Can Justice Respect Needs and Nature? The Idea of a Nature-Respecting Sufficiency

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1. Introduction

Imagine a train ride. The passengers rush through the doors of the train. Having passed the threshold to their desired space, they sit down, relieved. Zoosh, chuuggaa chugga, chugga-chuga, choo. The journey starts. Westward. Trains are a 19th century paradigm of innovation and frontiers pushed ever further. They provided images of progress and destiny.[1] This "progress ride" has been accompanied by an increasing standard of living but also an evergrowing economy, disregarding and violating other land users and uses, and undermining the conditions for safe travel. According to the 2019 Global Biodiversity Assessment, all major drivers generally point in a direction of unsustainability (Díaz et al. 2019). It concludes that the Sustainable Development Goals (SDGs), including SDG 14 and 15 for the protection of life below water and on land, cannot be achieved without "transformative change" (Díaz et al. 2019, p. 39). This chapter contributes to this discussion via a focus on the transformation of values. It proposes a nature-respecting sufficiency.

In a move from the train to the automobile and spaceships, popular metaphors are "planetary guard rails" and a "safe operating space" (Biermann and Kim 2020). In the process, the image of the train has changed. It is associated with romantic sounds that are reassuring in comparison to the further accelerated, high-emission planes and rockets that keep on pushing boundaries. The train has become the environmentally friendly vehicle. So when I travelled for the first presentation of this paper, southward from Montreal to New York by train, some people congratulated me for having taken the train (and some, no doubt, thought I was a bit strange and did not have much to do if I could take such a "long" trip). But with a view to history of the progress ride, such praise and change in image is suspicious. Or to explore the image further, having passed the threshold for the train ride, we now increasingly focus on the rails of the train, held together by thresholds, metal or wooden pieces that ensure that the train travels safely. These thresholds become an

[1] See for example John Gast's painting *American Progress* as discussed by Brown (2016).

image for material limits; their disregard derails the train on its journey. As travellers on the "Anthropo-Train", we increasingly insist on limits and boundaries. But is this focus on boundaries enough for the called for transformative change?

This chapter contributes to the values aspect of the seemingly neutral question of environmental limits and boundaries as well as the protection of biodiversity and non-human life on land and in the oceans. Transformation in the view proposed here requires a change in values. For this, the chapter draws on environmental and political philosophy (Taylor 1986; Nussbaum 2006) to propose the idea of a nature-respecting sufficiency. It thereby also shows the contribution of sufficientarianism to sustainability theory and politics, and it challenges the perception of sufficientarianism as a minimalist theory of justice with little regard for inequality and unsustainability. Rather, sufficiency calls for a focus on the resources needed for living in dignity and a justification of resource use above this threshold.

Section two situates the concept of sufficiency in the theory of justice and environmental sustainability. Section 3 turns to the minimum sufficiency threshold, and Section 4 to its upper limits. Section 5 discusses objections, and Section 6 concludes with implications for (sustainable) economy and the technological and social innovations highlighted by the Global Biodiversity Assessment (Díaz et al. 2019).

2. Sufficientarianism

In philosophy and environmental studies, sufficiency is used in different, only partly overlapping ways. In the theory of justice, sufficiency usually refers to a minimum threshold that people are entitled to as a matter of justice (Fourie 2016). In environmental studies dealing with sustainability, sufficiency can refer to a preference of quality over quantity, of virtuous action and social relations over having more. Such eco-sufficiency (Kanschik 2016) articulates specific views of a good life that competes with others. Sufficiency also refers to a concern with environmental limits, i.e., that our consumption and production uses environmental resources and sinks in such a way that the long-term stability of socioecological systems is secured (Spengler 2016). This second "eco" use of sufficiency is directly relevant for intergenerational justice and global justice, i.e., with a view to those already losing their livelihoods in the present due to climate change and the extinction of species.

The double relation between justice and sufficiency is manifest in the uses of enough. As Frankfurt (1987) noted, "having enough" can mean that any more would yield unpleasant results. Perhaps, the chips served on the train are so tasty that you want to have a second bag. You come to regret this directly after, feeling sick. A limit has been reached. Eco-sufficient discourse highlights how consumer

democracies are driven by dynamics of marketing and profitability that structurally lead to overconsumption, one of the key indirect drivers of current unsustainability (Díaz et al. 2019). However, as Frankfurt noted, "having enough" can also be used to say that a requirement or standard has been met. In this use, there is no implication that more would be bad. Rather, enough here means that a person has enough to eat, enough access to goods, etc. It is this standard or requirement that is in the focus of the sufficientarian theory of distributive justice.

There is a relation between the two uses. If my over-eating of chips and cake comes at the cost of you or distant others not having any, then there are relations between sufficiency as a requirement and standard and sufficiency as a limit (Spengler 2016, p. 930). The next section will first turn to sufficiency as a standard or requirement, and Section 4 will turn to it as a limit.

3. Sufficiency as a Standard or Requirement

The sufficiency requirement raises a host of questions (Fourie 2016): What is the currency of the standard (resources, needs, capabilities ...)? What is the scope of the associated community ("America first"?, all humans, ... all X)? Are there weighting rules where policies or decisions affect closeness to the threshold or positions below and above the threshold, etc.? How are sufficientarian principles and currencies justified? And related to this last question: is the sufficientarian view itself part of a more general theory or approach also including further values and principles? It follows that there is a variety of sufficientarian conceptions, depending on the respective answers to these questions.

3.1. The Currency of Sufficiency

The position taken here adopts capabilities as the category for evaluating thresholds, i.e., the real opportunities of people to do and to be what they have reason to value.[2] These heterogeneous doings and being are called functionings. A well-known version of such a position is Martha Nussbaum's theory of basic justice that spells out the concept of dignity via a list of central capabilities as entitlements of basic justice (Nussbaum 2006, pp. 76–78)[3]. Sufficiency, as used here, adopts this focus on dignity as a way of selecting capabilities and functionings.

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[2] In addition to Nussbaum's theory of basic justice see also (Anderson 2010; Claassen 2017; Nielsen and Axelsen 2017; Ziegler et al. 2017; Drydyk).

[3] For a discussion and defense of lists, see (Claassen 2010). There are also other ways of creating lists of central capabilities, and the very idea of such a list has also been criticised. For the purpose of this

3.2. Agency

Central to the capabilities approach is a focus on human agency. This focus originates with objections to theories and policies of development that treat human beings as means rather than ends (Sen 1999). The latter legitimates the priority of economic growth and developmental policies over democracy, education, and culture with the claim that such goods will follow later, once people are affluent enough to "afford" freedom. By contrast, Sen puts the emphasis on an "agent-oriented view" (Sen 1999, p. 11) that highlights the intrinsic and instrumental value of agency for justice and development. An agent is "someone who acts and brings about change, and whose achievement can be judged in terms of her own values and objectives, whether or not we assess them in terms of some external criteria as well ... " (Sen 1999, p. 18).

The focus on acting situates the capabilities approach within traditions of political philosophy that emphasise the need not just to look at formal rights but also at the real opportunity to exercise and enjoy them. Or as Nussbaum puts it, "each person as an end and as a source of agency" (Nussbaum 2000, p. 69). The idea of persons as ends is particularly clear in political agency, and the discussion of values, norms, laws, and policies governing social life. Such agency requires the capacity to reflect, to discuss, to decide, and to bring about—including to decide not to participate (Nussbaum 2006, p. 184f). Thus, agency as used here is very different from the agent in standard economics, who is supposed to act on behalf of a principal.

Elizabeth Anderson has proposed a capabilitarian sufficientarian position called *democratic equality*:

> The fundamental requirement of democracy is that citizens stand in relations of equality to one another. Citizens have a claim to a capability set *sufficient* to enable them to function as equals in society (assuming they have the potential to do so). Democratically relevant functionings include adequate safety, health and nutrition, education, mobility and communication, the ability to interact with others without stigma, and to participate in the system of cooperation. (Anderson 2010, p. 83)

Democratic equality underscores the relation of political agency with other capabilities. In her sufficientarian view, "citizens are entitled to *enough* education, for example, to

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article, I bracket both the issue of further refinement of the capabilities list and the philosophical case for proposing such lists.

be able to advance informed claims in public forums, at a level of articulateness that elicits a respectful hearing" (Anderson 2010, p. 83, italics added).

Furthermore, rather than thinking of citizens in terms of representative individuals, the capabilities approach suggests that treating citizens as equals calls for a focus on the diversity of individuals and their contexts. Or in the image: when there is a serious risk that people might not be able to get onto the train, perhaps simply because there is no access for wheelchairs or for strollers, or if some groups are not "supposed" or "expected" to participate in the ride, etc. Nussbaum's list of central capabilities offers a comprehensive starting point for considering the agency of citizens, further thinking about and spelling out such capabilities in context.

3.3. Principles of Distribution

At first sight, a section on principles of distribution seems question-begging. Is sufficientarianism not precisely the view that a minimum threshold is required for justice? That there is really only one principle—that of sufficiency?

Already, Anderson's concept of democratic equality points to a more complicated situation. Democratic equality? How can equality have a place in a sufficientarian approach? Drawing on Nussbaum's Aristotle-inspired capabilities, Nielsen and Axelsen (2017) distinguish three types of capabilities: in relation to biological and physical human needs, in relation to the social interests of individuals, and in relation to their interests as autonomous individuals. The biological category, they suggest, is non-positional: distribution here must only be enough in a minimum threshold sense. If I have sufficient drinking water, it does not really matter very much for my nutritional need if somebody else has 10-times this amount of freshwater. By contrast, the social category is positional: political freedoms, freedom of assembly and of association, require equality. It is not enough for me to have one vote if my neighbour has ten. Here, the principle is equality, underscoring the importance of Anderson's insistence on democratic equality. Their last category refers to quasi-positional capabilities. Rational reflection, imagination, critical thinking, and normative evaluation in their view can be conceived of in terms of a sufficientarian threshold, but there is a need to consider pressures from external factors. "A person's opportunity for getting a meaningful job that is appropriate to her level and type of education is not only dependent on her personal capacities and acquired skills but also on competition from other human agents and social norms" (Nielsen and Axelsen 2017, p. 56).

Sufficientarians should endorse the plurality of capabilities and the respective questions of distributive logic raised by them. However, they should not follow the

specific suggestion that the biological category is non-positional. It is true that some aspects depend on personal traits (such as one's metabolism and bodily condition, for example, being pregnant), but much also depends on social and environmental traits. In times of drought, cities in California and South Africa seek to enforce bans on water consumption for green lawns, etc., precisely for this reason. The water consumption of my neighbour affects my capability, and vice versa. Thus, a similar reasoning applies as for the category of autonomous individuals. They are quasi-positional: there are sufficientarian reasons to consider distribution so as to promote and secure the individual capability "from external pressure" (Nielsen and Axelsen 2017, p. 57). In a word, we have to think about the biological aspect of capabilities ecologically. Turning to patiency, it becomes evident how pervasive these quasi-positional reasons are.

3.4. Patiency

Anderson's democratic equality assumes, as she notes, that citizens "have the potential to do so" (Anderson 2010, p. 83). Some members of the community do not have this potential, contingently or permanently. Children have limited or developed capacities for deliberation and acting on reflected goals. A severe accident can prevent a person permanently from such deliberation and action. As Anderson notes, "additional principles must be supplied for such issues" (Anderson 2010, p. 84).

But is this just a matter of additional principles? And of children and future generations? Legal practice in many countries has moved to recognize further non-human animals. Environmental ethics discusses the moral considerability of animals, plants, ecosystems, and entities as such (Gorke 2010). Whatever one's positions in such debates, environmental ethics suggests that the community of justice is larger than the domain of human agents. One way of exploring this point is to consider contingent and permanent *patiency*, understood as the well-being and flourishing of living beings, no matter if this flourishing is based on reflection and deliberation, i.e., political and moral agency.

Dignity is not limited to agency.[4] Rather, we can and should consider the dignity of patients. Partly, this is out of mere self-interest: we are all (potential) patients to some extent and in some contexts. Partly, this is out of consideration for the ends of others. Nussbaum (2006) has recognized this point and proposed a sentientist

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[4] Sen introduces agency in relation to "the mediaeval distinction between 'the patient' and 'the agent'", positioning his "freedom-centred understanding of economics and of the process of development is very much an agent-oriented view" (Sen 1999, p. 11).

boundary of justice as a realistic utopia for our time. As "realistic utopia" indicates, her proposal is informed by a pragmatic political diagnosis. It is not a systematic implication of a philosophical approach based on flourishing. Her specific boundary proposal has been critiqued as arbitrary and inconsistent (Wolf 2012, p. 52).

The concept of flourishing at the core of the capabilities approach includes life as such. It is not difficult to identify the functioning needs of humans and non-human lives. As in the case of children, the autonomy-part might be missing or reduced, but this does not preclude the identification of functionings (Anderson 2010, p. 94). The potential to function here is not so much a matter of autonomous choice, but rather of bodily and contextual traits that enable flourishing.

Paul Taylor has recognized this point drawing a distinction of moral agents and moral patients (or, synonymously, subjects, (Taylor 1986, p. 13). "Perhaps the most ethically significant fact about moral subjects," he notes, "is that it is always possible for a moral agent to take a moral subject's standpoint and make judgements from its standpoint about how it ought to be treated. The standard implicit in such judgements is the furtherance or preservation of well-being of the subject, not of the one who does the judging" (Taylor 1986, p. 17). This yields a flourishing test of moral considerability: are moral agents able to identify the good of the subject without reference to any other entity and thus, its instrumental uses for others (Taylor 1986, p. 61)[5].

In Taylor's philosophy, this leads to a normative position that recognizes and respects the flourishing of all life,[6] once we note that our knowledge of the evolution of life places us as living beings among other living beings, who also have their good and who cannot be demonstrated to be inferior to us. Ideas of human superiority (in the Western tradition) are the likely remnants of pre-evolutionary, dualist Cartesian or Christian worldviews. By contrast, the attitude of respect for nature is supported by a worldview informed by evolutionary theory and ecology—as well as by other cultural and religious worldviews, including other varieties of Christianity.

Worldview has implications for our thinking about capabilities. Axelsen and Nielsen claim that some capabilities related to physical needs are non-positional. This argument depends on the assumption that the relevant resources are "freely available". Or, to revisit the example, 120 litres of freshwater per day might be

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[5] As one reviewer pointed out, this also leads to questions about the inclusion of novel entities, in particular due to developments in artificial intelligence. This interesting question is beyond the scope of this chapter, though prima facie Taylor's moral considerability test also applies to such entities.

[6] While I focus on Taylor, there are important further contributions such as (Agar 2001; Varner 1999). For the sake of this exposition of nature-respecting sufficiency, I bracket this intricate further discussion. For comprehensive older and more recent, critical, discussions see (Gorke 2010; Basl 2019), respectively.

fully sufficient for me in the sense that it does not matter if my neighbour uses 240 or 1200 litres etc.; it does not follow that this water is not taken from other beings in a way that harms their good. For example, the growth in consumptive use of water for agriculture and energy is a key cause for the enormous pressure on aquatic ecosystems worldwide (Ziegler et al. 2017, p. 110). The more general point suggested by the example is that it is prima facie not irrelevant what happens above the threshold, i.e., when basic interests have been met. Rather, consumption above the threshold is very likely to interfere with the good of others.

Revisiting the train image, this subsection suggests thinking of the train as a safe travelling space not only for active, "able-bodied" citizen agents, but also for all living beings—a Noah train. Alternatively, we can leave the train to human agents, who as inventors, engineers, entrepreneurs, managers, conductors, and passengers are most directly benefitting and responsible for exploring the frontiers of the blue planet—but note that the environment of the train has significantly changed: it is not just stuff out there, but a living, morally significant landscape. Do not throw your garbage out of the window!

4. Sufficiency as a Limit

The discourse of limits to growth and its revival in national eco-space boundaries and planetary boundaries discussions (Spangenberg 2003; Biermann and Kim 2020) calls for a reduction in production and consumption. "The idea broadly demands that human beings should limit their consumption in order to remain below a level that would be 'too much' in terms of harmful emissions and resource extraction—in other words, to remain below a maximum . . . " (Spengler 2016, p. 925). The currently most widely discussed limit of this nature is the warming upper limit in climate change policy, that is, an increase of no more than 1.5 degrees Celsius decided on in the 2015 Paris COP21 climate agreement. It is argued for on a number of grounds: moving to an even higher degree of warming would yield unpredictable risk to societies and ecosystems; this would especially harm the global poor, who often lack the technological means for climate adaptation; this would lead to further forced migration with unpredictable consequences for social stability and peace; it would further accelerate the sixth mass extinction of species . . . to name but the more prominent grounds.

Noteworthy is the specification of environmental limits in terms of resources and environmental goods (CO_2, water consumption, nitrate etc., (Steffen et al. 2015). Moreover, the focus is not primarily on "my CO_2 consumption" in comparison to yours, but on levels that are relevant for the functioning of the system and via this

functioning point for individuals; for example, tipping points of the global climate system that, via extreme weather events, undermine secure shelter.

Respect for nature has important implications for thinking about such limits. The notion of relevant harm is extended beyond harm to humans. For example, in climate ethics (Nolt 2011), this extends the community of moral patients that is put at risk via anthropogenic climate change, from changes to habitats and conditions of flourishing that force migration and shift ranges to the extinction of species that cannot adapt quickly enough.

More radically, nature-respecting sufficiency challenges the standard conception of resources and sinks as limits, i.e., as an upper limit that might be reached after considerable economic growth. Any use of resources above the one required for reaching the human dignity threshold is likely to be at a cost to other members of the community and their ability to enjoy a sufficient minimum. I therefore speak of a resource threshold (that complements the central capability threshold). It is a sufficientarian, instrumental consideration in the philosophical sense that the argument is not based on an intrinsic problem with some having more resources than others as such (as in an egalitarian position), but with the effects of high consumption on others.[7] This consideration requires a shift from resource limits to a resource sufficiency threshold as a starting point—whereas simple sufficientarianism, by contrast, is typically associated with distributive agnosticism beyond the threshold. Respect for nature provokes the shift in the burden of justification: as we live in a doubly full world, not only with almost 8 billion people but also myriad other creatures everywhere, there are prima facie no free resources. The key question becomes the justification of consumption and production beyond the resource threshold of living in dignity. Assuming that there are synergetic ways of producing and consuming that do not harm other members of the community or that even improve their positions, there is possible extension (and innovation) beyond the resource threshold—yet, this cannot just be taken for granted.

Instrumental considerations of unequal distribution are not only an environmental matter. Ingrid Robeyns has provided arguments that support *economic* limits (Robeyns 2017b). First, economic inequality undermines political equality. She notes that the financially affluent can use their wealth to buy votes, for agenda-setting, to influence public opinion and for lobbying to undermine democratic policy-making

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[7] Holland (2008) calls the environment a meta-capability, in the sense of a precondition that is necessary for central human capabilities. Others have criticised the terminology: the environment is not a capability (see Robeyns 2017a, p. 171).

(for example, via the threat to move production elsewhere). Second, she argues from unmet urgent needs: the financial resource of the affluent could be used to finance the fight against extreme poverty and deprivation as well as collective action problems that require government action. She argues for limitarianism as the view that it is "not morally permissible to have more resources than are needed to fully flourish in life" (Robeyns 2017b, p. 1).

Limitarianism has an instrumentally motivated egalitarian tendency. However, its focus on a "fully flourishing life" indicates a potentially higher level of resource use than flourishing in relation to central capabilities (Robeyns 2017b, p. 24). If the latter is defined relatively generously, the two might coincide; if it is defined very restrictively, there is a space between the resources required for leading a life in dignity and for being rich (in the morally permissible way). Either way, the consideration of resource use with a view to the moral community of all life puts pressure also on economic limitarianism to move the justificatory burden and ask what economic resource use beyond dignity is justified.

To conclude this section on sufficiency as a limit: First, in the environmental discourse, the limit is focused on resources and environmental goods rather than capabilities. Second, the discourse tends to focus on them as part of systems (the climate, the water cycle, etc.). Will a higher absolute level of CO_2 provoke a system imbalance with harmful consequences? How emissions are distributed within the system is secondary for this question. A beneficial implication of this point, at least from a capabilities perspective, is that unequal distribution of resources can be consistent with such limits in consideration of heterogeneity of contexts—say, more energy requirements of somebody living in a cold climate. By contrast, in the economic case, distribution is of primary importance due to the relative power of the rich over the poor. The reason, however, is also systemic. Unequal distribution undermines democratic politics: the rich have too great an opportunity to lobby for their interests, while the least advantaged might be entirely excluded from participating. Third, nature-respecting sufficiency leads to a rethinking of capabilitarian thresholds and resource limits. Rather than asking how much we can maximally produce and consume and stay within a "safe space", it suggests as primary questions: What resources do moral agents need to lead a dignified life? What resource use above this level is justified because it is synergetic with the dignity of all members of the moral community? To be sure, the system questions remain very important here too. However, they are not oriented by a maximization perspective, but by one of enough resources.

There are two advantages of this sufficientarian approach. First, for some systems, it is difficult to define planetary boundaries (see, for example, the difficulties linked to the discussion of a freshwater boundary, (Ziegler et al. 2017); a focus on resource requirements thus suggests a less constraining starting point. Second, some boundaries have been transgressed according to the planetary boundary account: genetic diversity, phosphorus, and nitrogen (Steffen et al. 2015, p. 736). In terms of the resilience concept orienting this account, there is no systemic reason to think that we could simply "move" back to the old, "safe" space. As noted in the introduction, the image of the Anthropo-train continuing its ride therefore rings hollow. In this emerging new social–ecological reality, we can, however, still ask if people's resource needs in relation to central capability are met, if production and consumption respect nature, and how both relate to new system dynamics. This reflects the point that ecosystems are dynamic and do not have a predetermined construction or operating plan (Gorke 2010, p. 142).

5. Nature-Respecting Sufficiency Reconsidered

Nature-respecting sufficiency endorses the "positive thesis" (Fourie 2016, p. 18) of sufficientarianism: "the moral significance of a non-instrumental sufficiency threshold, encapsulating the idea that it is a priority for individuals to reach or not to fall under such a threshold". Spelling out this thesis, however, yields a number of specifications and qualifications. First, threshold does not mean a line limiting a homogenous box, for example, of income. The diversity of all the SDGs in this respect is therefore a welcome feature. Rather, the standard refers to a heterogeneous set of capabilities articulating the concept of dignity that motivates the concern with a threshold. In practice, therefore, it is a demanding process to discuss relevant thresholds across capability categories in context. Second, for some capabilities, i.e., those of political equality, the threshold is intrinsically relational. For other capabilities, based on quasi-positional goods, relations are instrumentally important. Once we accept the attitude of respect for nature, we are living in a full world without free resources. Instrumental concerns are everywhere. This environmental resource point is enforced by the consideration of the negative role of economic inequality for political equality. Third, the style of thinking suggested by nature-respecting sufficiency puts central focus on the specification of a standard of dignity for moral agents, and with it, on distinguishing needs from wants and basic interests from further interests. In this way, nature-respecting sufficiency is a way to articulate philosophically the idea of sustainability, with its discourse based on meeting "the

needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland definition).

Adopting the weak versus strong sustainability terminology of sustainability discourse (Neumayer 2010), *strong* sufficientarianism is based on the recognition that in a full world with almost 8 billion people and a still growing global economy, meeting a threshold of dignity for present and future generations depends on respecting limits and seeing the negative consequences of further growth in production and consumption if non-substitutable natural capital is consumed. *Weak* sufficientarianism holds that technological progress and markets will help us tackle limits and boundaries. Nature-respecting sufficiency seeks to expand the scope of the moral community to include life as such. Thus, it is not only *strong*, i.e., endorsing the idea of environmental constraints to human activity, but also *transformative* of our conception of nature as a resource for us: nature is more than a capital to be preserved or for the "Anthropo-train" to speed on. Nature-respecting, transformative sufficiency is strong; strong sustainability can, but need not, be transformative. Strong sustainability, however, is necessarily drawn to a discussion that sees humans and their economy as part of socioecological dynamics. The planet is not made for humans to exploit and conquer as they please, nor is such conquest without significant risks. Is there a benevolent, slippery slope?[8]

5.1. Standard Objections to Nature-Respecting Sufficiency

According to the arbitrariness objection (Fourie 2016, p. 26f), sufficientarianism is morally arbitrary as there is a continuum of well-being and wherever sufficientarians posit a threshold, the threshold lacks the moral significance claimed by its positive thesis. According to nature-respecting sufficiency, this objection needs to be discussed in two parts. For positional goods, there are non-arbitrary, relational reasons for an egalitarian threshold. If you have two votes, this undermines the value of my vote. For quasi-positional goods, the reasoning is different. It is not based on the idea that well-being somehow suddenly diminishes beyond a threshold. Rather, it is the (potential) harm to others that outweighs the increase in well-being beyond a threshold of dignity. Is this idea still arbitrary in a morally relevant sense? Returning to the example of freshwater consumption, we can note that there is a variety of proposals for what counts as sufficient freshwater per head. Peter

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[8] The most elaborate philosophical proponent of strong sustainability, Konrad Ott, suggests to move from anthropocentrism and sentientism to moral considerability based on prehension, which, empirically, he finds most plausible for animals, and hence, speaks of a zoocentrism (Ott 2010, p. 143).

Gleick argues that 50 litres of freshwater per capita per day are needed for drinking and domestic use; Malin Falkenmark, investigating freshwater use of societies with high technological development, argues that 274 litres per day are required; Eran Feitelson combines ideas from both approaches to identify a middle-ground (Feitelson 2012). In addition, a capabilities approach perspective would point to relevant differences in personal and other traits. For example, the freshwater requirement of pregnant and breastfeeding women is higher than those of other people of the same age. These examples and considerations suggest that there is some variety around freshwater resource needs. However, this variety seems more a matter of practical and contextual considerations, and it does not seem arbitrary in a morally significant way (legitimating, say, giving 1000 litres of water to Americans, and 1 litre of water to Mexicans). Thus, nature-respecting sufficiency leaves leeway for specifying a threshold, but not in a morally arbitrary way. The example also suggests that nature-respecting sufficiency can motivate and justify the inquiry into thresholds, but the determination of thresholds requires public debate as well as other disciplines (as in the example hydrology, political science and public health).

According to the indifference objection (Fourie 2016, p. 27), sufficientarians fail to worry about morally significant inequality above the threshold. Provided everyone is above the threshold, it does not, for example, matter if one group is at the threshold and one much beyond that. Again, we need to consider this objection in two parts. For positional capabilities, the objection evidently directly fails. For quasi-positional capabilities, nature-respecting sufficiency considers inequality for instrumental reasons. Again, using the water example, if I use freshwater for a swimming pool and lawn in a dry summer, this contributes to a reduced environmental flow in the river from which the water is abstracted, or contributes to a lowering of the groundwater table, etc.—all with consequences for other species and human neighbours. Thus, the indifference objection here only holds for purely egalitarian reasons. In practical terms, there are ample grounds for not being indifferent.

According to a further objection, sufficientarianism is also problematic below the threshold (Fourie 2016, p. 27f). How should we deal with difference below the threshold, i.e., various groups being not well-off? Should those least well-off be prioritized? Or those that can be made to reach the threshold? My intuition is that those most disadvantaged should be prioritized, say the person with one litre a day over the person with 49 litres a day. However, disadvantage below the threshold is not, even conceptually, a simple matter as there is a variety of types and capabilities of disadvantage. So how do you compare and weigh disadvantage across them? Is disadvantage in health more important than political disadvantage?

Education more important than economic opportunity? Empirical research suggests that disadvantage clusters (Wolff and de Shalit 2007): if you face problems in one capability category, say health, you are likely to also face problems in another one, say economic opportunity. At first sight, this empirical finding makes life easier. If disadvantage clusters, it becomes less complicated to identify socially excluded or marginalised groups and to accordingly prioritize those most disadvantaged. However, empirical research also suggests that supporting such groups yields policy dilemmas. A study of Roma exclusion in Hungary shows that support for excluded Roma is having counter-productive, exclusion re-enforcing effects, if only the Roma are targeted by social policy (Molnár 2017). Other, less excluded groups have to be included so as to improve social ties and avoid further enforcement of Roma exclusion that would be created by a focus on the least-advantaged only. Thus, there might not be a straightforward way of prioritizing below the threshold. However, this point does not depend on a specific moral theory—it is, rather, a challenge that all approaches dealing with disadvantage and social exclusion have to deal with and cautions not to move too quickly from philosophy to policy. Rather, the philosophical contribution here is to motivate the focus on those in need and central capabilities, a small yet still important contribution given that much biodiversity protection in practice depends on the livelihood protection and practices of indigenous people around the world.

Finally, according to the bottomless pit problem, sufficientarianism problematically suggests prioritizing the least well-off, even if this exhausts all of society's resources (Fourie 2016, p. 29). Nature-respecting sufficiency calls for a complete reversal in thinking on this point. The most disadvantaged are not the bottomless pit; the bottomless pit are the affluent in a growth-based world, taking away resources and undermining life conditions for others in the present and future. An Oxfam report estimates that the richest 10% of people in the world are responsible for around 50% of global emissions, whereas the poorest half accounts for only 10% of global emissions (Oxfam 2015).

5.2. Specific Objections to Nature-Respecting Sufficiency: Unliveable and Counter-Intuitive

How can human moral agents, given their bodily condition as heterotrophic beings that, unlike plants, cannot produce their own food via photosynthesis, possibly *not* violate rules of respect for nature? Rules such as non-maleficence (the duty not to harm any entity in the natural environment that has a good of its own), non-interference (the duty to refrain from placing restrictions on the freedom of individual organisms, hands-off policy with regard to whole ecosystems and biotic

communities, i.e., providing space for ecosystems due to minimal interference by humans), or restitutive justice (the duty to restore the balance of justice between a moral agent and a moral subject when the subject has been wronged by the agent)[9] are simply not liveable in the world as it is and given the kind of beings we are, or so this objection holds.

A response is priority rules that deal with the inevitable conflicts over resources in a full world (Taylor 1986, pp. 264–305):

1. A principle of self-defence according to which it is permissible to protect oneself against dangerous or harmful organisms by destroying them;
2. A principle of proportionality that gives priority to basic interests over non-basic interests in the case of conflicts;
3. A principle of minimum wrong for the pursuit of non-basic human interests as long as they concern culturally important human interests and as long as they are performed in a way that minimizes harm to non-humans;
4. A principle of distributive justice that demands an equal share in a context where resources are needed to meet basic interests of different parties;
5. A principle of restitutive justice to make up for the harm done under the prior principles—for example, the preservation or restoration of rivers as a compensation for the modification of rivers elsewhere for meeting basic human interests.

The basic move is to enable moral agents to deal with conflicts in a systematic manner. The capabilities approach, via Nussbaum's conception of dignity and central capabilities, offers a way to further spell out the distinction between basic and non-basic interests, which Taylor draws on but does not elaborate further. However, nature-respecting sufficiency suggests more than just filling out open issues. In the sufficientarian perspective, the first two principles seem uncontroversial and the second one, in fact, typical for sufficientarianism. But the sufficientarian approach to distributive justice is different: it demands a *sufficient* share where resources are needed to meet basic interests. In this way, the sufficientarian principle of distributive justice resonates well with the priority articulated in the proportionality principle. On this basis, moreover, the sufficientarian conception suggests an elegant simplification, merging principles one and four in favour of a principle of self-preservation: moral agents are entitled to foster and secure central capabilities for living in dignity.

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[9] All rules from (Taylor 1986, pp. 172–86).

Take the example of a water dam proposal for energy production. The sufficientarian perspective is not a priori against the dam. Rather, it asks prior questions: what are the energy needs of the community or region; what are the ways to meet them (considering say, also, wind and solar)? And based on this, what is the best way to meet needs while minimizing harm. In practice, this likely requires an energy plan for the region, rather than letting dam construction be guided by economic opportunity and subsequent impact assessment.

But what about the third, minimum wrong principle? In Taylor's philosophy, the principle is there to secure a place for human, non-basic interests that are important for civilized life and that play a central role in their conception of the good life (Taylor 1986, p. 281). Moreover, these interests are to be compatible with an attitude of respect for nature. Taylor thinks, for example, of classical music and the concert halls required for it. In a capabilitarian conception of basic interests, there is a place for culture within Nussbaum's complex conception of living in dignity, with music, for example, via the central capability of play. This suggests that the idea of minimum wrong should accompany the principle of self-preservation as a qualification. Accordingly, the next subsection will further turn to this suggestion and the social and ecological design it calls for.

But is nature-respecting sufficiency not contra-intuitive? Do slime molds have the same standing as humans? The self-preservation principle, valid as such for all living beings, takes some of the apparent counter-intuitiveness away. It is legitimate to meet and secure the dignity of human agents (as is the self-preservation of non-human animals), and on the expansive central capabilities list, this covers considerable grounds of human agency. Interestingly, the principle of self-preservation has a quasi-transcendental justification for humans as moral agents: meeting and securing central capabilities ensures that the conditions of moral agency are met, and thus, of ensuring a precondition of the respect for nature demanded by environmental philosophy.

Still, imagine a case of emergency—a burning house—and stipulate that you are able to save either another human or a mouse trapped in the pantry? Should you not save the human rather than the mouse? Nature-respecting sufficiency can, again, make a transcendental pragmatic appeal to moral agency in response to such cases: if we do not achieve and preserve a threshold for human moral agents, there is not going to be any discussion of morality anyway. A minimalist, i.e., agency-preserving form of "speciesism", suggests a reason why I should save the human. This idea repeats the special, architectonic value of practical reasoning (Nussbaum 2000): practical reason is required for there to be choice regarding any of the capabilities

and functionings. Likewise, moral agency is required for there to be any discussion and choice of justice and sustainability. This provides a first reply and helps explain why, in this chapter, I do not use the traditional language of anthropocentric versus (a variety of) physiocentric positions. However, no doubt, more discussion is required on this point.

5.3. Nature-Respecting Sufficiency Ignores Human Ingenuity and Innovation

As noted in the introduction to this section, the emergence of an international sustainability discourse sparked controversy between economists with faith in the power of technology and markets to deal with limits on the one hand, and on the other hand, economists who called for a deeper change in values and the protection of nature. More recently, eco-modernists have revived the case of the technology optimists. As Peter Cannavò writes:

> Eco-modernism is most fundamentally the view that economic growth can be "decoupled" from environmental degradation, through technical ingenuity and the development of substitutes for scarce resources and polluting technologies; ecomodernists also argue that economic growth and prosperity are preconditions for environmental responsibility. (Cannavo 2019, p. 8)

Cannavò notes that writers such as Ted Nordhaus and Michael Shellenberger from the Breakthrough Institute argue against a "politics of limits, which seeks to constrain human ambition, aspiration, and power rather than unleash and direct them" (Cannavo 2019, p. 8). In this view, the sufficientarian focus on thresholds and limits is misguided: wherever challenges emerge, human ingenuity, powered by science and innovation, will come up with new solutions that fix the problem. "If it [climate change] matters, we will solve it" (Steven Pinker quoted in (Davies 2018). This optimism of the eco-modernists takes us to the weak sufficientarianism introduced above. It accepts the importance of a threshold of dignity but views it along with the idea of limits as a signalling device for innovation and markets.

Nature-respecting sufficiency offers three considerations for eco-modernists and related ways of thinking. First, as an environmental philosophy it points to the costs of eco-modernism in the present as we know it. A direct driver of species extinction is the economic exploitation of land and water; moreover, an indirect driver of this is technological innovation (Díaz et al. 2019, p. 5). Either eco-modernists would have to say that this is not a morally relevant loss or, speculatively, that future research and innovation will allow for re-making of lost species and restoring habitats, whenever

"we eco-moderns" feel it is important to fix the problem. Thus, the position rests on a gamble on the future.

Second, the gamble of eco-modernism is more general. We do not know what technological change will achieve in the future and what unintended consequences will result from this. As Cannavò notes:

> ... such an invasive, physical remaking suggests that humanity, like nonhuman nature, will become raw material for a brave new future, and there are the inevitable questions of who is designing our transformed descendants, who is carrying out the experiments, and who will suffer the collateral damage along the way. Who will be at the mercy of those whose hubris and ambitions demand the reengineering of Earth and humanity? The potential scope of domination by some over others becomes truly sobering. (Cannavo 2019, p. 12)

In science- and technology-oriented discussions of sustainability, the precautionary principle has therefore been invoked: When "human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm" (UNESCO-Comest 2005). The precautionary principle offers an important addition to nature-respecting sufficiency in the context of current knowledge-based, technological innovation for commercial use. It further qualifies the way of thinking about the principle of self-preservation, in addition to the principles of proportionality and minimum wrong introduced above. There is also an emerging research community—responsible innovation—that takes such precautionary concerns seriously and, rather than viewing precaution as a mere "slowdown of progress", reframes the issue as an opportunity for innovation that, from the beginning, reflects on purpose, anticipates consequences, and seeks to be responsive in the process (Owen et al. 2013, p. 34ff).

Third, and beyond a focus on technology in responsible innovation, it is misleading to pit an eco-modernist open future against status quo or past-loving, anti-technology tree-huggers. There is plenty of space to embrace ingenuity and innovation in nature-respecting sufficiency. Notions of well-being and prosperity in the capability approach cover both the multiple realizations of capabilities as well as the material and non-material aspects of this. ". ... It is possible to live good lives that are also just and ecologically sustainable, if we understand well-being and human flourishing in terms of human capabilities while giving more weight to the non-material capabilities ... If we shift the way we are thinking about well-being towards those non-material capabilities *and* if we think about how we can realise the same capabilities with smaller ecological footprints, then we can still enjoy equal or

even higher levels of well-being, while putting less pressure on ecological resources and ecosystems" (Robeyns 2017c, p. 3)[10] None of this precludes human ingenuity. But it shifts the focus from the means—technological novelty for commercial use in the hegemonic conception of innovation—to the ends and a change in practices. Viewed this way, it is unsurprising that the 2019 Global Biodiversity assessment recommends *social* innovation in its proposals for a transformation for sustainability (Díaz et al. 2019, p. 9). However, we immediately have to add that change in practices is not "good" as such either, but rather, calls for ethical discussion of the values and principles animating such change, including an equal consideration of resistance to change, exnovation (or the deliberate divestment from past products, programmes, and policies) and the creative restoration of traditional practices (Ziegler 2020a, see also Zerbe on social agriculture and traditional land use types in this volume).

But does nature-respecting sufficiency, with its emphasis on intrinsic and instrumental reasons for equality, not undermine the entrepreneurial incentives that trigger the search for solutions in response to pressing unsustainability problems, including material gains for those least well-off (Rawls 1999, p. 63)? This frequently expressed concern is at the very least not evident in light of empirical innovation research. For a start, it shows that much innovation is due to tinkerers in households and communities and their "free innovations" (von Hippel 2016), whereas traditional innovation policy in an unequal society tends to reinforce inequality and personal gain is but one motive among many others (Ziegler 2020a, p. 75f). Knowledge-based innovation is consistent with government investing in innovation as a public good—for example, by giving a university resources to investigate technical and social alternative approaches to energy use, without this "more of resources" being linked to an increase in private wealth. Society can provide scientists and innovators with extra means at their disposal to investigate a disease, and reward significant results with prestige. Public-driven innovation missions have been major drivers of significant innovations (Mazzucato 2013). Immediately relevant for the protection of "life on land" (SDG 15) is the large amount of public funding for agriculture; for example, in the European Union, the possibility to shift funding from direct payments to eco-schemes for rewarding multi-functional agriculture and for this to enable coordination and a landscape-level focus (see Lanker et al. this volume).

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[10] A further point that I can only mention here is the importance of human development for tackling population growth. As Sen (1999) has argued, human development and the importance it gives to educational and economic opportunity for women, is in practice also an effective way of reducing population growth

Paludiculture, or the productive use of wet or rewetted peatlands, provides an example for a potential sustainability innovation mission (Ziegler 2020b).

6. Conclusions

"A flourishing life on land is the foundation for our life on this planet," states the introductory sentence to SDG 15.[11] Nature-respecting sufficiency provides philosophical resources to appreciate the transformative potential and philosophical complications of protecting life, land, and waters. It calls for a focus on both agents and patients, and the thresholds and principles required for leading a life in dignity. Its scope is comprehensive, inclusive of all life. It offers one way to spell out a respect for nature in the theory of justice. In Albert Schweitzer's famous words: "I am life that wants to live, in the midst of life that wants to live" (Schweitzer [1923] 1990, p. 308).

As a philosophical contribution, nature-respecting sufficiency does not spell out the threshold values for each capability, let alone measurements or specific policy proposals. It rather provides a style of thinking about sustainability, biodiversity, and SDGs. Public discussion and many other disciplines are needed to spell out thresholds in context as well as economic arrangements that can sustain a sufficientarian ethos in practice.

The justification of nature-respecting sufficiency is complex. The starting point is the dignity of all living beings and their central capabilities. The conception specifically recognizes the role of moral agency via a principle of self-preservation, according to which it is permissible for moral agents to foster and secure their central capabilities. This is accompanied by:

- A principle of proportionality that gives priority to central capabilities over other capabilities;
- A principle of minimum wrong that requires human agents to minimize harm when pursuing their self-preservation;
- A principle of restitutive justice that requires human agents to make up for the harm done under the prior principles;
- A precautionary principle aimed specifically at technological novelty in knowledge-based societies.

For both agency and patiency, the positional and quasi-positional nature of capabilities plays an important role in recognizing intrinsic and instrumental reasons

[11] For the full text see the website: https://www.globalgoals.org/15-life-on-land (last accessed 2.10.2021).

for a concern with equal distribution. In the background is Taylor's important point that the attitude of respect for life is supported by an evolutionary and ecological worldview and with it, a rejection of human superiority.

This chapter distinguished weak, strong, and transformative sufficiency conceptions. Weak sufficiency treats thresholds and limits as signals for human ingenuity. Strong sufficiency recognizes dignity and basic need thresholds, along with resource limits and sink requirements in a growing, global economy. It remains open to the idea that the world and its natural capital is there for humans to conquer and exploit—even in the absence of it being made for us.[12] If this idea is rejected, it becomes transformative. Nature-respecting sufficiency calls for a change in basic values, to recognize us as one species among others, as moral agents on a continuum of moral patiency. Other environmental philosophy variations of transformative and strong sufficiency are possible and worthwhile exploring further.

While it is thus strong and transformative, the critical discussion of nature-respecting sufficiency showed that the view is not static, pitted against human creativity and innovation. To the contrary, it gives such innovation a distinct focus: the priority principle of self-preservation, accompanied by proportionality, minimum wrong, restitution—and in our knowledge-driven societies—precaution. As a result, it suggests inter alia the importance of complementing technological innovation with a consideration of social innovation (a move made by the 2019 Global Biodiversity Assessment), and to do so in a way that equally considers exnovation or the ending of practices. Again, however, it must be stressed that the role of philosopher here is limited. It proposes a style of thinking rather than solutions. It also helps explain doubts regarding the romantic train and more recent safe operating space metaphors of sustainability. The ultimate challenge is a change in practices and culture, and technological metaphors obscure this point.

A better final navigational metaphor, originating from practice and culture marginalized by "progress", is accordingly: "Walk gently on the earth" (Wagamese 2019)[13]. We both need new practices and technologies, as well as better recognition of old ones and their creative response to current pressures (Díaz et al. 2019, p. 18; Ziegler 2020a). When I travelled northward again from my first presentation of this

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[12] For example, in the planetary boundaries discourse, it might invite the narrative of maximizing growth within limits (Crépin and Folke 2014, p. 58).

[13] Wagamese identifies this as a central teaching of Ojibwe practice, i.e., one of the North American cultures, pushed away and disregarded by "progress" (see footnote one). However, he also stresses the non-parochial, universally shareable (and differently reachable) status of this teaching.

paper, halfway through the trip from New York to Montreal, the atmosphere in the wagon took a distinctly agricultural flavour. A group of Amish people had entered the train, taking the train for two stops, to visit some community members as far as I could tell. They were chatting lively and laughing. As I was looking at them, a boy was curiously looking at me sitting there with my laptop.

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