Sufficiency and Sustainability: Conceptual Analysis and Ethical Considerations for Sustainable Organisation

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SUFFICIENCY AND SUSTAINABILITY: CONCEPTUAL ANALYSIS AND ETHICAL CONSIDERATIONS FOR SUSTAINABLE ORGANISATION

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ABSTRACT

This article analyses the concept of sufficiency in relation to sustainability and discusses ethical implications for sustainable organisation in time and place. We identify three foundational conceptualisations of sufficiency related to sustainability: (1) a limits model that starts with objective boundaries imposed by the biosphere and basic human needs; (2) a preference model that treats sufficiency as a subjective inclination for moderation defined situationally and (3) a balancing model that seeks to integrate the objective limits and subjective preferences by focussing on action embedded in the socio-ecological context. This includes balancing the needs of humans with those of non-humans. The limits model builds on universal duty, the preference model on preference utilitarianism and the balancing model on action-oriented virtue ethics. The

balancing model of sufficiency is well suited to meeting the needs of present and future generations as well as delivering intra- and inter-generational justice not limited to humans.

KEYWORDS

Ethics, Justice, Sufficiency, Sustainability, Virtue

1. INTRODUCTION

Recent debates in sustainability studies involve the concept of 'sufficiency'. This notion has relevance for advancing sustainability theories and supporting practitioners addressing social and ecological problems (Princen 2003; Salleh 2009; Bonnedahl and Heikkurinen 2019). 'Sufficiency' is a useful term, particularly in sustainability theory and practice, as it complements the field's excessive focus on 'efficiency' and utilitarian maximisation (Figge et al. 2014; Allievi et al. 2015; Heikkurinen et al. 2019). While efficiency measures may decrease a product's per-unit environmental impact, they are less likely to reduce its overall anthropogenic environmental impact due to the rebound effect unless actions complement measures of sufficiency (Daly 1996; Bocken and Short 2016; Parrique et al. 2019). In this study, a central yardstick for sustainability is the throughput of matter–energy, the (quantity and quality of) metabolic flow travelling from 'nature' to the human sphere as resources and exiting as waste (Georgescu-Roegen 1975; also Goodland and Daly 1996; Gowdy and Mesner 1998).

With efficiency's emphasis on calculation and per-unit improvements, it can be deemed a largely technological principle for solving sustainability problems. Recent critics, e.g. Alexander and Rutherford (2020) and Heikkurinen (2018), have observed the limits of

such efficiency-based approaches to reducing matter–energy throughput and called for increased engagement with sufficiency in sustainability practices and policies (see also Young and Tilley 2006; Schäpke and Rauschmayer 2014; Di Marco et al. 2016; Gaspar et al. 2016; Spangenberg and Lorek 2019). Ecological economists such as Alcott (2006) and Figge et al. (2014), however, have also criticised the sufficiency approach's effectiveness, claiming that sufficiency may backfire, leading to rebound effects that negate gain benefits, e.g. reduced climate emissions, by displacing environmental harm. Thus, sufficiency should not be considered a 'silver bullet' for the unsustainable organisation of human societies.

Interestingly, debates on sufficiency have emerged and actually matured despite a seeming lack of shared understanding of what sufficiency is. On closer analysis, there are actually two debates on sufficiency: the first concerns ecological sustainability and the second socially-just distribution. They are called 'eco-sufficiency' and 'sufficientarianism' (Kanschik 2016), respectively, and both are addressed in this paper.

Sufficiency is often treated as an abstract idea of adequacy: a sort of voluntary simplicity strategy or asceticism with a moral undertone. In a sustainability studies context, perhaps the lowest common denominator thus far is that sufficiency refers to questioning the ethics of always aiming to have more and better. This seems to imply restrictions without considering who should set them and how. Furthermore, the intention and degree of sufficiency remain highly negotiable: what quantity and quality of something can be considered enough. Moreover, sufficiency does not apply to all areas of life: Can one love or care too much?

While acknowledging the delimitations related to scholarly inquiries on such fundamental and arguably situational questions, we aim to elucidate the concept of sufficiency in relation to the call for sustainability and to scrutinise the ethical implications of its different conceptions. Our study asks: What is the relationship between sufficiency and sustainability – two ambiguous yet politically ambitious and important concepts – and how might the notion of sufficiency inform new ethics of sustainable organisation? We consider investigations of the attributes of these concepts and their mutual interdependencies largely beneficial to enquiries seeking to achieve sustainable change. Such analyses are also considered useful for specifying the conditions and prerequisites for sustainably organising human activity in the societies' public, private and third sectors.

The article continues by outlining a working definition of sustainability (section 2) and proceeds to outlining its basic premises (section 3). In section 4, sufficiency in relation to sustainability is analysed by presenting three conceptual sufficiency models, namely the limits model (sufficiency as objective limits), preference model (sufficiency as subjective preference) and balancing model (sufficiency balanced between limits and preferences). In section 5, we discuss our study's implications by connecting these models to ethics and the debate on 'sufficientarianism'. Note also that when it comes to the concept of sufficiency, the ethical is always already political as well. Finally, conclusions are drawn to better define what sufficiency signifies for sustainability studies.

2. SUSTAINABILITY

For decades, sustainability has been a key concept for discussing the requirements for comprehensive human security, mitigation of environmental risks and harm, and desired economic and social goals (WCED 1987; Pezzey 1992; Tainter 2006; Portney 2015). Sustainability, particularly its 'developmentalist' variant, i.e. sustainable development, has been subjected to fierce criticism (Beckerman 1994; Banerjee 2003; Hopwood et al. 2005; Tainter 2006). While some claim it is a utopian and empirically poorly grounded term describing a technocratic fantasy, the notion of sustainability may work as an important umbrella concept uniting people for a (somewhat) shared cause. The difficulty of achieving a broadly shared vision and strategy for planetary survival is obvious. Perhaps, as Heidegger professed, 'only a God can save us', but for beliefs on sustainability aspirations to be established, strengthening the coherence of the concept of sustainability and overcoming related group interests are prerequisites, as Mebratu (1998) noted.

Herein, we define sustainability broadly as a condition that enables the continuity of diverse earthbound life. Our view aligns with the premise of strong sustainability, assuming non-substitutability between human and non-human spheres (Pezzey 1992; Holland 1997; Bonnedahl and Heikkurinen 2019). Sustainable *development,* again, is possibly a conflicting process of the earthbound unfoldment, depending on how conventionally and linearly 'development' is defined. The current state of ecological overshoot (Meadows et al. 2002; Barnosky et al. 2012; IPCC 2014; Steffen et al. 2015) requires developing sustainably by slowing the matter–energy throughput, i.e. the Earth's human-induced metabolism.

Both sustainability and sustainable development are often considered as comprising

three dimensions: ecological (planetary), social (human) and economic (profit)

(Goodland and Daly 1996; Elkington 1997; Wallner 1999). In our definition, ecological

sustainability is the foundation of everything else. If this dimension is insufficiently

addressed, then discussing the other two is useless. However, we also see that it is

important that the other two dimensions, the social and economic, are on a sufficient

level so that addressing the ecological dimension is meaningful. Consider situations

where sustainability's social and economic dimensions are at the desired level, but the

third dimension is not; this is often the case in wealthy countries and households with

plenty of money and health available (although these may be unequally distributed), but

the organisation is based on excessively resource-hungry patterns of consumption and

production. Globally, of course, none of these dimensions is adequately met, and least

in ecological terms. Consequently, unsustainability prevails in terms of intra- and inter-

generational considerations.

3. SUFFICIENCY

Sufficiency has emerged as a concept that is highly significant for intra-generational

justice, especially in the context of fighting poverty and fairly distributing wealth

(Frankfurt 1987; Arneson 2006). Today, the concept also has strong ecological

relevance (Princen 2003; Alcott 2006; Salleh 2009) for addressing problems of inter-

generational justice (Gosseries 2008). On one hand, 'sufficiency' can be considered to

signify the condition and quality of adequacy – neither too much nor too little. On the

other, it refers to the circumstances under which both a lack and an overabundance of

something is avoided (relative to a given task). Accordingly, sufficiency is positive and

desirable: a 'golden' mean or middle ground between lack and excess (Manno 2017), whether defined as a circumstance or a quality.

From this broad and rather conventional background, we deduce that sufficiency considerations have at least three aims. The first two relate to avoiding something: either a lack or an excess, while the third relates to achieving something (e.g. a proper amount or degree of something). In the case of sustainability, the first two aims could relate to avoiding (a) a lack of resources required to meet the needs of present and future generations and (b) a problematic surplus, as excess affluence and profit, leading to ecological damage and natural-resource depletion. The third would then connect to (b) achieving a 'Goldilocks' principle between the two extremes.

The third aim related to sufficiency implies considering a balance between quantity or quality and what amount or level is adequate and sufficient. A move towards imbalance recurs when something is either excessively abundant or scarcely adequate. With this aim, sufficiency can be conceptually related to and associated with characteristics like moderation, equity and reasonableness (U-tantada et al. 2016). Thereby, the sufficiency concept has an inherent moral component.

To further define the conceptual grounds of sufficiency, we can posit that, if something is sufficient, it is not likely to be depleted soon but is rather within bounds, reason or reasonable limits. However, to outline or even imagine such a balance, there needs to be a middle ground where 'proper' is positioned. This leads to a consideration of boundaries or limits, which the act of balancing manages to avoid. In fact, in a sustainability context, sufficiency often refers to the limits of consumption and

production beyond which the use of natural resources (e.g. land, water, plants and animals) and other anthropogenic resources (e.g. money, tools, equipment and structures) is excessive, destructive or otherwise unreasonable (Princen 2003). Any patterns of human organisation – consumption and production or economic processes in general – that are insufficient could be considered destructive since they risk human, social and ecological well-being through ecosystem collapses and deprivation following excessive resource use and accumulated waste and pollution. Metaphorically speaking, when reasonable limits of sufficiency are exceeded, collapse begins, leading to undesired and potentially disastrous consequences. Yet the limit of reasonability is seldom fixed but fluid and contextually determined. Here, it's important to note that the limit seems to depend, at least partially, on the baseline, resource renewal, and interdependencies of different factors such as needs and resources as well as on related economic and cultural standards. Moreover, the exact limit of reasonableness, e.g. reasonable consumption or production of goods and services, can be difficult to determine due to a lack of precise data or because too many parameters must be considered, such as in the case of figuring out an organisation or a country's actual climate neutrality. Therefore, and aligning with the precautionary principle (e.g. Princen 2003; Gardiner 2006; Muller 2008), a carefully determined safety margin is recommended to limit the consumption of resources and avoid environmental collapse (O'Riordan and Jordan 1995; Nyfors et al. 2020). Nevertheless, what constitutes a large-enough safety margin remains debated and inconcise.

Thus far, we have provided a generic description of the concept of sufficiency as it relates to avoiding problems and achieving proper conditions. This sufficiency of something (e.g. consumption and production) can, of course, be more or less real or

imagined. In regard to ecological limits, sufficiency relates to somewhat objective boundaries in the biosphere, and 'properness' becomes defined by the biosphere's balanced state. When balance or limits are self-imposed and self-defined, they manifest more on the domain of subjective preferences, i.e. what one wants or considers adequate in any given case. To understand the concept and its ethical and political relevance, these differences call for closer scrutiny of the conceptual models of sufficiency in relation to sustainability.

4. THREE MODELS OF SUFFICIENCY FOR SUSTAINABILITY

To analyse sufficiency further, we consider the concept as representing at least two perspectives or 'lenses'. The opposite (or inversion) of an image is an important aspect of the metaphor of a lens. In the context of sustainability studies, the opposite of sufficiency could be infinite growth and another 'infinite degrowth'. Relevant counterparts of this polarised perspective include 'adequate and excessive', 'safe and dangerous', 'beneficial and harmful'. Thus, sufficient organisation would mean that resource consumption and emissions production must remain within reasonable limits, implying that the organisation causes no serious harm to itself or others but instead maintains precautionary, positive prospects. Non-sufficient organisation, by contrast, means that the consumption of resources exceeds reasonable limits. Next, we examine the so-called limits model of sufficiency, where limit refers to that which separates sufficient from insufficient and unsustainable.

4.1. Limits model of sufficiency

The limits model of sufficiency raises the question of how much consumption and production, or human organisation in general, is enough. According to Linnanen et al. (2020), 'enough' can refer to both an upper and lower limit. Thus, the limits model can be refined by distinguishing between a minimum level and a maximum or highest limit. This is largely the basis of socio-ecological economics (Spash 2011) and literature on sustainable well-being (Hirvilammi and Helne 2014; Büchs and Koch 2017; Gough, 2017). A popular example of the limits model is Raworth's (2017) 'doughnut economics', which states that there is a lower limit, the social foundation, below which no one should fall, and an upper ecological limit that should not be crossed. This view aligns closely with the win-win idea of addressing both social equity and environmental sustainability in a given situation. These two boundaries, the social and ecological limits, define the space or a 'corridor' deemed socially just and ecologically sustainable (Giulio and Fuchs 2014). While many models focus on the upper threshold (possibly because most authors address wealthy nations, where the majority are considered to have lifestyles characterised by needs satisfied beyond a minimum level), 'doughnut' thinking and sustainable well-being discourse emphasise providing that which is necessary while remaining within ecological boundaries. Such discourse aspires to meet both the inter-generational and intra-generational dimensions of justice.

The Brundtland Commission's 1987 definition of sustainable development represented this dual aim by considering both social needs and ecological boundaries. With the first part of the definition, the report envisions sustainable development as that which meets the needs of the present without compromising future generations' abilities to meet their needs (WCED 1987). In this sense, the report suggested a joint effort by the current generation to redistribute wealth within the present generation and, thereby, bequeath

future generations a healthy society in all respects so that the needs of all are met. Accordingly, limits are encountered where and when present and future generations can no longer meet their needs due to resource exploitation.

The corridor of possibilities for meeting needs is outlined by universal basic human needs and ecological boundaries. In its reference to limits, the stance of the Brundtland definition is highly ambiguous, appearing to acknowledge the existence of limits by noting that they are 'imposed by the state of technology and social organisation' but failing to connect limits to the natural environment, i.e. the planet. In fact, the report can be considered to deny the idea of absolute limits, as it continues by stating that 'technology and social organisation can be both managed and improved to make way for a new era of economic growth' (WCED 1987: 24). Subsequent interpretations support this view of the Brundtland Commission's failure to consider absolute limits – no country has yet decided to set limits on growth. Rather, sufficiency is treated as a subjective preference determined by wants and not by needs or biospheric finitude.

The rationale for sufficiency in the limits models is quite implicit, almost as if the natural sciences of ecological boundaries and reports on global poverty would offer normative guidelines for action. However, to humanists, that poverty and social inequity are problems requiring solutions is clear; likewise, most environmentalists emphasise the necessity of protecting the natural environmental. In the tradition of enlightenment, life is valued, and no one should be treated as a means to an end (Kant 2004: 92–93). Therefore, we may consider adhering to reasonable limits an ethical responsibility or moral or categorical imperative in the spirit of Kant, which should perhaps become a universal maxim.

It can also be said that the limits model remains on an edge between the objective limits to growth determined by the finiteness of the physical resources and the idea of basic needs of present and future generations, as conveyed by the Brundtland report. Therefore, it seems that part of the content of this model of sufficiency depends on sustainable development, but this concerns only human interests, leaving aside the non-human world.

4.2. Preference model of sufficiency

In addition to absolute limits, i.e. minimum universal basic needs and planetary boundaries of the maximum, sufficiency can be evaluated from the perspective of subjective preferences and conceived as an ethos of and aspiration to moderation and restraint (de Geus 2003). To the extent that the dynamics of preference-satisfaction is guided by this ethos, it can be expected to lead to the maximisation of self-control and self-regulation. Preferences for sufficiency are, naturally, reasonable and recommended for sustainability if they actually reduce the matter–energy throughput of human organisations and contribute to social equity. Moreover, sufficiency as a lifestyle choice may lead to happiness and set an example for others (cf. Helne and Hirvilammi 2015). In this model of sufficiency, one's preferences would not exceed reasonableness and adequacy limits. An example of a lifestyle of sufficiency considers a corridor in which the lower limit of consumption (i.e. the personal or social minimum) is at an agreeable level, and the upper limit does not exceed ecological sustainability according to one's preference.

The preference model relates to the conditions and extent to which sufficiency ideals and considerations are linked to an individual's efforts to realise his or her subjective preferences. Reflection on more or less impulsive temptations and deliberated or emergent ideals of sufficiency is central to such considerations. For example, ecological sustainability may require compromising between one's subjective preferences, e.g. vacationing abroad does not align with emission-mitigation goals. However, it is also important to recognise that personal preferences related to sufficiency may have little or nothing to do with the objective limits of ecological and social carrying capacity. Contrary to limits (and, hence, sufficiency) demarcated by Earth-system (techno)sciences, one's experience can generate an understanding of sufficiency and become important for sustainable organisation through personal commitment.

Why consider sufficiency according to this model? With regard to preferences that are more or less subjective, a related ethical theory is preference utilitarianism, which defines the fulfilment of preferences (desires, goals) as a basic moral good (Hare 1981; Singer 2011). Its proponents believe that the maximum fulfilment of preferences is the most desirable outcome, thus rejecting the 'experience requirement' and the maxim 'what you don't know can't hurt you'. We can exemplify this with a fictional person, Anna, whose reputation is destroyed by someone spreading rumours about her without her knowledge. Being unaware of this, any loss of reputation does not diminish the happiness she feels throughout her life. According to hedonists, spreading the rumour did not harm Anna because the experience requirement was not met: Anna was never directly involved and knew nothing about it. The preference model is apt to reject the experience requirement, i.e. because Anna wishes to maintain her good reputation, tarnishing it will harm her, even if she doesn't know about it. Similarly, a lack of

techno-scientific knowledge about the sufficient level of consumption does not diminish the importance of one's critical evaluation of desires and preferences that would increase the consumption of natural resources if realised.

The ethics of the preference model are complicated by some preferences being more important than others. Furthermore, fulfilling some may prevent the fulfilment of others. For example, if people spend all their money on expensive hotels and other luxuries, soon they have nothing left. Prioritising preferences must, therefore, be considered in sustainable planning and evaluation. Therefore, a model that is positioned between the subjective–objective divide of the limits and preference models is of great interest and relevance here.

4.3. Balancing model of sufficiency

By integrating the limits model claiming objective limits (based somewhat on the rationale of duty-based ethics) and the preference model arguing for a subjective view of sufficiency (based largely on preference utilitarianism), we next describe and develop a third perspective, the so-called balancing model of sufficiency. Rather than juxtaposing the two to see sufficiency either as a limit or a preference, in this model, sufficiency is viewed as the mean between lack and excess. Here, a balance depends on a complex set of global factors (e.g. the global economic supply and demand) and locally varying circumstances in which there can be, simultaneously, in addition to overall balance, lacks and excesses of other things. An overall balance does not necessarily imply harmony but rather a state of entropy enabling the continuity of diverse life on Earth with, naturally, some temporal and spatial vacillation.

This perspective emphasises action and actor(s). Maintaining balance requires activity analogous to a tightrope walker adjusting to the sway of the wire (Tainter 2006; see also Heikkurinen 2020). Therefore, sufficiency according to this model is associated with character virtues like modesty, reasonableness and greed avoidance, on the one hand, and action on the other. The ethical rationale of the balancing model is a type of action-oriented virtue ethics (towards sustainability) advancing a position between Aristotle's universal virtuous traits and MacIntyre's particular virtues or goods internal to a local practice. The virtue here, such as modesty in action, refers not only to limiting self-interest and self-importance in everyday life but also to directing one's actions towards more-radical sufficiency alternatives, e.g. growing one's food in a self-sufficient community unrelated to monetary exchange. The possible limits of virtue ethics include the question of how fundamental virtues are identified and by whom. Another challenge facing virtue ethics consists in offering an account of the right-making features of actions, while remaining a distinctively virtue ethical view (Timmerman and Cohen 2020).

Both the limits and preferences models of sufficiency appear in the balancing model as background conceptualisations behind the act of balancing. Further, the idea of 'doughnut economics' is relevant and present in the balancing model since balance is needed to stay within the boundaries of the social foundation and an upper ecological limit, and subjective preferences cannot stay outside the balancing act. Thus, sufficiency in a given situation can have both objective and subjective criteria. An example of an essentially objective criterion for sufficiency is a case where a certain amount of petrol is required for a vehicle to travel a given distance. The amount of petrol is an objective

criterion even if the driver or another person does not know how much petrol is in the tank, the distance to be travelled, or the fuel-consumption rate of the car. However, in many cases, sufficiency criteria are subjective, personal and culture-dependent. For example, acceptable living standards or requirements for a decent life vary greatly among people, societies and cultures. Thus, the criteria for a sufficient living standard are vague and depend on expectations. To manage and cope with these differing expectations, balancing actors and actions are indeed necessary.

5. ETHICS OF SUFFICIENCY

Thus far, we have identified sufficiency conceptualisations and analysed how they vary and what their rationales for sufficiency are. The limits model's emphasis is on objective boundaries for human organisation, while the preference model's starting point is subjective will. In the limits model, the rationale for sufficiency (staying within upper- and lower-limit thresholds) bears a resemblance to duty-based ethics. The preference model, again, leans towards utilitarian undertones. The third, the balancing model, seeks to merge objective limits with subjective preferences, and its rationale to the question 'why sufficiency?' comes from action-based virtue ethics.

In previous research, Kanschik (2016) distinguished between two debates on sufficiency; the first concerns socially just distribution and the second ecological sustainability. He refers to the two discourses as 'sufficientarianism' and 'eco-sufficiency' (or ecological sufficiency). According to Kanschik, their relationship must be carefully scrutinised since the considerations of distributive justice and ecological sustainability overlap in many areas, including social policy and environmental politics.

Kanschik argued that sufficientarianism and eco-sufficiency are contradictory because the former is committed to lifestyle pluralism, while the latter has adopted a highly specific view of 'the good life'. Therefore, he suggested that the term 'sufficiency' has two different meanings, one applied to a limit (eco-sufficiency) and the second to a minimum requirement (sufficientarianism). Although our analysis considers this view favourably, we suggest that two limits of sufficiency can co-exist and even be complementary as illustrated by the conceptualisations of sufficiency discussed above.

This is not to say that there would be no trade-offs and paradoxes between social and environmental aims – quite the contrary. The quest for sufficiency entails tensions between different subjective preferences and absolute limits, as well as between the needs of present generations worldwide and those of future generations, including non-human generations. While the rationales for sufficiency according to the limits model and the preference model are rather straightforward in the sense that sufficiency is either driven by personal preferences or universal duties, the balancing model perhaps best captures the constant need to juggle varying viewpoints. In sustainability studies, these tensions are often discussed through the notion of intra- and inter-generational justice (Barry 1997, Glotzbach and Baumgartner 2012), to which we now extend our discussion on sufficiency ethics.

We see parallels in the debates on intra-generational justice and sufficientarianism, and on inter-generational justice and eco-sufficiency. The former emphasises sustainability in place, while the latter places the emphasis on sustainability, or justice, in time. Generally, however, the discussion on justice tends to focus on intra-generational concerns (i.e. justice in certain places and times), and there is at least a relative lack of

an inter-generational understanding of justice and reasonableness, not to mention justice and reasonableness towards the non-human world. In inter-generational considerations, the implications of theories of justice can be seen to depend on two major features. The first is 'the measure of justice' the theories adopt, including metrics of welfare, goods, and capabilities (Dworkin 1981, Anderson 1999, Nussbaum 2006, Wolff 2009). Further, one may wonder what the best, or the most objective, measure of sufficiency would be or which metrics we should apply to sufficiency assuming they cannot be applied to everything. The second feature is 'the distributive principle' the theories impose: equal distribution, priority for the most vulnerable and disadvantaged, or a minimum level for everyone. When discussing inter-generational justice, this includes a consideration of those who can be imagined to be behind the 'veil of ignorance', in Rawls's words (see Kyllönen 2014). It could be suggested that we should engage in a Rawlsian thought experiment with a non-anthropocentric assumption. That is, when asked to consider which principles should be selected for the basic structure of society, we should not exclude having a non-human position in that society (see Langhelle 2000). The claim for some minimum for everyone is known as the 'doctrine of sufficiency' or 'sufficientarianism' (Arneson 2006: 28), but excludes the non-human world.

The balancing model for sufficiency would include non-humans in the considerations of justice (and reasonableness) and would, thereby, move towards further bridging these commonly distinctly discussed notions. This could be called holistic sufficientarianism and could build its 'original position' based on Rawls but interpreted non-anthropocentrically. We introduce the term 'the big veil of ignorance' to capture this departure from human-centredness. Sufficientarianism, whether narrowly or broadly considered, interprets the realisation of justice not as equality but as sufficiency and

presumes that everyone reaches a minimum level in an appropriate measure. Thus, sufficientarianism can be seen to represent a limits model focusing on ethical decency or duty. Further, according to the new doctrine of sufficiency, the problem is not that the rich have more than the poor or that humans occupy more of Earth than non-humans, but rather that the poor and non-human lack basic necessities. In particular, the poor lack sufficient resources needed for a good life, while non-humans lack space as their habitats are destroyed and many species cannot adapt rapidly enough to survive global warming. A middle-ground conclusion that can then be drawn is that sufficiency – not equality – is what really matters (Walzer 1983; Frankfurt 1987 and 2000; Nussbaum 1990 and 2000; Miller 1995; Wiggins 1991; Anderson 1999). In other words, according to sufficientarianism, if everyone has enough, then whether someone has more than enough does not matter or, as Frankfurt, a major advocate of sufficientarianism (1987: 21) put it:

> What is important from the moral point of view is not that everyone should have the same but that each should have enough. If everyone had enough, it would be of no moral consequence whether some had more than others.

Clearly, this judgment conflicts with the basic tenets of egalitarianism, which prioritises equality and advocates the removal of economic inequalities among people. Thus, egalitarianism emphasises that, even if every human being's basic needs are met, blatant inequalities will persist. This demonstrates that a sufficient level of resources for all does not constitute a sufficient condition for equality. Moreover, one may consider such a view hypothetical and quite problematic from a sustainability perspective.

As seen, Frankfurt's view raises serious questions and concerns. First, it is not at all obvious that, if sufficiency is defined as reaching a minimum level (e.g. the fulfilment of basic physical needs), everyone worldwide and future generations will be satisfied with that minimum. Knowing what others may need in time and space is an immense epistemological challenge and beyond human interest. Therefore, which resources and how well-being are distributed above poverty and subsistence levels is considered relevant to justice and fairness. Second, the urgency of helping the most vulnerable and disadvantaged does not demonstrate the priority of sufficiency over equality. This fact strengthens the doubt that sufficientarianism supports a controversial idea, namely that poverty indices and species-extinction rates summarise everything that is relevant about planetary well-being. Clearly, the idea is faulty since it fails to consider context- and history-dependent factors such as different perceptions of a decent life, liveable habitats and species-typical behaviours.

Furthermore, Frankfurt's view implies that sufficiency is achieved when people stop striving for more. However, many people, perhaps most, believe that their present situation is far below a level of satisfaction. They may see their lives as characterised by moderate scarcity if not severe poverty (even if this is not the case). For this very reason, questions about the just (re)distribution of resources (including spatial resources) arise, and each individual's demand for more resources must be weighed in relation to the demands of all individuals and available resources. This reconfirms the relevance of the balancing model of sufficiency, which focusses on both the social minimum and ecological limits while taking subjective preferences into consideration.

A related issue is that sufficiency is relative to the subject and situation, in the sense that what is considered sufficient by someone under one set of circumstances may be considered insufficient by another under different circumstances. The models discussed above reveal that a subjective concept of sufficiency can be distinguished from an objective concept and that different ethical (and political) rationales can be connected to these models of sufficiency. Moreover, endorsing sufficiency first and foremost as a moral principle related to the equitable distribution of resources is one perspective, while defending the view that resource consumption should be ecologically balanced and should not exceed an environmentally sustainable level is quite another. However, one may be inclined to think that the moral conception and the sustainability concept of sufficiency are intricately connected and even mutually dependent. On one hand, many consider sustainability a moral duty, a requirement and a virtue for individuals and corporations alike (see Heikkurinen 2017). On the other, one may say that the moral concept of sufficiency is secondary to the sustainability concept: building a viable and just society is impossible without ecological sustainability, and the prosperity of nature is an ultimate requirement for humankind's prosperity and its undertakings. At our present stage of development, which is excessive in terms of resource use and waste emissions, the reduction of matter–energy throughput is a requirement for sustaining life. It is important for future sufficiency studies to note that the conception of justice should be expanded to include non-humans. In this case, questions of inter- and intra-generational justice no longer correspond to the categories of social justice and ecological justice or sufficientarianism and eco-sufficiency. Instead, intra-generational justice would include all beings in space, not only humankind, and inter-generational justice would include all beings in time, including non-human generations to come.

In view of these radical requirements, the clear advantage of the balancing model of sufficiency is that the dynamic nature of the biosphere is considered. Rather than focussing on fixed, static minimums and maximums, the emphasis is on doing. Balancing for sufficiency is about sufficiently addressing the needs of present and future generations and, thereby, providing intra- and inter-generational justice in society and various organisations. Aligning with the IPAT formula (i.e. impact (I), population (P), affluence (A) and technology (T)) which states the major sources of human impact on the environment, there needs to be balance in terms of the number of humans inhabiting the planet, the levels of their affluence, and the quality of technology developed. The one-dimensional growth strategy is unsustainable.

Some might consider the balancing model of sufficiency the necessary albeit not sufficient condition for sustainable organisation. First, justice or decency requires that each subject has enough. This principle, however, needs to be supplemented by other principles. These should not only tell us what to do with the surplus (assuming there is one) once everyone has sufficient resources but also guide us in situations where too few resources are available to raise everyone to the threshold of sufficiency. A specific question is whether the number of entities in the world who achieve the level of sufficiency should be maximised or whether the cumulative shortage suffered by those in relevant groups (e.g. children, elderly people, mountains, pigs, mosquitos) should be minimised.

Another twofold challenge is determining how to specify the threshold or social minimum of sufficiency and who counts if we cannot include everyone behind the veil of ignorance. Many would agree that, although necessary, specifying such a minimum,

e.g. the right to exist, is highly challenging. However, whether such a specification is sufficient to direct considerations of justice and sustainable organisation is doubtful, For example, one might allow one generation to leave future generations with far less potential and fewer resources as long as these are above a certain minimum. Likewise, one may give birds a clear-cut forest in which to live. Many would consider such 'balancing' problematic if not downright unjust. Even from an anthropocentric perspective, consider a case where one generation could leave future generations a much better world than one defined by minimum standards at no or little cost. In such a case, to say that current generations need only ensure that future generations do not fall beneath the minimum would seem totally inadequate.

Further, the anthropocentric requirement that a just society ensures that all citizens reach a minimum level sounds less demanding than the requirement of strict equality (Sen 1984: 515) and especially the non-anthropocentric requirement of justice for all. One way of setting minimum standards emphasises equal opportunities for democratic participation in society (Gutmann 1987; Anderson 1999). This is, of course, quite challenging to balance, not least because non-humans do not share our forms of language. Furthermore, defining basic human needs and minimum standards (Frankfurt 2015) is problematic, to put it mildly, as we cannot appeal directly to human needs to determine how any available surplus resources above the minimum level should be allocated (Brock 2019). Thus, the balancing model of sufficiency must imply identifying a balance between social and interspecies minimums and another limit defined by the following two parameters: (i) unconsumed resources that remain after responsible and moderate consumption and (ii) the ecological maximum use of resources. If the ecological maximum is below the level of the net surplus of resources,

that maximum, of course, forms the upper limit, implying that overall consumption must be reduced to a sustainable level (this is recognised to be the case, for example, in regard to the consumption of oil and other fossil fuels: even if oil and coal reserves exist, they should not be exhausted due to harmful effects on the climate and ecosystem). By contrast, even if the use of residual resources would not exceed ecological limits (which requires careful study), the balancing model of sufficiency recommends moderation and restraint in consumption (i.e. not to waste and exhaust the surplus). Thus, balancing for sufficiency is not necessarily a median between the social minimum and ecological maximum: it includes meeting interspecies basic needs and living moderately and wisely with surpluses. In the situation of overshooting and ecological debt, sufficiency is what enables life and should suffice. Thus, a prerequisite for meeting every human being's basic needs is the redistribution of wealth from the rich to the poor because the planet and its growing number of people (projected to reach 8 billion) cannot support more affluence or the one-dimensional technological expertise that is driving larger and more complicated machinery.

If the focus is widened to consider actual needs that arise in particular societies, one will often find that needs and inequality interact since what is essential for a minimally decent life depends in part on the general standard of living in the society in question. A dialogic relationship is also worthwhile for negotiating between objective limits and subjective preference to mobilise action. This brings us back to the balancing model of sustainability. Rather than deeming the limits model dull or the preference model subjective, each one's differing ethos should be balanced. Sufficiency cannot be simply about number crunching to determine poverty and ecological boundaries or feelings and intuitions about how much is enough; it encompasses both. Regarding balance, the key

dimensions are intra- and inter-generational justice and the extending of justice to the non-human sphere. These determinants can be expected to merge into an activity-based approach of constant care for oneself and others. This is the virtue of our time, and it must be enacted in every sector and at all levels of society if we are to reach sustainable organisation.

6. CONCLUSION

We have analysed the concept of sufficiency in relation to sustainability and have discussed the ethical implications of both. We have identified three foundational conceptualisations of sufficiency in regard to sustainability: (1) a limits model, which has as its starting point objective boundaries imposed by the biosphere and poverty; (2) a preference model, which treats sufficiency as a subjective inclination defined situationally; and (3) a balancing model, which integrates the objective limits and subjective preferences by focussing on action embedded in the socio-ecological fabric. Each conceptualisation is found to imply an ethical stance: universalism, relativism and action-oriented virtue ethics, respectively. We have argued that the balancing model of sufficiency is well suited to meeting the needs of present and future generations, as well as delivering intra- and inter-generational justice in societies and various organisations. Non-human species should also be incorporated in equity considerations. Further, there is still reason to believe that how resources and welfare are distributed above the poverty level or social minimum is relevant to justice: while the ecological limit of sufficiency is unconditional and determined by the objective physical requirements for life, sufficiency does not override equality in terms of the social minimum.

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