



## Viewpoint

## Limits to (de)growth: Theorizing ‘the dialectics of hatchet and seed’ in emergent socio-ecological transformations

Connor Joseph Cavanagh

Department of Geography, University of Bergen, Postboks 7802, NO-5020, Bergen, Norway



Socio-ecological transformation is coming. This much is clear from the generative exchange between Robbins (2020a) and Gómez-Baggethun (2020), as well as from the other incisive contributions to this Virtual Forum. As is perhaps most aptly put by the proponents of degrowth: either we will transform, or we will *be transformed* – albeit in deleterious ways – by unchecked processes of global environmental change. The magnitude and severity of such deleterious socio-ecological transformation is especially clear in future scenarios characterized by an increase of 4°C or more in global mean surface temperature above pre-industrial averages by 2100. Burke et al. (2018: 13290), for instance, note that this would rapidly amount to a ‘climate state different from any experienced in our history of agricultural civilizations (last 7 ka) [...] and modern species history (360–240 ka)’. Whilst transformation of the climate state might be the beginning of this story, moreover, it is far from the end – the drivers of such a magnitude and rate of global mean surface temperature change would of course also entail severe implications for biodiversity and ecosystem services, as well as the other material bases of both human and nonhuman wellbeing (Burke et al., 2018: 13291).

In this context, and inspired by the sort of ‘revolutionary humility’ that Robbins (2020b) advocates, I have a humble suggestion: regardless of whether one harbors intellectual sympathies for the ‘degrowth hypothesis’ (Hickel, 2019: 56) or one of its contending imaginaries of transformation, all of us would likely benefit equally from a more explicitly *dialectical* conception of political ecology’s archetypal ‘hatchet’ and ‘seed’. In other words, many of the contributors to this Virtual Forum would probably agree that a political ecology fit for purpose in the coming decades will need to deploy the hatchet of intellectual critique just as proficiently as it encourages the planting of various seeds in the form, *inter alia*, of diverse transformation hypotheses, programmes, or illustrative pathways. This is notwithstanding the field’s ‘anarchic splendor’ (Bryant, 2015: 16), born from engagement with a laudable plurality of normative perspectives: (eco)socialist, anarchist, feminist, anti-colonial, and so forth. My argument is that a more explicitly reflexive conception of ‘the dialectics of hatchet and

seed’ would be of value in this context, precisely because it may enable more intensely self-critical examinations of our own hypotheses of transformation – and especially so if we can manage to harness the same kind of analytical vigor in testing or calibrating these that we often reserve for critiques of ecomodernism.

In this Virtual Forum, Huber (2021: 1) alludes to the utility of the dialectical imagination vis-à-vis his observation that ‘our visions of the future must take seriously the historical and material conditions of the present’. This is reminiscent of what Arsel and Büscher (2012: 74) once described – following David Harvey’s *Limits to Capital* and its reflections on Marx’s *Grundrisse* – as ‘the dialectic between change and limits’ with respect to the emergent ‘greening’ of capitalism. Not least, this highlights the ways in which capital(ism), in all its variants, seems increasingly chameleonic: *hypothetically* capable of transforming itself – and thus, of converting apparent ‘limits’ into negotiable ‘barriers’ – in the context of political-ecological crisis. Yet it is likewise worth recalling that our own alternative visions of transformation remain equally mired in the materiality of this same baseline predicament. This is regardless of whether one is inclined to describe said baseline in relation to the dismal geometry of bending the global anthropogenic CO<sub>2</sub> emissions curve from a record high of nearly 37 billion tonnes in 2019 to (net) zero by 2050 (for example), or to other indicators of sustainability and wellbeing, qualitative or quantitative. Available data suggest, for instance, that more than 50 percent of all anthropogenic CO<sub>2</sub> emissions from 1750 to 2020 have occurred since *roughly only 1990* (Global Carbon Project, 2021) – coincidentally, the year of the IPCC’s first major assessment report. Even more starkly put, considering this Virtual Forum’s thematic focus, approximately 74 percent of these CO<sub>2</sub> emissions, 1750–2020, have occurred since only 1972, the year in which the Club of Rome’s *Limits to Growth* report was first published.

In highlighting these emissions figures, my intention is not to advocate for some sort of ‘climate reductionism’, but to illustrate the material gravity of the common political-ecological predicament with which our visions of more socially and environmentally just futures must dialectically engage. Responding to this predicament, many now seem

E-mail address: [connor.cavanagh@uib.no](mailto:connor.cavanagh@uib.no).<https://doi.org/10.1016/j.polgeo.2021.102479>

Received 30 June 2021; Accepted 19 July 2021

Available online 15 August 2021

0962-6298/© 2021 The Author.

Published by Elsevier Ltd.

This is an open access article under the CC BY-NC-ND license

<http://creativecommons.org/licenses/by-nc-nd/4.0/>.

inclined to coalesce support either 'for' degrowth or one of its contending imaginaries of transformation. Yet we are perhaps all well-advised to simultaneously cultivate dialectical political ecologies 'of' both the former and the latter. Just as we continue to debate the limits to growth (or lack thereof, for some – see Solow, 1973), so too might we consider the relevance of Kallis' (2021) conception of limits both *to* and *within* our own visions of socio-ecological transformation. At the very least, we may need to consider both normative and material limitations or constraints upon maximum achievable *rates of degrowth*, as well as the implications thereof for meeting climate mitigation or other concrete sustainability targets without catalysing additional socio-environmental injustices. Importantly, this is not at all to suggest that such pathways are infeasible in some kind of absolute sense, or that detailed scenarios for exploring associated possibilities should not be developed. Of course they should be – I, for one, would be more than willing to contribute to such efforts. But this is to say that all of us ultimately remain equally burdened with the responsibility of understanding – as fully or as clearly as one can – the manifold empirical implications of an 'actually-existing' radical or other pathway to transformation. Bracketing the possibility, that is, that emergent proposals for improving our contemporary socio-ecological condition are 'utopian' in the sense of being self-conceived largely as poetic or otherwise eloquently cathartic 'projection[s] into the future of an unrealisable society' (Luque-Lora, 2021: 2).

To take an example from this Virtual Forum, Hickel (2021: 1) rightfully highlights how 'IPCC models rely heavily on bioenergy with carbon capture and storage (BECCS) to get us out of trouble'. This would 'require land for biofuel plantations up to three times the size of India, which would almost certainly be appropriated from the South'; he continues, '[t]his is not an acceptable future, and is incompatible with socialist values' (Hickel, 2021: 1). Certainly, such risks are of major concern, illuminating how ecomodernist proposals may exacerbate historical dynamics of land and resource 'grabbing'. Elsewhere, Hickel has written favorably about Grubler et al.'s (2018) Low Energy Demand (LED) scenario as an alternative approach for meeting the 1.5 °C climate target, celebrating its avoidance of BECCS. The 'LED model represents a "degrowth" scenario', he suggests: 'as the only scenario that does not rely on questionable negative emissions technologies ... degrowth may be the only feasible way to achieve the emissions reductions required by the Paris Agreement' (Hickel, 2019: 56).

To be clear, my intention is not to somehow pick on Hickel, whose reflections on degrowth and anti-colonial movements in this forum alone are unquestionably valuable. Nonetheless, Hickel seems somewhat unconcerned that his preferred LED scenario avoids reliance on BECCS by substituting reliance on afforestation and other mitigation-related land cover changes on a similarly vast spatial order of magnitude. Indeed, LED simulates roughly 646 million hectares (Mha) of afforestation and 148 Mha of energy cropland expansion by 2100, instead of ca. 760 Mha of BECCS expansion, on average, in a contending 'fossil-fueled development' scenario archetype (SSP5-19, see IIASA, 2021). Recalling ongoing debates in political ecology about 'green grabbing' for carbon offset forestry and other mitigation schemes, a rural smallholder – for example – might understandably thus wonder why 760 Mha of BECCS expansion is so obviously 'not an acceptable future' and 'incompatible with socialist values', whilst an apparently degrowth future entailing 796 Mha of afforestation and energy cropland expansion would be more seamlessly compatible with such values, not to mention with anti-colonial or decolonial objectives?

I note, for instance, that quantitative output from the MESSAGEix-GLOBIOM 1.0 integrated assessment model framework for the LED scenario simulates afforestation at a rate amounting to approximately 81 Mha per decade, on average, with roughly 73 percent of this increase (ca. 470 Mha in total) explicitly targeting the Global South (as per the framework's own regional definitions, see IIASA, 2021). Likewise, ca. 92 percent of LED's 148 Mha of energy cropland expansion is also explicitly simulated in the Global South – amounting to an area smaller than India,

certainly, but still approaching the land area of contemporary Iran or Mongolia. As an alternative point of political-ecological reference, one could also note that the much-cited *Land Matrix Database (2021)* – notwithstanding its methodological limitations and distinct analytical focus – currently tracks a total of only roughly 66 Mha of land in 'concluded' transactions from 2000 to 2020, or an average of 33 Mha per decade. This is relative to a decadal average of almost 100 Mha of land cover change for afforestation and energy cropland expansion in LED, sustained every decade throughout the rest of the century (2020-2100). Hence, whilst LED entails significantly less total mitigation-related land cover change than other scenario archetypes (in which afforestation is typically simulated in addition to BECCS), it nonetheless seems clear that there would be a fraught political ecology of land cover change to consider in an actually-existing LED-like transformation pathway, demanding careful examination in its own right. Perhaps especially so, given that the scenario entails urbanization amounting to an 80 percent share of world population by 2100, up from approximately 56 percent in 2020 – likewise suggesting considerable implications for agricultural and other rural livelihoods (IIASA, 2021).

Again, my objective here is not to diminish the importance of degrowth-oriented or other aggressive demand-reduction scenarios, nor is it to detract from Hickel's (2021) excellent work on these and related themes. Emphatically, such efforts remain an absolutely crucial part of wider discussions about both climate mitigation pathways and broader trajectories of emergent socio-ecological transformation. My argument is simply that the further theorization and study of these and other latent dialectical tensions between hatchet and seed in political ecology will ultimately strengthen, rather than weaken, the field's relevance in the present conjuncture. Such a practice is likely worth cultivating regardless of whether one's favored 'seed' resembles a degrowth future, a form of (eco)socialist modernism, or some other vision of the socio-ecological good life. Each of these imaginaries of transformation will need to grapple dialectically with the same 'historical and material conditions of the present' (Huber, 2021: 1), whether in relation to the inevitable land cover change implications of rapid decarbonization on a planetary scale, or other possible constraints upon the maximum rate at which even the most aggressive demand-reduction approaches can lower GHG emissions from current magnitudes without catalysing additional socio-environmental injustices of their own. Nonetheless – in response to a certain question once raised by Mike Davis (2010) in *New Left Review* – political ecology should undoubtedly still contribute to 'building the Ark' of socio-ecological transformation in this context. Precisely this is the promise of a dialectically open, pluralistic, 'cross-POLLENating' vision for political ecology as both a field of study and as a forum for broader debate. That said, transformation beckons: we have to do what we can not only to ensure that 'the Ark floats', but also to avoid the exacerbation of existing socio-environmental injustices in the process – particularly those already being meted out, with no small amount of prejudice, in the name of 'sustainability' and 'development'.

#### Declarations of competing interest

None.

#### Acknowledgements

I thank Tor A. Benjaminsen and Caroline Nagel for the invitation to contribute to this Virtual Forum. I am grateful to Jevgeniy Bluwstein, Melanie Sommerville, Peter Andersen, Bill Derman, Ragnhild Overå, Espen Sjaastad, Paul Robbins, Tor Benjaminsen, Nitin Rai, and Caroline Nagel for helpful comments and exchanges.

## References

- Arsel, M., & Büscher, B. (2012). Nature™ Inc.: Changes and continuities in neoliberal conservation and market-based environmental policy. *Development and Change*, 43(1), 53–78.
- Bryant, R. (2015). Political ecology: Handbook topics and themes. In R. Bryant (Ed.), *The international handbook of political ecology* (pp. 3–13). Cheltenham and Northampton: Edward Elgar.
- Burke, K. D., Williams, J. W., Chandler, M. A., Haywood, A. M., Lunt, D. J., & Otto-Bliessner, B. L. (2018). Pliocene and Eocene provide best analogs for near-future climates. *Proceedings of the National Academy of Sciences*, 115(52), 13288–13293.
- Davis, M. (2010). Who will build the Ark? *New Left Review*, 61, 29–26.
- Global Carbon Project. (2021). *Global Carbon Budget 2020*. <https://www.globalcarbonproject.org/carbonbudget/index.htm>.
- Gómez-Baggethun, E. (2020). More is more: Scaling political ecology within limits to growth. *Political Geography*, 76, 102095.
- Grubler, A., Wilson, C., Bento, N., Boza-Kiss, B., Krey, V., McCollum, D. L., et al. (2018). A low energy demand scenario for meeting the 1.5 C target and sustainable development goals without negative emission technologies. *Nature Energy*, 3(6), 515–527.
- Hickel, J. (2019). Degrowth: A theory of radical abundance. *Real-world Economics Review*, 87, 54–68.
- Hickel, J. (2021). *The anti-colonial politics of degrowth*. Political Geography.
- Huber, M. T. (2021). *The case for socialist modernism*. Political Geography.
- International Institute for Applied Systems Analysis (IIASA). (2021). IAMC 1.5°C scenario explorer hosted by IIASA. URL= <https://data.ene.iiasa.ac.at/iamc-1.5c-explorer/#/login?redirect=%2Fworkspaces>. (Accessed 9 June 2021).
- Kallis, G. (2021). *Limits, ecomodernism and degrowth*. Political Geography.
- Land Matrix Database. (2021). Deals. URL= <https://landmatrix.org/list/deals/>. (Accessed 17 June 2021).
- Luque-Lora, R. (2021). *Engaging imaginaries, rejecting utopias: The case for technological progress and political realism to sustain material wellbeing* (p. 102358). Political Geography.
- Robbins, P. (2020a). Is less more... or is more less? Scaling the political ecologies of the future. *Political Geography*, 76, 102018.
- Robbins, P. (2020b). Revolutionary humility: Response to gómez-baggethun. *Political Geography*, 76, 102099.
- Solow, R. M. (1973). Is the end of the world at hand? *Challenge*, 16(1), 39–50.