The capabilities approach and environmental sustainability: The case for functioning constraints

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Abstract: The capabilities approach of Amartya Sen and Martha Nussbaum has become an influential voice in addressing issues of social justice and human development. However, it has not yet given adequate theoretical consideration to the requirements of environmental sustainability. Sen has focussed on the instrumental importance of human development for achieving sustainability, but has failed to consider the limits of this account, especially with respect to consumption reduction. Nussbaum has criticized constraining material consumption for paternalistically prescribing a particular conception of the good life, while not considering it as an imperative of justice. We discuss two possible extensions of the capabilities approach. First, the concept of capability ceilings contains several attractive elements, but it also suffers from some shortcomings. Therefore, second, we advocate constraining people's combinations of functionings in accordance with a personal budget that consists of a fair share of environmental resources.

Keywords: capabilities approach, environmental sustainability, political liberalism, sustainable consumption

1. Introduction

Over the last few decades, the capabilities approach has become an influential voice in addressing issues of social justice. It has been theoretically developed especially by Amartya Sen and Martha Nussbaum, and has provided the core principles of the human development paradigm adopted by the Human Development Reports (United Nations Development Programme – UNDP, 1990: 10-11; Robeyns, 2005: 94).

Central to the capabilities approach are the two related concepts of functioning and capability. The concept of *functioning* refers to the various things a person may value doing or being, for example being adequately nourished or taking part in the political life of a community (Sen, 1999: 75; Nussbaum, 2006: 70). *Capability* represents the substantive freedom to achieve alternative functioning combinations or lifestyles, reflecting both instrumental opportunity and the intrinsic freedom of choice (Sen, 1988: 270; 1999: 75; 2009: 238; Nussbaum, 2011: 20).¹ The approach focuses on the concept of capability, because taking functioning itself as the policy goal would disrespect intrinsic freedom and preclude many choices that people may make in accordance with their comprehensive conception of the good life (e.g. Nussbaum, 1998: 321; 2011: 25-26; Sen, 2009: 238). The importance attached to the intrinsic freedom of choice and the neutrality between different conceptions of the good life characterizes the capabilities approach as a distinctly liberal account of social justice (also see Robeyns, 2005: 95).

The capabilities approach arguably offers analytical advantages over resourcist or utilitarian accounts of social justice since it captures well-being directly in terms of freedom, rather than concentrating on commodities as the means to achieve well-being, or people's subjective preference satisfaction. Moreover, its theoretical development is closely connected with the analysis of contemporary issues of justice such as poverty alleviation and gender equality, and has provided the foundations of the influential human development paradigm. Despite these strengths, however, the *intertemporal* application of the capabilities approach

¹ Sen and Nussbaum's conceptions of *capability* importantly differ: whereas Sen (1999: 75; 2009: 236) refers to *capability* as the multidimensional space consisting of the various combinations of functionings a person can choose from, Nussbaum (2011: 18) emphasizes *capabilities* as the plural and qualitatively distinct elements of people's quality of life. Even though this important distinction forms an implicit part of the analysis that follows, we will not explicitly discuss it.

remains a matter for further deliberation and is increasingly discussed in recent literature (see for example Rauschmayer et al., 2011; Schlosberg, 2012; Lessmann and Rauschmayer, 2013; Author 2013a, 2014; Schultz et al., 2013).

Central to intertemporal equity are concerns of *environmental sustainability* regarding the maintenance of the environmental goods and services that are essential preconditions for human flourishing both now and in the future. As we will argue more fully below, achieving environmental sustainability requires humanity to refrain from transgressing the biophysical constraints of the ecosphere (Goodland and Daly, 1996: 1003; Ross, 2009: 38; Rockström et al., 2009: 472), which arguably involves the inculcation of an *ethos of restraint* in order to reduce humanity's environmental impact.²

In this paper, we will argue that the capabilities perspective has not yet given adequate theoretical consideration to the requirements of environmental sustainability, and discuss possible extensions of the approach to address this issue. In order to do so, we will first introduce our conceptualization of environmental sustainability and the ethos of restraint as a requirement thereof. In this light, we will critically assess Sen and Nussbaum's approach. We will argue that there is an important tension between their liberal focus on people's freedom and the necessity of inculcating the ethos of restraint, which needs to be addressed in order to adequately meet the requirements of environmental sustainability. Subsequently, we will discuss two possible extensions of the capabilities approach to include considerations of environmental sustainability: *capability ceilings* and *functioning constraints*. Since the former suffers from some conceptual and pragmatic shortcomings, we will advocate *functioning constraints* as a conceptual tool to address the requirements of environmental sustainability from the perspective of the capabilities approach.

2. Preliminaries: environmental sustainability and the ethos of restraint

² Environmental sustainability is informed by a scientific account regarding the identification and quantification of the biophysical constraints of the ecosphere (Ross, 2009: 45). Admittedly, these issues are still subject to scientific debate, and might ultimately depend on political agreement. Yet, it should be emphasized that there is a substantial body of scientific evidence and a broad consensus regarding the *existence* of the biophysical constraints of the ecosphere (see for example Rockström et al., 2009).

Central to intertemporal equity is the preservation of the environmental preconditions for human flourishing now and in the future. In promoting human development, global policies should therefore be oriented towards achieving environmental sustainability, which imposes a duty on everyone to protect and restore the earth's ecosystems in order to safeguard their vital environmental functions for future people (Goodland and Daly, 1996: 1003; Ross, 2009: 38). The goal of environmental sustainability is to sustain life-support systems indefinitely, and therefore it advocates the need to operate within the earth's finite carrying capacity (Goodland, 1995: 6; Ross, 2009: 37-38). Humanity's current transgressions of the ecosphere's constraints will result in climatic and environmental changes that endanger the biophysical preconditions for human development (Rockström et al., 2009: 474; Schlosberg, 2012).

In order to achieve environmental sustainability, humanity's aggregate environmental impact must be lowered to sustainable levels, bearing in mind the current unjust distribution of benefits drawn from environmental resource usage. The factors that determine environmental impact are summed up in the commonly used 'IPAT' equation: the cumulative environmental impact (I) can be estimated as the product of population (P), affluence or consumption (A) and technological development (T) (Goodland and Daly, 1996: 1010; Dietz and Rosa, 1997: 175; Huesemann, 2003: 261). Hence, policies aimed at reducing environmental impact can focus on one of these dimensions, but we are convinced that the three factors should be addressed simultaneously in order to meet people's basic needs without transgressing the biophysical constraints. Nonetheless, this paper will mostly focus on reducing the unsustainable consumption levels of the global consumption elites.

In order to meet the challenge of environmental sustainability, 'it is arguable that we – those of us currently over-consuming – require the inculcation of an ethic, an ethos, of restraint to accompany and underpin the recognition of our obligations to reduce our demands on resources' (Hayward, 2009: 290). Hayward conceptualizes this imperative of restraint as a matter of both the *right* and the *good*. First and most importantly, it is a matter of justice since it is related to the universal right to access to the necessary means for a decent life. The inequitable and excessive appropriation of biophysical resources and services imperils the integrity of the environmental preconditions for human flourishing now and in the future.

Moreover, climate change, for example, already affects current people's lives and these effects will exacerbate in the future if no – or too little – mitigation efforts are undertaken (Costello et al., 2009; UNDP 2011; 2013). Hence, the imperative of restraint is deeply grounded in principles of both global and intertemporal justice, since its objective is to reduce and to avert transgressions of the ecosphere's constraints in order to preserve these environmental preconditions.

Hayward's second interpretation relates the ethos of restraint to a 'green' conception of the good life that prescribes living in a way that is simple in means and rich in ends (Hayward, 2009: 290). This interpretation favours certain 'green' virtues, such as resourcefulness (Hayward, 2009: 290), or humility, temperance and mindfulness (Jamieson, 2006: 480).

These two interpretations are not mutually exclusive, but differ in the underlying rationale offered for adopting the ethos of restraint: as an imperative of global and intertemporal justice, or as a particular conception of the good life to pursue. In addition to this language of restraint, current excessive appropriation of environmental resources can be criticized from a sociological perspective. Soper's analysis of 'alternative hedonism,' for example, provides a critique of the consumerist culture of the global elites that has become the model of the good life, but which has also generated significant costs to physical and psychological well-being, including noise, pollution, stress, congestion and consumer anxiety (Soper 2007: 211, 221; 2008: 571; 2012: 101). In contrast to a focus on certain green virtues, this way of re-thinking the good life is non-prescriptive because it starts from people's disaffection with consumerism and especially its less enjoyable byproducts, rather than advocating one specific type of the good life (Soper 2007, p. 212).

As we will argue in the following section, reducing consumption is the most controversial of strategies to achieve environmental sustainability from the liberal point of view to which the capabilities approach adheres. While Sen focuses on the instrumental value of human development for achieving sustainability, Nussbaum criticizes the second interpretation of the ethos of restraint for being paternalistic. Nonetheless, we will argue that

the ethos of restraint should be taken into account by both approaches, at least in its interpretation as a matter of global and intertemporal justice.

3. The capabilities approach and environmental sustainability

3.1. Environmental sustainability in Sen's approach

Anand and Sen (2000: 2030) argue that sustainability reflects the universality of life claims applied to future people vis-à-vis current people: universalism 'is in the present context, the recognition of a shared claim of all to the basic capability to lead worthwhile lives.' Seeing that our existence as human beings is dependent on the environment, Sen (2010: 130; 2013: 7-8) acknowledges the importance of the environmental preconditions for human live, and states that unabated environmental deterioration will hamper human development. Anand and Sen (2000: 2030) argue for the protection of the environment in view of the ethical need to guarantee that future people enjoy freedoms or capabilities similar to those enjoyed by the people that precede them: 'we cannot use up, or contaminate, our environment as we wish, violating the rights and the interests of the future generations.'

Nonetheless, this account remains ambivalent. Anand and Sen (2000: 2030) argue that 'since we do not know what the tastes and preferences of future generations will be, and what they will do, we can talk of sustainability only in terms of conserving *a capacity to produce well-being*' (emphasis added). According to them, preserving this productive capacity is not an obligation to leave the world as we found it in every detail, but only to maintain the broad stock of capital; the used up, non-renewable, resources can be replaced with reproducible capital, whether environmental or human. However, although we agree that we cannot know the preferences of future people, environmental capital is increasingly becoming the limiting, scarce factor for economic production (Daly, 1995: 50; Goodland, 1995: 13; Goodland and Daly, 1996: 1006; Ott, 2003: 62). The burden of proof for the substitutability of environmental by human capital thus rests on those who claim that a natural entity is substitutable (Ott, 2003: 62). Hence, the universalism of life claims should contain a strong

argument in favour of the preservation of environmental capital: precisely because we know little about the preferences of future people, ‘the bequest package should contain all kinds of goods, including natural capital’ (Ott, 2003: 62). At least, this requires humanity to live within the biophysical constraints of the ecosphere, which mandates the inculcation of the ethos of restraint as an imperative of global and intertemporal justice.

Criticizing earlier conceptualizations of sustainable development in terms of needs-fulfilment and maintaining standards of living – provided by the Brundtland Commission (WCED, 1987) and Solow (1993) respectively – Sen (2009: 251-252) argues that sustainable development should be recharacterized to encompass ‘the preservation, and (when possible) expansion, of the substantive freedoms and capabilities of people today “without compromising the capability of future generations” to have similar – or more freedom.’ Although this evaluative focus has important conceptual advantages in capturing well-being directly in terms of freedom, we agree with Jackson (2009: 45) that capabilities should not be interpreted as ‘a set of disembodied freedoms.’ Rather, it should be recognized that capabilities are rooted in material conditions, which ultimately rest upon biophysical preconditions and are therefore limited.

Anand and Sen (2000: 2038) argue that human development is not only intrinsically important – it directly enhances the capability to lead worthwhile lives – but also instrumentally important, since it increases the human capital of the poor with lasting effects in the future. For this reason, they claim that ‘human development should be seen as a major contribution to the achievement of sustainability’ (Anand and Sen 2000: 2038).

Indeed, as regards the *population* factor of environmental impact, Sen (1999: 198, 218; 2004: 3-4; 2013: 15-16) has argued that enhancing women’s capabilities through empowerment, education and female employment is more effective in reducing fertility rates than coercive measures. In this way, human development not only has intrinsic value (promoting women’s quality of life through expanding their freedoms), but also contributes instrumentally to the achievement of environmental sustainability (since reduced fertility rates have positive spillover effects on the environment). However, due to demographic inertia, strategies to reduce population growth will only have abating effects on the aggregate

environmental impact in the long term (Dietz and Rosa, 1997: 179). Moreover, Myrskylä et al. (2009) have shown that at very high levels of human development, continued economic and social development can reverse the declining trend in fertility. In sum, although human development has instrumental importance through reducing fertility rates at low and medium development stages in the long term, its instrumental importance for achieving environmental sustainability is limited in the short term and at high development levels.

Similarly, regarding the *technology* factor of environmental impact, Sen (2009: 249) argues that ‘development is fundamentally an empowering process, and this power can be used to preserve and enrich the environment, and not only to decimate it.’ The environment can thus also be benefited through human creation: purification of water, for example, improves the environment in which we live (Sen, 2009: 249). Moreover, he strongly believes in technological progress to achieve sustainable development (Sen, 2013: 3, 16). Yet, even the most efficient technologies will have an environmental impact, and past efficiency gains have been negated by economic expansion and population growth (Mont and Plepys, 2008: 531; Jackson, 2009: 67). Even though enhancing eco-efficiency and pollution prevention are clearly necessary contributors to sustainable human development, such technological solutions will be ‘nothing more than short-term “techno-fixes” that delay the problems until they reappear in even more serious forms later,’ unless we use the limited time they buy to address our society’s preoccupation with economic expansion and consumption growth (Huesemann, 2003: 261).

Strategies regarding population reduction and technological improvement should therefore be complemented with changes in *consumption* patterns and reductions of the levels of material consumption (Mont and Plepys, 2008: 536). Sen (2013: 12) does acknowledge that present consumption behaviour is unsustainable and that many consumption habits would need to be changed, but he insists that consumption is only a strategic means to achieve the objective of sustainable development. We certainly agree that addressing the consumption factor is only one strategy in achieving environmental sustainability, but we would emphasize that it is a vital one since strategies targeting population pressures and increasing eco-efficiency of technologies do not suffice. Moreover, similar to his focus on non-coercive

fertility reduction and technological eco-efficiency improvements, Sen (2013: 16) emphasizes ‘non-coercive shifts in consumption habits today through reasoning and freedom.’ Such shifts can be motivated by critiques of consumerism and a focus on ‘alternative hedonism’ (Soper 2007: 211, 221; 2008: 571; 2012: 101), but Sen remains vague about the application of such strategies.

Hence, on all three factors of environmental impact (population, technology and consumption), Sen strongly believes in the expansion of people’s freedoms and choices – the imperative of human development – not only as intrinsically important, but also as the adequate means to attain environmental sustainability. However, sustainable development cannot simply be defined in terms of the benefits (that is, the expansion of people’s freedoms) aimed at: we also need to attend to the costs involved in achieving these benefits and to their unjust distribution (Hayward, 2009: 282). That is, Sen’s approach at least appears to endorse the expansion of freedoms *ad libitum*, whereas the additional space created by increasing people’s capability sets can be used for unsustainable actions (Crabtree, 2010: 163; Rauschmayer et al., 2011: 13). Environmental risk factors with global effects – such as greenhouse gas emissions – indeed continue to rise with increasing human development (UNDP, 2011: 27). In this light, calling for *more* human development in the form of the expansion of freedoms is insufficient to abate the threat. However, Sen has so far failed to recognize the tensions between human development and environmental sustainability: rather than representing a major contribution to the achievement of sustainability, human development proves to have only limited instrumental potential on each of the dimensions and will most likely exacerbate humanity’s aggregate environmental impact.

Therefore, we need robust strategies to refrain from environmental overappropriation, which would require the inculcation of the ethos of restraint. Indeed, currently the global consumption elites ‘benefit from the use of more natural resources and environmental services than is either ecologically sustainable or arguably, especially in light of global inequalities, their due share’ (Hayward, 2009: 283). In contrast, the world’s poorest have not benefited from the economic growth that has accelerated global warming, while they suffer the majority of its consequences (Costello et al., 2009: 1694). Hence, the ethos of restraint is an imperative

of global and intertemporal distributive justice and its inculcation is mandated by the universality of life claims, because it protects the biophysical preconditions for human flourishing, now and in the future.

3.2. Environmental sustainability in Nussbaum's approach

We now turn to Nussbaum's interpretation of the capabilities approach, and her treatment of environmental sustainability. She does not address the population and technology dimension in detail, but is markedly sceptical about constraining material consumption as a strategy for achieving environmental sustainability. Nussbaum (1998: 329) criticizes 'opponent *B*' (one of the rivals to her liberal Aristotelian capabilities approach) who sets a limit on the need for resources and who claims that the 'free and open style of life in contemporary America' leads to accumulative behaviour that threatens environmental integrity and the well-being of other humans. In her characterization, *B* sees the state as the enemy of excess, which favours mandatory control on the consumption of resources.

According to Nussbaum, *B* and the liberal Aristotelian capability theorist share the insight that free choice has material conditions, but that these material conditions (including property rights) only have instrumental value for capabilities. The difference between them is rather that *B* – allegedly – focuses on the material conditions of human well-being, giving them priority and subordinating political liberties to them as if only coercion is able to handle the problem of overconsumption and accumulation (Nussbaum, 1998: 330). The liberal, in contrast, would reply that this fails to grasp the whole point of producing capabilities, which is 'to show respect for the powers of individuals to fashion a life' (Nussbaum, 1998: 332). Indeed, the freedom of choice and neutrality between different conceptions of the good life are central tenets of Nussbaum's capabilities approach.

However, recognizing the preconditional character of material – and hence, environmental – premises for human well-being does not irrevocably subordinate political liberties and other liberal values. Hayward (2009: 291-292) rightly states that liberal

principles such as tolerance, freedom, civil rights, and non-discrimination can be held dear while also believing that consumption and economic growth should be severely constrained.

Holland (2008a: 320) has argued that Nussbaum cannot accurately reason about the conditions of social justice without an account of the natural environment's instrumental value to human capabilities. It should be noted, however, that Nussbaum (1998: 330; 2011: 163) *does* recognize the material and environmental premises for capabilities to function. Nonetheless, she also admits that the capabilities approach has not yet exhaustively pursued the topic of our concerns towards future people and remains unclear on how the quality of the environment can be preserved (Nussbaum, 2011: 163-164). This is exactly what environmental sustainability aims to achieve and reducing the overconsumption of environmental resources mandates the adoption of the ethos of restraint.

Yet, Nussbaum's reluctance to inculcate the ethos of restraint is understandable, since it can be interpreted as a particular 'green' conception of the good, associated with 'green' virtues. On this interpretation, the ethos of restraint is prescriptive – in promoting environmental sustainability, it would prescribe a particular conception of the good life along the green virtues – and therefore does not respect the liberal neutrality between conceptions of the good life that is a central tenet of the capabilities approach (also see Bell, 2002: 704). Indeed, the prevailing position in contemporary society treats consumption choices as the sovereign decisions of consumers that should not be interfered with (UNDP, 1998: 86-87; Soper 2007: 206; Mont and Plepys, 2008: 531; Menzel and Green, 2013: 60).

However, critiques of consumerism do not need to resort to one particular conception of the good life and are therefore not inconsistent with liberal neutrality. Such critiques can refer to the deprivatory aspects of consumerism (including consumer anxiety, work stress, pollution and noise), as well as to expressed interests in goods that are depreciated by the narrow materialism of consumer culture (such as more leisure time, more personal contacts, political participation and social well-being) (Soper 2008: 576; Jackson 2009: 100-102; Author 2013a; Author 2014). Since these barriers and interests play an important role in achieving quality of life (and are recognized as such by the capabilities approach), critiques of consumerist culture can clearly promote people's capabilities.

Moreover, we believe that the inculcation of the ethos of restraint should not be seen as inconsistent with Nussbaum's political liberal perspective. First, one of the *political values* (i.e., values that can be accepted by all reasonable citizens because they are neutral among reasonable doctrines of the good) that can be invoked to legitimize policies aimed at achieving environmental sustainability is 'to further the good of ourselves and future generations by preserving the natural order and its life-sustaining properties' (Rawls, 2005: 245). Therefore, Bell (2002: 708) argues, 'there must be limits to how much damage political liberalism can allow to the environment.'

However, rather than adopting this conclusion, and following Rawls (1999: 252), Nussbaum (2006: 23) limits her concerns for future generations in practice to the 'just savings principle.' This principle states that the gains of culture and civilization must be preserved, just institutions ought to be maintained intact, and each generation must put aside a suitable amount of real capital accumulation, which can take the form of investment in machinery, means of production, learning and education (Rawls, 1999: 252). Yet, the just savings principle appears to assume the perfect substitutability of environmental by manmade capital, whereas they ought to be regarded as complementary and it should be recognized that environmental capital increasingly represents the limiting factor (Daly, 1995: 50; Goodland, 1995: 18; Goodland and Daly, 1996: 1006). In other words, 'it is questionable what exactly we can be saving for the future if we are already overusing the planet's resources and environmental capacities' (Hayward, 2012: 846).

Where the just savings principle turns out to be inadequate, the objective of the ethos of restraint is to avert transgressions of the ecosphere's constraints, which is pivotal to achieve environmental sustainability. Therefore, the inculcation of the ethos of restraint is in fact consistent with political liberalism: it should be viewed as mandated by the political value of preserving the environmental preconditions for human flourishing, rather than being seen as prescribing a particular conception of the good life.

A second reason why the ethos of restraint is not inconsistent with Nussbaum's perspective is that, since consumer choices have harmful impacts on others through exacerbating environmental unsustainability, interfering with one's consumption decision

choices can be perfectly legitimate from a liberal point of view (Deneulin, 2002: 510). This claim appeals to the harm principle, which is in fact accepted by Nussbaum (1998: 335; 2000: 53). According to her, policies aimed at preserving the environment (such as compulsory recycling) might be appropriate in the light of the interests of future generations, if ‘a convincing showing of harm to others can be made’ (Nussbaum, 1998: 335). Regarding climate change and persisting resource inequalities, we believe that this case has convincingly been made for over two decades now. In this context, the ethos of restraint should be interpreted as an imperative of global and intertemporal justice, preserving the environmental preconditions for human flourishing now and in the future.

In sum, instead of treating the ethos of restraint merely as an expression of one particular conception of the good life, it should be treated as consistent with political liberalism. Its inculcation is an imperative of global and intertemporal justice, since it is mandated by the political value of preserving the environment, and because the current overuse of environmental resources is clearly harmful towards the present poor and future people. Therefore, the ethos of restraint can be considered as a *precondition* for liberal neutrality.

4. Inculcating the ethos of restraint

4.1. Capability threshold

In this section we will discuss two extensions of the capabilities approach aimed at inculcating the ethos of restraint. Both of them appeal to the idea of a capability threshold. Nussbaum (2000: 6; 2004: 14-15; 2006: 71, 291-292; 2011: 40) conceptualizes her capabilities approach as a theory of minimal social justice: all citizens have entitlements to a minimum of each of the capabilities to live a life compatible with human dignity. Therefore, the social goal should be understood in terms of getting citizens above some appropriate capability threshold level.

However, it is not all that clear that the biophysical constraints of the ecosphere will allow guaranteeing the capabilities for everyone up to the threshold level, since the aggregate allocation of environmental resources and assets that are deemed essential to reach this objective might exceed the environmental optimum (Gardiner, 2004: 585). Hence, even *guaranteeing* the threshold already poses a potential problem in view of intertemporal justice. [sentence omitted for blind peer review]. Since this discussion falls beyond the scope of this paper, we will suffice here to note that strategies addressing the population and technology dimensions can still achieve many gains and should focus on optimizing resource usage in securing the threshold for everyone, although it admittedly will use up most of the available environmental resources.

In accordance with the argument outlined in the previous sections, a major part of current excessive environmental resource appropriation can be attributed to consumption above the threshold: the biophysical constraints of the ecosphere might not tolerate people living as far above the threshold as they might want. Yet, motivated by liberal concerns, Nussbaum (2004: 15) argues that, beyond the threshold level, ‘people are free to use their money, time and other resources as their own conception of the good dictates.’ Indeed, the capabilities approach has not yet profoundly considered legitimate restrictions on people’s actions in view of environmental sustainability (Lessmann, 2011: 50).

This is precisely where the ethos of restraint as an imperative of global and intertemporal justice comes in: the universality of life claims requires us to confine human activities beyond the threshold within the biophysical constraints of the ecosphere. Consistent with the capabilities approach’s differentiation between the two central analytical concepts of capabilities and functionings, we can then either make a case for *capability ceilings* or *functioning constraints*.

4.2. Capability ceilings

Holland (2008b: 402) has argued for adopting maximum levels of capability protection – *capability ceilings* – in addition to capability thresholds in order to guarantee everyone’s

capabilities and ecological living conditions. The purpose of capability ceilings is to limit the amount of resources that can be used to protect capabilities that are in conflict with each other. Following Nussbaum, Holland (2008b: 417) argues that a mandatory limitation of, for example, the use of Sports Utility Vehicles (SUVs) is an indirect way of establishing capability ceilings, and would free up resources that can be directed to promoting fundamental entitlements, such as improved health. Although such a limitation would improve other persons' capabilities, it at least puts a ceiling on the *bodily integrity* capability (i.e., *mobility*) of those who drive SUVs. Nonetheless, she insists that the threshold level for these capabilities may not be so high as to permit driving an SUV and that this extent of mobility is not a fundamental entitlement. Most importantly, capability ceilings make it possible to limit capabilities having harmful effects on the environment.³ Holland (2008a: 330) argues that the capabilities approach also needs to account for maximum levels of capability protection that a society can justify in view of the harmful effects on the ecological conditions that support the capabilities of current and future people.

The concept of capability ceilings contains several attractive elements. Holland's proposal fits well with the necessary strategy of reducing consumption. It enables her to criticize the satisfaction of extravagant preferences in affluent regions, while people in poor and vulnerable countries live well beneath the capability threshold in polluted environments. More generally, the idea of ceilings on material capability satisfaction implies a legitimate criticism of the unsustainable economic view that human welfare can be equated with ever-increasing material well-being. Finally, it corresponds with the capabilities approach's focus on the capability dimension in view of liberal neutrality between different conceptions of the good life.

Yet, we wish to make some observations that cast doubt on the conceptual consistency and practical applicability of capability ceilings. Holland (2008b: 416-417) argues that the purpose of capability ceilings is to limit the amount of resources that can be put to protecting capabilities that are in conflict with each other (in her example, *mobility* and *health*). Indeed, the collective creation of capabilities requires the input of energy and resources, such as

³ A significant case can be made against the SUV on the basis of (both inside and outside) vehicle safety (Vanderheiden, 2006: 30), but we limit our discussion to the environmental trade-offs.

infrastructure and technological development (Schultz et al., 2013: 128). However, Nussbaum (2006: 402) argues that the threshold of each capability should be set in view of the other capabilities. In addition, since the capability threshold requires that material conditions be provided merely *sufficiently*, the amount of resources that is allocated to capability protection is already limited to what is deemed appropriate or sufficient for a dignified human life. Hence, if the ability to drive an SUV is not considered to be part of the threshold (which is indeed Holland's assumption), then no resources would be directed to protecting this capability anyway. The role of resolving conflicts in protecting capabilities Holland ascribes to capability ceilings is already an essential part of the deliberation about the appropriate capability threshold.

Nevertheless, let us assume that capability ceilings can be used to constrain people's capabilities beyond the threshold, when people's activities have harmful effects. That is, capability ceilings can be interpreted as excluding the ecologically worst options from the possible realizations of a capability. Consider the example of Jane, who lives near the centre of a big city. Let us assume that to realize her *mobility* capability and reach the city centre, she can walk, ride a bicycle, use public transportation, or drive a car. Precluding the ecologically worst alternative (i.e., driving a car) would still leave Jane able to realize her *mobility* capability: she can still walk or use public transportation to reach the city centre. However, such measure would violate liberal neutrality between conceptions of the good life and would thus disrespect the fundamental interest Jane has in choosing her way of life, which are central aspects of Nussbaum's account (Nussbaum 2006: 88, 184; 2011: 107). Arguably, the gains of not allowing Jane to drive a car might outweigh this reduction of choice. However, this line of reasoning would in effect lead to excluding the ecologically second, third, ... worst options (i.e., using public transportation and riding a bicycle) from Jane's choices to realize her *mobility* capability until only the ecologically optimal option (i.e., walking) remains. As long as Jane reaches the threshold level, she would still be able to reach the city centre, even if all alternatives except the ecological optimal were to become unavailable. However, her freedom of choice would be virtually eliminated. Moreover, because any possible realization of the *mobility* capability above the threshold would be precluded because

it would not be ecologically optimal, a capability ceiling would coincide with the corresponding threshold.

This example also illustrates a further problem with the concept and application of capability ceilings. Holland (2008b: 419) argues that a ceiling should be put only on those dimensions or specifications of a capability that operate to undermine other central capabilities. Constraining people's consumption along these lines might be a useful strategy regarding options that are clearly unsustainable (Menzel and Green, 2013: 68). Yet, most often, environmental impact is a matter of degree, rather than of distinguishing specific activities that operate to undermine the biophysical preconditions for other people's capabilities. For example, SUVs may be quantitatively worse than passenger cars as regards their environmental impact, but are not qualitatively worse (Vanderheiden, 2006: 27). Focusing on separate capability specifications and precluding particular options cannot account for this observation.

Furthermore, Holland (2008b: 418) has argued that we must determine and justify the extent to which capabilities should be limited in view of their harmful effects. This would require identifying the more fundamental justification of that capability and clarifying why a capability ceiling is necessary. She takes the *ability to pollute* as example. First, regarding its justification, she argues that 'we can understand the ability to pollute as a property right protected by one's capability to have material control over one's environment' (2008b: 418). However, this justification cannot hold: the *ability to pollute* cannot be treated as a fully-fledged capability, since greenhouse gases (and pollution from toxic or other waste) can only be valued as means to an end (Caney, 2009: 130), and could therefore only be treated as instrumental for or by-product of the achievement of functionings. Regarding the second question – why a ceiling is necessary – Holland (2008b: 418) claims that 'protecting this capability far above a threshold level allows for polluting activities that undermine equally fundamental basic entitlements, such as life and bodily health.' However, it is not merely *having the ability to pollute* (i.e., the capability), but the *polluting* itself (i.e., the functioning) that would have harmful effects (also see Deneulin, 2002: 506; Schultz et al., 2013: 127; Lessmann and Rauschmayer, 2013: 100). Hence, even if pollution would be considered to

potentially have intrinsic value for some, it can only be sanctioned on the functioning dimension.

In sum, although we are sympathetic to Holland's proposal, we would rather advocate *functioning constraints*.

4.3. Functioning constraints

Although focussing on the functionings dimensions may at first appear to be an intolerable intervention into an individual's life and a violation of the neutrality between conceptions of the good life, Deneulin (2002: 506) argues that 'it is sometimes more important to focus on the human good (functionings), rather than on the freedom and opportunities to realise that human good (capabilities).' Freedom of choice is an important tenet of the liberal capabilities approach, yet it should also be acknowledged that individual choices have important consequences upon other people's lives (Deneulin, 2002: 507; Author, 2013a: 65). On the individual level, not *having a capability*, but rather *deriving functionings from it* has harmful effects. In order to prevent illegitimate interference that would reduce another person's well-being, it might therefore be necessary to constrain people's functionings. For example, non-discrimination requires people to refrain from dissemination of sexist or racist convictions, which is a particular functioning derived from the freedom of speech. Hence, in general, the legitimization of functioning constraints stems from the potentially harmful impact that functionings have on the capabilities of others.

More specifically regarding environmental sustainability, preserving the biophysical preconditions for human life requires people not only to *be able to live*, but also to actually *live* within the biophysical constraints of the ecosphere. Hence, in order to inculcate the ethos of restraint, we would advocate supplementing the capability threshold that secures minimal social justice with functioning constraints, rather than with capability ceilings. The purpose of this conceptual framework is to constrain the functionings people derive from capabilities beyond the threshold in terms of their aggregate appropriation of environmental assets,

consistent with the biophysical constraints of the ecosphere. Their legitimation thus stems directly from the ethos of restraint as an imperative of both global and intertemporal justice.

Our account of applying functioning constraints in the case of environmental sustainability is informed by three proposals regarding climate change mitigation.⁴ First, Caney (2009: 130) argues that mitigation not only includes reducing greenhouse gas emissions, but also enhancing sinks and investing in renewable energy and energy efficiency. He rightly claims that we should focus on people's anthropogenic forcing as a whole. Therefore, people's functioning *combinations* should be constrained as a whole – in terms of their aggregate appropriation of environmental assets.

Second, our account is informed by the moral differentiation between *subsistence* and *luxury* emissions: while subsistence emissions should be secured so as to meet everyone's basic rights, luxury emissions may be distributed according to another appropriate distributive principle (e.g. equality) and may or may not be tradable (Shue, 1993; Vanderheiden, 2008). Another way of putting this refers to the differentiation between *objective needs* and *subjective desires*: whereas the former cannot be contested on ethical grounds, consumption to satisfy the latter is legitimate only as far as it does not prevent others from satisfying their objective needs (Di Giulio et al. 2012: 53). Rather than emphasizing subsistence or needs, we would argue that the capability threshold must be secured, although this threshold similarly requires that the material conditions – including greenhouse gas emissions permits – be provided on a sufficientarian basis. The environmental resources budget remaining after securing the capability threshold can then be distributed to individuals according to an appropriate principle of distributive justice.

Third, the proposal to reduce emissions by issuing personal carbon allowances (PCAs) according to a per capita share of the total tolerable emissions budget (Hyams, 2009: 237) can be seen as an operationalization of functioning constraints. The total amount of PCAs issued each year would decline, so as to ensure a gradual reduction in greenhouse gas emissions. People would then be required to surrender such PCAs in order to engage in various

⁴ It should be emphasized, however, that whereas the distribution of greenhouse gas emission entitlements focuses only on the capacity of the atmosphere to absorb a finite quantity of greenhouse gas emissions, environmental sustainability comprises other environmental systems as well.

greenhouse gas emitting activities. We should emphasize, however, that this could only hold for the emission entitlements that remain *after* securing the capability threshold – the so-called luxury emissions.

In sum, we would submit that addressing the consumption dimension requires constraining people's functionings as a whole, in accordance with a personal budget that results from the distribution of the environmental resources and assets that remain after securing the capability threshold. The focus on constraining people's combinations of functionings as a whole has important advantages over capability ceilings. Recall Jane's case. In our framework, she would be allowed to drive a car (perhaps even an SUV), although it would use up most or all of her budget. She could perhaps decide to drive it only occasionally, or to sacrifice other functionings (e.g., renouncing transoceanic holidays, or reducing her meat and dairy consumption), in order to devote more of her budget to driving. Furthermore, she might be allowed to offset the greenhouse gas emission permits used to drive a car by investing in renewable energy or sink enhancement.⁵

In this way, people would retain the freedom of choice in administering their allocated resource budget over their functioning choices according to their particular conception of the good life. Capability ceilings, in contrast, preclude options that are deemed harmful for the environment, without taking into account the fact that the environmental impact of human activities is most often a quantitative rather than a qualitative assessment. Moreover, constraining functionings in the suggested way includes more respect for pluralism, since it does not require the exact specification of particular capability dimensions. Hence, whereas capability ceilings depend on detailed policies that tell people what to do or not to do, the concept of functioning constraints entails greater consideration of people's individual agency.

Moreover, functioning constraints are more inclusive than capability ceilings, since realizing functionings includes the evaluative spaces of capabilities as well as individual

⁵ The climatic equivalence of people's activities and offsets should of course be determined scientifically. Moreover, offsetting in the current form under the Kyoto Protocol is questionable from an ethical perspective (Author, 2013b). This topic falls beyond the scope of this paper, and we would merely note here that offsetting as a pragmatic strategy in the transition to an environmentally sustainable society need not be rejected. Moreover, greenhouse gas emissions that are part of the threshold level ought not be tradeable as they constitute inalienable goods that ensure achieving a dignified human life for the poorest in a carbon-dependent economy.

choice.⁶ Hence, ‘taking functioning – and not only capability – into account would open the view to the total life-cycle of resource use needed for realizing well-being’ (Schultz et al., 2013: 128), and would therefore be able to address processes of resource extraction and production, as well as consumption. Furthermore, a framework consisting of capability thresholds and functioning constraints would encompass collective as well as individual responsibilities in achieving environmental sustainability. On the one hand, the political task of supporting the capability thresholds is delegated to the collective level (Nussbaum, 2004: 15). In this light, functioning constraints provide an incentive to perform this task in an ecologically optimal way, as this would free up resources that could then be allocated to individuals, increasing their personal resource budget for choosing certain functionings. On the other hand, it should be noted that individuals are able ‘to control (to some extent, at least) their individual contributions to the aggregate problem and so can by the principle of responsibility be held liable for them’ (Vanderheiden, 2008: 178). Moreover, Hyams (2009: 238) suggests that PCAs ‘will serve to motivate citizens to “do their bit” in the belief that they are contributing fairly to a larger effort to combat climate change.’ If this turns out to be a valid claim, functioning constraints would similarly empower the individual through the belief that one is contributing one’s fair share to the burdens involved in the aggregate task of achieving environmental sustainability.

Finally, even though constraining people’s functionings appears to run counter to the capabilities approach’s focus on expanding individual freedoms, it is worth pointing out that functioning constraints are not only legitimized by the harm principle. Indeed, they can also improve people’s capabilities in other spheres. For example, constraining people’s material consumption can be compatible with ‘alternative hedonism’ and re-thinking our conception of the good life in order to increase opportunities to pursue valuable goals that are not part of consumerism, such as leisure time, freedom from work stress and consumer anxiety, political participation and social well-being (Soper 2007, 2008, 2012; Author 2013).

⁶ Sen (1993: 38-39) asserts that the evaluative focus on capabilities contains information about the actual functionings as well. However, this assertion is counter-intuitive: there is clearly a contradiction between the formal definition of capability (focussing on instrumental opportunity and intrinsic freedom of choice and explicitly *excluding* actual achieved functionings) and the assertion that capability provides a richer informational basis than functioning (also see Fleurbaey, 2006: 301-302).

5. Conclusion

Although the capabilities approach has become an influential voice in addressing issues of social justice and human development, it has not yet adequately addressed environmental sustainability, which requires humanity to refrain from transgressing the biophysical constraints of the ecosphere. Both Sen and Nussbaum acknowledge the importance of protecting the environmental preconditions for human life, but have not inculcated the ethos of restraint.

On the one hand, Sen argues that human development is not only intrinsically important, but also represents a major contribution to the achievement of sustainability. We agree that human development can be instrumental in addressing each of the dimensions of humanity's aggregate environmental impact, but only to a limited extent. Moreover, he does not adequately account for the tensions between human development and environmental sustainability. Nussbaum, on the other hand, narrowly interprets the ethos of restraint as prescribing a particular conception of the good life, which violates the liberal neutrality that is a central tenet of her approach. She appeals to the Rawlsian just savings principle for dealing with issues of intertemporal justice, but remains unclear on how the quality of the environment can be preserved.

We have argued that the ethos of restraint as an imperative of global and intertemporal justice can be inculcated in both Sen and Nussbaum's interpretations of the capabilities approach. It would be consistent with Sen's focus on the universality of life claims, because the objective of the ethos of restraint is to protect the biophysical preconditions for human flourishing, now and in the future. From Nussbaum's perspective, the inculcation of the ethos of restraint as an imperative of global and intertemporal justice could be treated as consistent with political liberalism, since it is mandated by the political value of preserving the environment, and because the current overuse of environmental resources is clearly harmful towards the present poor and future people. Hence, the ethos of restraint should be considered as a precondition for sustainable human development and for liberal neutrality.

Consistent with the capabilities approach's focus on the related dimensions of *capabilities* and *functionings*, we have suggested that there are two avenues for inculcating the ethos of restraint. Holland has introduced the concept of *capability ceilings*, the purpose of which is to limit the amount of resources that can be used to protect capabilities that are in conflict with each other. Although this concept enables reducing consumption and corresponds to the focus on the capability dimension in view of liberal neutrality, it suffers from some shortcomings. Most importantly, the role in dealing with conflicting capabilities ascribed to capability ceilings is already fulfilled by the deliberation about the appropriate capability threshold. Second, capability ceilings would severely reduce the freedom to choose, up to the point of coinciding with the threshold. Last but not least, this concept can neither take account of the quantitative rather than qualitative character of environmental impact, nor of the fact that it is functionings, rather than capabilities, that have potentially harmful effects.

Therefore, we have advocated constraining the functioning combinations people derive from capabilities beyond the threshold level in terms of their aggregate appropriation of environmental assets. In contrast to capability ceilings, the legitimation of functioning constraints stems directly from the ethos of restraint as an imperative of both global and intertemporal justice, and more generally from the potentially harmful impact functionings have on the capabilities of others. Functioning constraints would retain the individual's agency and intrinsic freedom in administering her personal resource budget. Furthermore, functioning constraints are more inclusive than capability ceilings, include consumption as well as production, and they encompass individual as well as collective responsibilities for achieving environmental sustainability.

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