



ESSAY

Growing degrowth: mind the trap

Frans Melissen ^{a,*}, Rob van der Rijt ^b and Lars Moratis ^a

^a Antwerp Management School, Breda University of Applied Sciences

^b Independent entrepreneur and researcher

* Corresponding author

Email addresses: melissen.f@buas.nl, robvanderrijt@klimaatplein.com, larsmoratis@hotmail.com

Information

Received 30 May 2022

Accepted 02 November 2022

Online 03 May 2023

Keywords

degrowth

advocacy

activism

circular economy

transformational change

1. Introduction

Originally, we planned to write and submit a *traditional* research article for this inaugural issue of the journal *Degrowth*. Our idea was to respond to Brand et al.'s call and contribute to "a dialogue [...] toward understanding and defining conditions and thresholds" (2021, p. 281) for self-limitation and realising a degrowth society. However, when the process of preparing our manuscript was nearing completion, we came to the conclusion that submitting it to this journal would be inappropriate and that we needed to write this essay instead. In our view, it represents a much more appropriate contribution to this inaugural issue of *Degrowth*. A full explanation of the train of thought behind this decision and appreciation is given by way of the remainder of this essay and starts with setting out the rationale for our original manuscript, and the research process it involved.

Based on the reference point that local government has a significant impact on realising broader (national and/or international) policy intentions *on the ground*, our research process was designed to explore to what extent municipalities in the Netherlands have installed degrowth conditions and have already engaged in initiatives that align with creating a degrowth society. Building on Cosme et al.'s (2017) categorisation of degrowth policy proposals, the specific policy proposals put forward by Kallis (2015) and Hickel et al.'s (2021) suggestions for policy interventions, we interviewed policy makers (aldermen and mayors) representing ten Dutch municipalities and scrutinised additional documentation to identify policies, measures and activities that (have the potential to) contribute to creating a degrowth society. The interview and identification processes were guided by Hickel's definition of degrowth: "A planned reduction of excess energy and resource use to bring the economy back into balance with the living world in a safe, just and equitable way" (2020, p. 29). We then conducted a thematic analysis of data gathered, gratefully and conscientiously making use of Parrique's (2019) categorisation of degrowth measures into 19 themes, 60 goals, 43 objectives and 140 instruments. Finally, we started drafting a first version of our manuscript, including a results and discussion section.

The gist of these sections, and the manuscript as a whole, would have been that municipalities in the Netherlands already put a lot of effort in trying to reduce (excess) energy and resource use but without a clear strategic focus. In fact, and more importantly, our findings suggested that Dutch municipalities fail to address the second part of Hickel's definition: how to do so in a safe, just and equitable way. Only very few of the measures taken by these municipalities relate to ensuring social fairness and achieving a transition from a materialistic to a convivial and participatory society. No measures were identified that correspond with or even somewhat resemble the first three policy proposals put forward by Kallis (2015): citizen debt reduction, work-sharing and basis and maximum income. In our conclusions section, we would have probably linked our findings to Hankammer et al.'s (2021) findings that even commercial organisations certified as being very sustainable do not (yet) cover the principles of degrowth

and could actually be argued to pursue green growth, as well as Krähmer's (2019) rather sobering assessment of the municipality of Copenhagen's approach to sustainable urban development – a so-called success story that, on closer inspection, is actually largely based on externalising ecological impacts. And our final conclusion would then have read something like: Unfortunately, despite their good intentions, *our* municipalities claim to be pursuing sustainable development, but their actions suggest they are actually pursuing a myth—green growth—by failing to address the socially just and democratic transformation or emancipation process (Parrique, 2019) that needs to accompany a planned reduction of excess energy and resource use.

As mentioned earlier, ultimately, though, we never finished this manuscript. Instead, we created an extensive but accessible [Dutch version](#) – which we shared with the interviewees and published online. We also issued a press release to news media, contacted a number of relevant environmental, governmental and business organisations for further discussions, and spread the core message of our study on social media. All of this also resulted in us getting the chance to hand over our report to members of the Dutch national parliament and agreeing to organise a round table with degrowth experts for them. Plans for a podcast and live presentations are in the making.

2. Are we looking up?

Meanwhile, in early 2022, the Working Group II contribution to the IPCC Sixth Assessment Report was published. It includes the following statement: “The window of opportunity for action is ‘brief and rapidly closing’” (IPCC, 2022). On April 5, 2022, António Guterres, Secretary-General of the UN, tweeted: “Climate activists are sometimes depicted as dangerous radicals. But the truly dangerous radicals are the countries that are increasing the production of fossil fuels. Investing in new fossil fuels infrastructure is moral and economic madness.”

On April 29, 2022, the Dutch national broadcasting association (NOS) reported on the heat wave scorching big parts of India. Their report included the following

statement: "Power failures are bad for the economy and tough on Indians because they cannot use their fans to cool themselves. Because coal power plants do not have sufficient coal in stock to provide for sudden high electricity demand – now that the rich and middle class suddenly use their air conditioning day and night, some areas experience power failures of up to eight hours a day" (André, 2022, translated from Dutch). A day earlier, April 28, 2022, Reuters reported that "climate change could see 4% of global annual economic output lost by 2050 and hit many poorer parts of the world disproportionately hard" (Jones, 2022) in an online item with the telling bold-faced header: "Climate change putting 4% of global GDP at risk, new study estimates."

On May 15, 2022, one of the editors of this journal, Timothée Parrique, could not stop himself from responding to an article by William Rinehart, senior research fellow at the Center for Growth and Opportunity of Utah State University, in which he refers to a blog post by Hanna Ritchie on *Our World in Data*. Based on the graphs presented in this blog post, Rinehart claims that what is needed is not degrowth but "ingenuity coupled with material abundance" and focusing on how to make "everyone wealthy enough to be able to do this" (Rinehart, 2022). After pointing out some of the (many) blatant falsehoods in both the original blog post and Rinehart's article, Parrique (2022) states: "I find it scientifically insulting that someone dares cobbling a few graphs together in defence of a crackpot hypothesis whose scientific legitimacy has fallen close to Flat Earth theory. Of course, this is science, and if you want to prove that rich countries can both produce and consume more while radically reducing their resource use and emissions, you're welcome to try. You won't be the first one to try and you won't be the first one to fail. But it will take more than a flimsy blogpost to do so."

Speaking of science, let us return to the IPCC Sixth Assessment Report and, more specifically, to some of the statements in the Full Report and the Technical Summary that did not make it into the Summary for Policy Makers. Careful scrutiny of all three documents reveals that degrowth is mentioned 15 times in the Full Report and not once in the Summary for Policy Makers. The Technical

Summary states that “decommissioning and reduced utilisation of existing fossil fuel installations in the power sector as well as cancellation of new installations are required,” while the Summary for Policy Makers states that “decommissioning and reduced utilisation” and “retrofitting existing installations with CCS” and “cancellation of new coal installations without CCS” can “contribute to aligning future CO2 emissions [...] with emissions in the assessed global modelled least-cost pathways.” Some other powerful statements from the Technical Summary, such as “the interaction between politics, economics and power relationships is central to explaining why broad commitments do not always translate to urgent action,” simply did not make it into the Policy Makers version at all.

These are just a few examples of official reports, news items, statements and opinions that illustrate the current state of affairs. Maybe the best way to summarise the present-day situation is to use the words of Peter Kalmus, NASA climate scientist and avid Twitter user, and those of Mark Rutte, Prime Minister of the Netherlands. In a recent tweet, Peter describes the situation as an “obvious and catastrophic fossil-fuel-and-capitalism-driven Earth breakdown” and you can almost hear him suspire when he adds that “it would be nice if [warning people about this] wasn't such a constant struggle with flak coming in from literally every direction.” As for Mark’s words... A few years ago, in 2019, while being interviewed for an online morning show, he stated: “We should not get carried away with climate [change]; we should still be able to enjoy our lives and [should be allowed to] barbecue.” These words have since come to represent an often-quoted concise explanation of the situation in *our* country – a situation that is not significantly different from any other country. Whereas the Technical Summary of the IPCC Sixth Assessment report states that there is an urgent need to overcome “resistance to policies (e.g., from incumbents in high carbon emitting industries),” politicians across our globe show similar resistance to adopting such policies in the first place. That has not really changed since that particular morning in 2019. What *has* changed is that recently we transgressed yet two more planetary boundaries – chemical pollution and green water (Persson, 2022; Wang-Erlandsson, 2022).

Against the backdrop of this ongoing societal collapse, we decided this is not the time to write and submit a research article highlighting that policy makers in Dutch municipalities are not yet engaging in and covering all policies, measures and activities needed to create a degrowth society. Of course they are not. Why would they? The fact that the latest IPCC report mentions degrowth 15 times does not automatically mean that it is now top of mind for aldermen and mayors. Clearly, the scientific community is slowly but surely reaching consensus on degrowth—including a focus on social justice, democratic transformation and emancipation processes—representing our only hope of avoiding the window of opportunity for action to close before our very eyes. However, this does not automatically mean that the interaction between politics, economics and power relationships is now heading in that same direction. In fact, (recent) history tells us that this is unlikely to happen any time soon.

3. The circularity trap

The best way to illustrate this is to review what *happened to* the circular economy – a concept that is closely related to the concept of degrowth. Like degrowth, it aims to reduce excess energy and resource use and, quite similarly to current discussions about degrowth, its conceptual development first started with discussions among (worried) academics based on (confronting) scientific facts. With time passing, this all changed for the circular economy concept and, to put it mildly, not all for the better. Therefore, from the perspective of furthering degrowth, it is wise to take stock of what happened.

The concept of circular economy currently dominates industrial and environmental policies in China, Africa, the European Union and the United States (Corvellec et al., 2021). As Ekins et al. (2019) explain, the origins of this key principle for current policy making can be traced back to (1) conceptual discussions on industrial ecology within the field of economic geography as early as the 1940s, (2) the seminal text on the principles of a circular economy by Boulding (1966), (3) the early days of the modern environmental movement in

the 1960s and 1970s, (4) the work by the Club of Rome – reported on in their Limits to Growth report (Meadows et al., 1972), and (5) numerous academic publications and textbooks building on Boulding’s principles without substantively adding to them right up to the very early 1990s. And then, “the idea went to sleep for close on twenty years, both in terms of use of the phrase, and intellectually” (Ekins et al., 2019, p.8), only to be revived by the Ellen MacArthur Foundation in the early 2010s. And what a revival it has been! Politicians across our globe have now basically adopted circularity as a panacea and have laid this down in a range of ambitious targets and policies. The number of funding programmes to stimulate a circular economy has mushroomed in recent years, as have governmental and non-governmental agencies and consultants who are eager to offer assistance with implementation. And then there is the seemingly endless supply of tips, tricks, checklists and guidelines that has emerged, as well as, to date, more than a hundred different definitions of what a circular economy entails (Kirchherr et al., 2017; Ekins et al., 2019; Corvellec et al., 2021). As for the academic world, in recent years attention for the circular economy has risen again after decades of relative silence and it is “trying to catch up” (Ekins et al., p.9).

All this leaves us with a situation in which an idea that now drives and shapes a significant portion of sustainable development policies and practices across our globe actually represents “a heterogenous collection of scientific and semi-scientific concepts” (Corvellec et al., 2021, p.2). Part of the explanation for the enthusiasm and excitement about this concept in non-academic circles is undoubtedly that, over the years, it has come to represent much more than simply reducing waste and resource use through reuse, remanufacturing, refurbishing and recycling. It is now widely—in every sense of the word—interpreted as a way to create an economic, social and environmental *win-win-win* situation. The Ellen MacArthur Foundation refers to this potential of the circular economy concept as the ability to create “an industrial system that is restorative or regenerative” (2013, p.7) and the authors of the yearly Circularity Gap Report go as far as to state that through “adopting a roadmap packed with

circular strategies, we can pave the way for the systemic transformations needed to course-correct the global economy” when it comes to getting us “on a path to a well below 2-degree world by 2032” (Circle Economy, 2021, p. 9). In fact, they claim that “current pledges” linked to the Paris Agreement and subsequent Conferences of the Parties (COPs) “bring us over 15% of the way; the circular economy delivers the other 85%” (Circle Economy, 2021, p. 9).

Meanwhile, academics are trying to catch up by scrutinising these claims. Can circular strategies really enable decoupling of resource use and emissions from economic growth? Will they allow us to create *perfect circles*? Will they allow us to regenerate our natural world, while simultaneously addressing the social and economic issues we face? It is beyond the scope of this essay to present you with a full overview of all academic publications and reports that have already answered these and related questions from various theoretical, practical and ideological perspectives. Instead, we highly recommend reading up on the latest state of affairs by starting with publications like the recent paper by Corvellec et al. (2021), which presents a (relatively) short but reasoned account of the various issues raised in the literature to date. Probably the best way to summarise findings related to the circular economy concept is that it currently represents “not a theory but an emerging approach to industrial production and consumption” (Korkonen et al., 2018, p. 551) that ignores the laws of thermodynamics and the fact that “circles can [...] never deliver growth. You need ever-increasing spirals for that” (Skene, 2018, p. 489). What is more, it remains unclear how so-called circular strategies actually contribute to social equality, especially given the fact that implementation *on the ground* seems to ignore moral and ethical issues that require addressing for bringing about societal transformation. Finally, despite popularity of the concept among policy makers, businesses, consultants and the like, our current economy is only 8.6% circular, and it is trending down, not up (Circle Economy, 2021). Apparently, not only is defining this particular concept proving problematic, its implementation is proving to be at least equally problematic.

As said, after being *silent* for years, academics are now trying to raise these issues by pointing out the various problems and consequences associated with pursuing a circular economy (in their publications), much like they have been doing in relation to the concept of green growth. For both concepts, slowly but surely, there is growing consensus in the academic world. It is becoming clearer by the day that “a circular economy will likely remain a mere pipe dream as long as the growth imperative drives the economy” (Bauwens, 2021, p. 2) because its principles are strictly limited in their “ability to provide resources for an expanding material economy” (Parrique et al., 2019). In fact, the way the circularity concept is currently interpreted and implemented by policy makers, the business world, and the like, is not contributing to a fair and just distribution of resources that accounts for social equality and planetary boundaries. Instead, it ignores rebound effects and retains an agenda focused on economic growth. This narrow approach to reducing excess resource use actually bolsters consumption and a socioeconomic system founded on the *good old* assumption that people and organisations acting in self-interest through the pursuit of profit, material wealth and property will automatically contribute to more prosperity for all. *We*, academics, more or less seem to be in agreement on this by now. However, this has not (yet) reduced excitement about and enthusiasm for the circular economy concept amongst *others*. Consequently, there is still “an overwhelming risk that [current] priorities will ignore social concerns” (Corvellec et al., 2021, p. 6), planetary boundaries and the laws of thermodynamics and, thus, there is “no guarantee that the final results will be positive for society” (Mavropoulos & Nilsen, 2020, p. 4). In fact, as things stand now, the opposite outcome is far more likely.

4. Cause for celebration or reflexivity?

With what happened to the circular economy firmly on our mind, let us now return to the concept of degrowth. Undoubtedly, this inaugural issue of the journal *Degrowth* is cause for celebration and congratulations to the founding members. Given the current state of affairs, there is a clear need for a journal dedicated to a concept that is mentioned 15 times in the latest IPCC Assessment Report and

that, in essence, has now been identified as the only viable option left to avoid societal collapse. As stated in the journal's manifesto, such a concept needs a home and a place where ideas can be further developed without the need to constantly start from zero making the case for degrowth, especially given the "incoherent depictions of degrowth" (Degrowth journal, 2022) that we can read and hear all around us. Let us celebrate that this place now exists.

However, this is also the time for reflexivity by all degrowth thinkers and doers. It is imperative that, from the start, we do much more than voice conceptual conflicts and bring up difficult discussions. Of course, we do need to report on empirical tests related to policy proposals and interventions put forward by authors like Kallis (2015) and Hickel et al. (2021). We do need to follow up on Hankammer et al.'s suggestion that "a fruitful direction to further research might be to analyse the links between organisations approaching degrowth and relevant institutions (regulations, standards, social norms) and other actors that can foster the transition towards a degrowth society (such as governments, NGOs, social movements or individuals)" (2021, p. 14). In fact, that is exactly what we, the authors, planned to do through writing and submitting the research article described in the introduction section of this essay.

But voicing conceptual conflicts, bringing up difficult discussions and reporting on testing policy proposals and interventions is not all we need to do. We, degrowth thinkers and doers, also need to make sure that we avoid making the same mistakes that academe has made in the past. Given that the window of opportunity for action is closing fast, we cannot afford to resolve conceptual conflicts and have difficult discussions among ourselves, formulate appropriate policies and measures, and then be *silent*, hoping *others* will pick up on what we have *delivered* and apply degrowth accordingly. We must not repeat what happened to the circular economy. As worded so eloquently by Gardner et al., we must rise to "the collective challenge with the urgency commensurate with [*our*] scientific warnings" and "engage in advocacy and activism to affect urgent and transformational change" (2021, p. 1).

That is why writing and submitting a research article on reviewing the current actions taken by Dutch aldermen and mayors—who have clearly not yet picked up on what degrowth is all about and what is involved in creating a degrowth society—without, or even instead of, acting on those findings, would have been a mistake. It would have amounted to not much more than moving academic air. Realising a degrowth society requires more than conceptual discussions within the confines of academe. It requires more than reporting on findings in an academic journal, which will not be read by policy makers. It requires bridging the infamous science-policy gap. To paraphrase Hall (2012), being concerned with furthering degrowth beyond academe requires more than just attending appropriately labelled conferences or producing yet another (manuscript conveying a) critique of the current system; it requires not only *thinking* other, but also *doing* other. We see that now and we apologise for not realising it sooner.

We hope that this essay—and our actions *on the ground* described in the introduction section—represents a much more appropriate contribution to the inaugural issue of the journal *Degrowth*. We also hope that it will contribute to ensuring that degrowth thinkers and doers do not fall into the same trap as we almost did. Of course, conceptual conflicts must be resolved, difficult discussions must be had and appropriate policies and measures must be developed. However, this is not the time to do so by retreating to an oasis for theoretical work. Instead, we must all be thinkers *and* doers simultaneously now. This might very well involve having difficult discussions with those well beyond the borders of the oasis and having to make the case for degrowth again and again. It most certainly involves renegotiating the (broken) science-society contract (Glavovic et al., 2021). Sometimes we will have to *seduce* people to be open to the idea of creating a degrowth society but, at other times, being loud and blunt may be called for (Springer, 2016). Advocacy and activism can take many forms and our own individual roles in this may differ depending on personal preferences, talents and circumstances. However, one thing is clear: it is time to go out into the desert.

And now, we have a perfect place to share and discuss our endeavours, catch our breath, and then jointly plan our next contribution to realising a degrowth society.

Conflict of interest

The authors have no conflict of interest to disclose.

References

- André, A. (2022). Vroege hittegolf leidt tot stroomstoringen en slechte oogst in Noord-India. <https://nos.nl/artikel/2426904-vroege-hittegolf-leidt-tot-stroomstoringen-en-slechte-oogst-in-noord-india>
- Boulding, K. (1966). The Economics of the Coming Spaceship Earth. In Jarrett, H. (ed.), *Environmental Quality in a Growing Economy*, pp. 3-14. Resources for the Future/John Hopkins University Press.
- Brand, U., Muraca, B, Pineault, E., Sahakian, M., Schaffartzik, A., Novy, A., Streissler, C., Haberl, H., Asara, V., Dietz, K., Lang, M., Kothari, A., Smith, T., Spash, C., Brad, A., Pichler, M., Plank, C., Velegrakis, G., Jahn, T. (...) Görg, C. (2021). From planetary to societal boundaries: an argument for collectively defined self-limitation. *Sustainability: Science, Practice and Policy*, 17(1), 265-292.
- Bauwens, T. (2021). Are the circular economy and economic growth compatible? A case for post-growth circularity. *Resources, Conservation & Recycling*, 175, 105852.
- Circle Economy (2021). *The Circularity Gap Report 2021*. <https://www.circularity-gap.world/2021>
- Corvellec, H., Stowell, A., & Johansson, N. (2021). Critiques of the circular economy. *Journal of Industrial Ecology*, 26, 421-432.
- Cosme, I., Santos, R., & O'Neill, D.W. (2017). Assessing the degrowth discourse: A review and analysis of academic degrowth policy proposals. *Journal of Cleaner Production*, 149, 321-334.
- Degrowth journal (2022). *The Manifesto of Degrowth journal*. <https://degrowthjournal.org/the-manifesto-of-degrowth-journal/>
- Ekins, P., Domenech, T., Drummond, P., Bleischwitz, R., Hughes, N., & Lotti, L. (2019). The Circular Economy: What, Why, How and Where. Background paper for an OECD/EC Workshop on 5 July 2019 within the workshop series *Managing environmental and energy transitions for regions and cities*, Paris.
- Ellen MacArthur Foundation (2013). *Towards the circular economy Vol. 1: an economic and business rationale for an accelerated transition*. <https://ellenmacarthurfoundation.org/towards-the-circular-economy-vol-1-an-economic-and-business-rationale-for-an>

- Gardner, C.J., Thierry, A., Rowlandson, W., & Steinberger, J.K. (2021). From Publications to Public Actions: The Role of Universities in Facilitating Academic Advocacy and Activism in the Climate and Ecological Emergency. *Frontiers in Sustainability*, 2:679019.
- Glavovic, B.C., Smith, T.F., & White I. (2021) The tragedy of climate change science. *Climate and Development*, <https://doi.org/10.1080/17565529.2021.2008855>.
- Hall, C.M. (2012). Academic capitalism, academic responsibility and tourism academics: Or the silence of the lambs? In Singh, T.V. (ed.), *Critical debates in tourism*, pp. 236-240. Channel View Publications.
- Hankammer, S., Kleer, R., Mühl, L., & Euler, J. (2021). Principles for organizations striving for sustainable degrowth: Framework development and application to four B Corps. *Journal of Cleaner Production*, 300, 1-20.
- Hickel, J. (2020). *Less is More. How degrowth will save the world*. Windmill books.
- Hickel, J., Brockway, P., Kallis, G., Keyßer, L., Lenzen, M., Slameršak, A., Steinberger, J., & Ürges-Vorsatz, D. (2021). Urgent need for post-growth climate mitigation scenarios. *Nature Energy*, 6(8), 766-768.
- Intergovernmental Panel on Climate Change (IPCC) (2022). *Climate Change 2022: Impacts, Adaptation and Vulnerability*. <https://www.ipcc.ch/report/ar6/wg2/>
- Jones, M. (2022). *Climate change putting 4% of global GDP at risk, new study estimates*. <https://www.reuters.com/world/climate-change-putting-4-global-gdp-risk-new-study-estimates-2022-04-27/>
- Kallis, G. (2015). Can We Prosper Without Growth? 10 Policy Proposals. *Green European Journal*, 11, 74-77.
- Kirchherr, J., Reike, D., & Hekkert, M. (2017). Conceptualizing the Circular Economy: An analysis of 114 definitions. *Resources, Conservation and Recycling*, 127, 221-232.
- Korhonen, J., Nuur, C., Feldmann, A., & Birkie, S.E. (2018). Circular economy as an essentially contested concept. *Journal of Cleaner Production*, 175, 544-552.
- Krähmer, K. (2021) Are green cities sustainable? A degrowth critique of sustainable urban development in Copenhagen. *European Planning Studies*, 29(7), 1272-1289.
- Mavropoulos, A., & Nilsen, A.W. (2020). *Industry 4.0 and circular economy: Towards a wasteless future or a wasteful planet?* Wiley.
- Meadows, D.H., Meadows, D.L., Randers, J., & Behrens III, W. (1972). *The Limits to Growth*. Universe Books.
- Parrique, T. (2019). *The political economy of degrowth* (Dissertation). Université Clermont Auvergne.
- Parrique, T. (2022). *A response to William Rinehart: Why lizards love degrowth*. <https://timotheeparrique.com/a-response-to-william-rinehart-why-lizards-love-degrowth/>
- Persson, L., Carney Almroth, B., Collins, C., Cornell, S., de Wit, C., Diamond, M., Fantke, P., Hassellöv, M., MacLeod, M., Ryberg, M., Søggaard Jørgensen, P., Villarrubia-Gómez, P., Wang,

- Z., & Zwicky Hauschild, M. (2022). Outside the Safe Operating Space of the Planetary Boundary for Novel Entities. *Environmental Science & Technology*, 56(3), 1510-1521.
- Rhinehart, W. (2022). *The answer isn't degrowth. The answer is abundance*.
<https://www.thecgo.org/benchmark/the-answer-isnt-degrowth-the-answer-is-abundance/>
- Skene, K.R. (2018). Circles, spirals, pyramids and cubes: Why the circular economy cannot work. *Sustainability Science*, 13(2), 479-492.
- Springer, S. (2016). Fuck Neoliberalism. *ACME: An International Journal for Critical Geographies*, 15(2), 285-292.
- Wang-Erlandsson, L., Tobian, A., van der Ent, R.J., Fetzer, I., te Wierik, S., Porkka, M., Staal, A., Jaramillo, F., Dahlmann, H., Singh, C., Greve, P., Gerten, D., Keys, P.W., Gleeson, T., Cornell, S.E., Steffen, W., Bai, X., & Rockström, J. (2022). A planetary boundary for green water. *Nature Review Earth & Environment*, <https://doi.org/10.1038/s43017-022-00287-8>.

The authors

Frans Melissen (1971) attained his MSc and PhD degrees (Industrial Engineering and Management Science) from Eindhoven University of Technology, where he also worked as a student counsellor and lecturer/researcher. Subsequently, he joined the Faculty of Business and Economics of the University of Groningen as an associate professor. In 2006 he started his career at Breda University of Applied Sciences and he is the University's Professor of Sustainable Experience Design. Together with Lars Moratis, he is also the University's Professor of Management Education for Sustainability and Chair in Management Education for Sustainability at Antwerp Management School. Through both Professorships, Frans aspires to serve as a force for change on the interface of sustainability, education, and business, and thus contribute to a sustainable transformation of wider society.

Rob van der Rijt (1974), founder of het Klimaatplein, attained his MSc (Business Communication) from Radboud University. Subsequently, he did research and publicised articles about the topic Corporate Social Responsibility & Communication. The last 15 years, from which 10 years as an independent entrepreneur & researcher, he guided businesses towards a lower carbon footprint, wrote the book *A carbon neutral business, this is how you do it* and organised seminars and lectures about how to make organisations more sustainable. For some time now, inspired by the books *Less is More* by Jason Hickel and the *Donut Economy* by Kate Raworth, he dedicates a significant portion of his time on research and communication about degrowth.

Lars Moratis (1977) is professor of Sustainable Business at Antwerp Management School and, together with Frans Melissen, the Chair in Management Education for Sustainability, a joint initiative of Antwerp Management School and Breda University of Applied Sciences. He received his M.Sc. and Ph.D. in Business Administration, from Rotterdam School of Management and the

Open University of the Netherlands respectively. He has published widely (and increasingly with a critical signature) on sustainable business and responsible management education, in academic journals, practitioner-oriented outlets, and national and regional newspapers. He has founded ImpactAcademy in order to inspire professionals to explore sustainability from different angles and owns a campsite in France.