danewid 2023; Rodney 2018).

While the European colonial project is considered mostly over, its legacies are preserved in the global institutional structures, military, political, and economic structures and relations established by the colonial powers for and in the interest of the imperial, European, and settler-colonial states at the cost of the former colonies in the Minority Worlds (Hickel et al. 2021).

As one of the central policies for the European green transition project, the EU sees bioeconomy as both a means and an end for the European Green Deal (EGD) (EU 2022). The EU bioeconomy supports the EGD by aiming at providing renewable materials to eliminate fossil fuels from industrial processes, which in turn requires expansion of the current size of the bioeconomy. Abandoning fossil development is important. Yet, the offered alternatives—such as mining of rare earth minerals, lithium, and other ores, and land grabbing for 'green' projects including bioenergy, to be sourced mostly from the Global South, for the green transition in Europe and the Global North—not only fail to question

these past colonial relations and injustices, but are also effectively reproducing them, through the green neocolonialism phenomenon and extractivism (Almeida et al. 2023, Ramcilovic-Suominen in Press).

Moving beyond growth while enabling marginalised voices, knowledges, and practices that nurture web of life and wellbeing for all

Relational approaches: from anthropocentrism, individualism and separateness to unity, interconnectedness, and relationality

Moving beyond an ineffective 'weak' sustainability approach for the European bioeconomy requires a fundamental shift in paradigms and values, and this is increasingly and finally recognised by major international science–policy organisations such as the UNEP, EEA, and policy assessments, such as the IPCC, and IPBES (2024), and supported by environmental social science (e.g. West et al. 2020, Ives et al. 2023). It requires individual and collective transformations and a new narrative recognising human embeddedness in, and co-dependence with, the rest of nature (EEA 2023). There are limitations to defining this as a single perspective, given a plurality in global values that should be acknowledged (IPBES 2022, 2024), though a common thread is seeing humanity as much more deeply interconnected and embedded in the web of life. We refer to these as relational approaches (West et al. 2020). Such approaches reject human exceptionalism associated with anthropocentric framings and recognise our deep interconnection to natural ecosystems reflecting relational and intrinsic values (Kenter and O'Connor 2022).

Relational approaches seek to overcome rigid dichotomies between nature and culture, mind and matter, and subject and object which characterise Western Enlightenment and to it associated worldviews. This means exploring other worldviews and ontologies, knowledge systems and epistemologies that reject these dichotomies and emphasise the entanglements and relational ways of being, thinking, and acting (Puig de la Bellacasa 2017; Walsh et al. 2021, West et al. 2024). Relational approaches in general seek to overcome anthropocentricism, viewing human and the rest of nature in separate terms, and the valuation of other-than-human nature solely in instrumental or monetary terms, and thus to move away from the dynamics of power and inequality in human–nature interactions towards an ethics of care (Puig de la Bellacasa 2017). Relationality thus has the scope to reimagine nature–human relations and sustainability policies and decision-making processes (Walsh et al. 2021; West et al. 2020).

Extensive recent social science research emphasizes the need to move beyond superficial economic interventions and technological innovations to also include deeper 'inner' leverage points for sustainability transformations (Abson et al. 2017; Wamsler et al. 2021; Woiwode et al. 2021; Oliver et al. 2022, Ramcilovic-Suominen, in press). New findings in the natural sciences from microbiome research to neurobiology continue to reaffirm how our perspective as isolated individuals operating in a competitive and hetero-patriarchal world is an illusion, which is increasingly maladaptive in terms of creating cooperative sustainable behaviours and institutions (IPBES 2024, Ramcilovic-Suominen, in press, Oliver 2020).

In combination with this growing discourse around alternative human–nature narratives some initiatives are beginning to operationalise these ideas and try to catalyse progressive cultural shifts beyond human–nature divide (see examples in Table 1, Action 1 in Supplementary Materials):

- The UNDP's *Conscious Food Systems Alliance* aims to go beyond economic, regulatory, and technology interventions for food system transformation by working on psychological aspects, particularly around connection to nature (Wamsler et al. 2022).
- *The UK Mindfulness Initiative* aims to promote inner development and greater compassion, while downregulating the individualistic and egoic identity (Barbaro and Pickett 2016; Schutte and Malouff 2018; Thiermann and Sheate 2022).
- The Inner Development Goals, an organisation launched in 2020, aims to improve our understanding of how inner development and transformations can support a sustainable future (IDG 2023).

These initiatives are still relatively niche, but represent examples of alternative policy and practice that may help catalyse learning for wider transformation of activities in the bioeconomy domains. Thus, we see occurring both an 'intellectual inflection point' in science–policy discourse as well as many small-scale progressive initiatives that together focus on the re-orientation of mindsets, identities, human-nature relations, values, and attitudes away from anthropocentrism.

Emotions affective responses play a critical role in economic and ecological processes and in driving interactions between communities, economies, and the environment (Ahmed 2004, 2014; Fontefrancesco 2023). Equally, affective responses such as care, nurturing, solidarity, and conviviality can also be guiding principles to challenge the dominant economic and ecological paradigms to recognise mutual interconnection and decolonial and socially just visions for flourishing relations that maintain economies and ecologies (Puig de la Bellacasa 2017).

Feminist, decolonial, and care-based approaches in the EU bioeconomy

Feminist and decolonial approaches are essential for imagining and analysing socioecologically just, democratic, and sustainable (bio)economies. They offer a powerful critique of capitalist accumulation and commodification of nature, life, and labour (Harcourt et al. 2015, Plumwood 1993). First, rooted in feminist ecological economics, the concept of caring economy is relevant for its foci on social provisioning, reproduction, and showing how the economy is embedded in reproductive processes that are treated as an available 'free resource' in capitalist economy (Fraser 2022), but also coproduction with more-than-human (Puig de la Bellacasa 2017; Tsing 2015; Haraway 2016). Caring economy perspectives emphasise, among others, the importance of precaution, cooperation, symbiotic interactions, and entanglements in and for maintenance of life.

Second, and rooted in feminist political ecology (FPE), is the relevant inquiry of power, knowledge, and vulnerability in economic and ecological systems, linking the analysis to genders, class, race, and other inequalities, and access to resources.[1] This inquiry relates to intersectionality with regard to vulnerabilities, unequal power relations, domination across race, gender, class, ethnicity, religion, disabilities, sexualities, and other societal categories. Jointly, these approaches call for repoliticisation of some of the key concepts in ecological economics and degrowth, such as scarcity, limits, and crises through politics of affinity and ethics of care. They highlight the importance of relationality as well as non-material, yet real and concrete aspects of scarcities, such as scarcity of time, relations and community, as well as scarcity of happiness, especially in the high-income EU and other countries (Mehta and Harcourt 2021).

The outlined feminist approaches have important implications for the dominant principles of mitigation of harms and aftercare, competition, and orientation towards profits which dominate modern bioeconomy discourse and policy (Hackfort and Saave 2024). The orientations towards 'what is needed for life' (Biesecker and Hofmeister 2010), emphasises the importance of sufficiency and care for future living beings, as opposed to eco-efficiency and human centrism. The focus on precaution and relationality are relevant for the dominant techno-scientific positivism and optimism in bioeconomy discourse, highlighting the embeddedness of knowledge and technologies within the ecosocial systems, and the implications they have on dependence and power relations (Whittingham and Wynberg 2021).

Moving towards decolonial school of thought highlights the need to revisit the EU's current and historic roles and responsibilities. This revisiting entails recognising and taking responsibility for the past colonial and imperial history, its current excess use and *net* appropriation of global resource from the Majority Worlds, and its disproportionally large contribution to climate change that disproportionally affects other than EU countries (Kumeh and Ramcilovic-Suominen 2023; Hickel et al. 2021; Sultana 2022).

Feminist, as decolonial approaches, discussed below, seek to dismantle patterns of power and domination that exploit both nature and marginalised human communities and groups, calling for transforming and challenging dominant patterns of power and exploitation (Curiel 2007; Cumes 2009). Transformation in this context is seen as a radical reconfiguration of socio-political, economic–ecological relations, which requires continual negotiations and radical reimagination of power and history, and of how inclusions and exclusions can be addressed (Nightingale et al. 2022).

Compensating for the so-called 'ecological debt' and 'climate debt' are important steps towards recognition of and taking the responsibility for past and present violences. But this does not challenge or seek to undo the underlying systems of inequalities and vulnerabilities that led towards such 'debts' in the first place. Financial compensation for 'externalities' such as biodiversity loss and/or CO_2 emissions are common policy measures called for also in bioeconomy (EC 2018). This approach shifts the burden of EU lifestyles to other geographies, territories, and people through various carbon and biodiversity offsetting schemes, which further result in ontological and epistemic 'burden' or violence, related to such policies (Ramcilovic-Suominen 2022, Sultana 2022).

The EU could set measures for curbing overconsumption at home, while promoting sufficiency and non-material wellbeing, and ensuring people's needs, rather than profits for shareholders, are met. Advertising and social media play a significant role in driving consumption and production processes, even shaping attitudes towards issues such as migration and minorities, mostly in the name of certain economic and ideological lifestyles and interests. Individuals consume, produce, and engage in economic and ecological practices based on emotions such as love, hate, fear, desire, etc. Those practices are not merely individual actions and experiences, but part of the social and cultural constructs based on wider imaginaries, values, and socio-historical and cultural ontexts. Such measures and campaigns can be supplemented by actions that address the deeply rooted causes of those immaginaries and constructs, including the (self-)image of the European citizen and its rights, responsibilities, and the place in the world. This relates, but is not limited, to the idea of how the so-called 'environmental' impacts of our

[1] See WEGO (Well-being, Ecology, Gender and cOmmunity–Innovative Training Network) https://www.wegoitn.org/

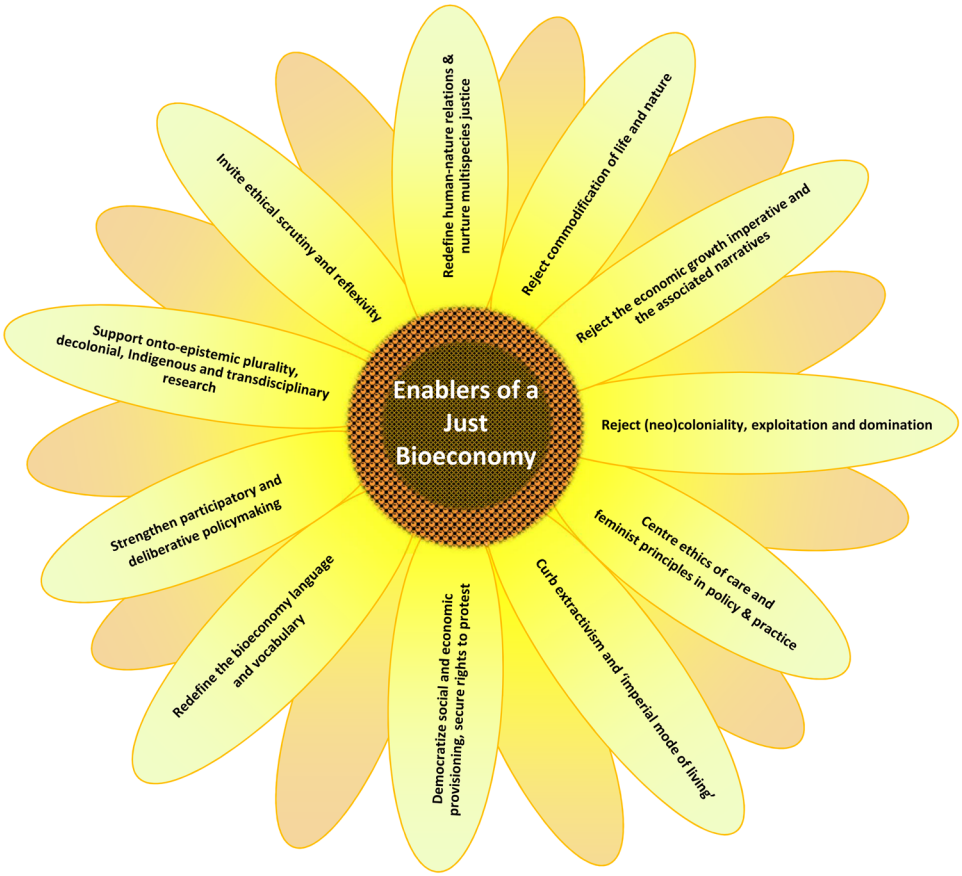

Fig. 1 The flower of change, representing 11 action points enabling socioecological justice

lifestyles are mitigated (e.g. the idea that the "biodiversity" or its destruction, as well as climate change caused by GHG intense lifestyles in the EU can be monetarily compensated for). It also relates to the often-unquestioned right to live by certain standards, often imperial standards and well above that of the majority of the world (Brand and Wissen 2021).

Abandoning economic growth as the main objective and adopting a solid and concrete focus on care and nurturing of human and other-than-human life are central for responding to the weight of past and present (neo)colonial and imperial legacies and domination. Policy makers and experts from the Minority Worlds need to listen with humility to the experiences and knowledges of the people in countries and regions of the world who are placed to lose in the global capitalist economy and the current green economy alike (Backhouse et al. 2021, Ramcilovic-Suominen 2022). They along all of us need to actively unlearn and undo the patterns of current economic, power, and external relations more broadly, founded on colonialism, racism, and exploitation of Black and people of colour and their territories (Sultana 2022). Further, they/we all need to promote and bring for thriving of commons, community, and wellbeing, abiding by the ethics and practice of generosity, reciprocity, and conviviality (cf. Mehta and Harcourt).

Tangible actions and enablers

We build on our critique of the current EU's bioeconomy policy project on the one hand and on the unexplored and largely neglected relational approaches, decolonial and feminist approaches on the other, to compile a table of 11 action points, presented as petals of the flower of change, in Fig. 1, and detailed with a list of 47 associated suggestions for change in Table 1 in Supplementary Materials. We envision these action points as potential enablers for strengthening socioecological justice and wellbeing for all beings, humans, and other-than-humans globally. Decision-makers, practitioners, and academics in the EU and beyond can consider and enact those suggestions to explore and forge imaginaries and visions for a bioeconomy founded on care, socioecological justice, and self-nquiry, self-knowledge and awareness. Ultimately, the aim is to reject domination and exploitation in bioeconomy and foster collective wellbeing for all beings, humans, and other-than-humans.

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