Cambridge Journal of Economics 2015, 1 of 24
doi:10.1093/cje/bev039

Climate change and sustainable welfare: the centrality of human needs

Ian Gough*

Since climate change threatens human well-being across the globe and into the future, we require a concept of well-being that encompasses an equivalent ambit. This article argues that only a concept of human need can do the work required. It compares need theory with three alternative approaches. Preference satisfaction theory is criticised on the grounds of subjectivity, epistemic irrationality, endogenous and adaptive preferences, the limitlessness of wants, the absence of moral evaluation and the non-specificity of future preferences. The happiness approach is found equally wanting. The main section shows how these deficiencies can be addressed by a coherent theory of need. Human needs are necessary pre-conditions to avoid serious harm and are universalisable, objective, empirically grounded, non-substitutable and satiable. They are broader than 'material' needs since a need for personal autonomy figures in all theoretical accounts. Whilst needs are universal, need satisfiers are most often contextual and relative to institutions and cultures. The satiability and non-substitutability of needs is critical for understanding sustainability. Finally, it is argued that human needs provide an indispensable foundation for many current ethical arguments for global and inter-generational justice in the face of threats from climate change. An appendix compares this theory with the capability approaches of Sen and Nussbaum and argues it to be more fundamental.

Key Words: Human needs, Well-being, Climate change, Sustainability, Rights
JEL Classifications: B5, I00, P46

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: 1) the concept of 'needs' . . . 2) the idea of limitations. (World Commission on Environment and Development, 1987, p 43)

1. Introduction

Climate change threatens human well-being, not just in the 'here and now' but spatially across the world, and temporally into the future including the far future. How can we conceive of human welfare over such a broad ambit? This article argues that only a concept of human needs can do the theoretical work required. This work comprises (at least) the

Manuscript received 31 July 2014; final version received 11 March 2015.
Address for correspondence: Ian Gough, STICERD, London School of Economics and Political Science, Houghton Street, London WC2A 2AE; e-mail: i.gough@lse.ac.uk

*Centre for the Analysis of Social Exclusion and Grantham Research Institute on Climate Change and the Environment, LSE. Many thanks to all who have commented on earlier drafts: Tania Burchardt, Michael Dover, Fergus Green, Geoff Hodgson, Michael Jacobs, Erin Nash, John O'Neill and Polly Vizard; and special thanks to Anna Coote, Len Doyal and Des Gasper. Erin Nash also provided much valuable editorial assistance.

following. First, to conceive, measure and compare human well-being across time and space. This is essential because as both Brundtland and Stern emphasise, mitigating climate change must be confronted simultaneously with addressing continuing global poverty, and both in a context of egregious global inequality. Second, to establish a secure moral grounding for preventing harm whilst pursuing these global goals and to provide guidance on priorities: here the distinction between needs and wants can play an important role. Third, to provide a convincing alternative to preference satisfaction theory, which encounters insuperable problems yet remains the hegemonic theoretical approach to well-being.

One problem with advancing human need as an alternative measure of welfare in the past has been the relative paucity of theoretical work on the concept. For example, the Brundtland Report (World Commission on Environment and Development, 1987), having placed need centre stage in its report, says nothing more about what needs are. Dobson's (1998) interesting work on justice and the environment explicitly focusses on the contrast between needs and wants, but without any explication of the idea of need. To take needs for granted in this way lays the concept open to neglect or ridicule or attack by advocates of the well-worked-out preference satisfaction theory. Thus the central section of this article proposes a coherent theoretical framework for conceiving and analysing human needs.

This article begins with a short summary and critique of two alternative approaches to conceiving human well-being: welfare economics and preference satisfaction, and hedonic psychology and happiness. (A third, the capability approach, is addressed in an appendix). The second section sets out in some detail a theory of human need, drawing on our earlier book *A Theory of Human Need* (Doyal and Gough, 1991) and a selective survey of the resurgent literature. The third section elaborates further features of need satisfaction as an alternative criterion of human well-being, and extends its scope to both global and inter-generational comparisons. The fourth section considers the moral and justice implications, including obligations to minimise harm and to meet the needs of 'strangers' across the world and in future generations. The fifth section summarises and concludes.[1]

What do we mean by 'well-being'? The older English term 'welfare' can be traced back to the fourteenth century, when it meant to journey well and could indicate both happiness and prosperity (Williams, 1983). In the twentieth century it acquired two more specific but very different meanings. On one hand, the field of welfare economics invented by the Cambridge economist Arthur Pigou defined welfare in terms of the subjective value to individuals of different bundles of goods. On the other hand, welfare came to be associated with the assessment of and provision for needs in the 'welfare state', and acquired an increasingly objective, external interpretation. Later in the twentieth century, discourses on agency, participation and multi-dimensional views of poverty paved the way for the reinvention of the older idea of well-being, which can be traced back to Aristotle and the Buddha (Gough and McGregor, 2007). From now on I assume that both welfare and well-being (the terms are used interchangeably) are umbrella concepts with disputed meanings. Hence I consider the different schools of thought considered below and in the Appendix as varying interpretations of welfare or well-being.

2. Wants, preferences and consumer sovereignty

What follows is a very brief summary of a well-trodden field (see Hausman and McPherson, 2006, for an in depth treatment). Orthodox welfare economics rests on two fundamental principles. The first is that individuals are the best judges of their own

[1] The scope of this article does not extend to discussions about the measurement of well-being, nor its empirical determinants, issues of causality or questions of public policy.

interests, or more narrowly, their preferences or wants. Following from this, the second is the principle of consumer sovereignty: that what is produced and consumed should be determined by the private consumption and work preferences of individuals (Penz, 1986). Although not widely recognised, together these claims form the foundation of both the normative arguments for markets and the monetary measures of economic success, such as income and GDP, that dominate our lives. Yet the ability of this framework to both understand and guide human behaviour can be challenged on several grounds, which apply *a fortiori* in the modern world threatened by climate change.

First, the idea that individuals are the best judges of the correctness of their wants is severely compromised if there are limits to people's knowledge or limits to their rationality in judging the correct means to their chosen ends. Regarding faulty knowledge, Penz concludes 'wants based on ignorance are epistemically irrational' (1986, p 63; see Hodgson, 2013). Regarding rationality, the body of work associated with Daniel Kahneman (2011) has demonstrated the numerous ways that people act and decide irrationally, particularly when faced with uncertainty.

Related to this, second, is the problem of 'adaptive preferences'—the unconscious altering of our preferences in light of the options we have available (Elster, 1982). Sen (1999) discusses this in terms of deprived people lowering their desires and reconciling themselves to fate, but it is also relevant in understanding the constant upwards pressure on the desires of people in affluent societies which results in no more satisfaction (Easterlin, 1995). This evolved facility is enormously helpful in enabling humans to accept fate—the 'serenity to accept things that cannot be changed'. But it poses insuperable problems for welfare economics: if preferences adapt to circumstances, how can choice in markets provide a means of comparing the well-being of people in different circumstances, especially over global space and inter-generational time?

Furthermore, markets and economic institutions themselves influence the evolution of values, tastes and preferences—even personalities (e.g. Bowles, 1998). It has been claimed, for example, that extending markets into more and more areas of life encourages the very self-interested behaviour assumed by welfare economic theory (Sandel, 2012). Preferences are thus endogenous to such institutions, not exogenous and peculiar to individuals. For our purposes, a problematic consequence is the circularity of evaluation: if wants are shaped by the institutions and processes of production and distribution that meet those wants, then they cannot provide an independent standpoint with which to evaluate the functionings of those institutions and processes. Thus to proclaim the principle of consumer sovereignty is to respect the current factors and forces shaping preferences as either optimal or unchangeable. The dilemma of adaptive preferences is still more pressing in modern hyper-consumption societies.

Third, more generally, the model of *Homo economicus* has been subject to withering criticism from all directions: theoretical, experimental, sociological and historical/evolutionary. The fundamental assumption that every individual is actuated only by self-interest is simply wrong; behaviour can also be motivated by concern for others. In a long process of gene culture co-evolution, humans have acquired a social morality and social preferences—'a concern for the wellbeing of others and a desire to uphold ethical norms . . . People think that cooperating is the right thing to do and enjoy doing it, and they dislike unfair treatment and enjoy punishing those who violate norms of fairness' (Bowles and Gintis, 2011, pp 10, 38). These traits form the basis for anthropological and social studies of cultural values and their transmission, but are destructive for orthodox economic theory. Many efforts have been made to introduce into the

theory a more rounded individual with 'other-regarding' utility functions that take into account the utility received by others. However, it then encounters severe problems in aggregating utilities across people (Hausman and McPherson, 2006).[2]

Fourth, according to the neoclassical theory of consumption, there are no necessary limits to preferences and desires (Guillen Royo, 2007; O'Neill, 2011). Individuals can become satiated through the consumption of individual goods via the mechanism of diminishing marginal utility, but there are no necessary limits to satisfaction through consuming more different goods and services. Indeed, a peculiarly avaricious agent is the standard assumption in neoclassical economics: a larger bundle of commodities is always preferable to a smaller one. The obvious logical possibility that people can exchange more 'leisure' for more consumption has been all but ignored in neoclassical economics (Skidelsky and Skidelsky, 2013).

Fifth, specifying welfare entirely in terms of preferences 'flattens moral distinction between the seriousness that different welfare demands make on both individual and social choices' (O'Neill, 2011). The point is put well by Henry Shue:

> For standard economic analysis everything is a preference: the epicure's wish for a little more seasoning, the starving child's wish for a little water, the collector's wish for one more painting, and the homeless person's wish for privacy and warmth, all are preferences. Quantitatively, they are different because some are backed up by greater 'willingness to pay' than others, but qualitatively a preference is a preference. (Shue, 1993, p 55)

By contrast, as we shall see, human needs explicitly introduce moral criteria into the conception and appraisal of human wellbeing. Elsewhere, Shue (2006) pursues the central question: who counts? He shows how climate change multiplies the problems of preference theory by generalising the 'who' to global peoples and future inhabitants of the planet.

Finally, preference satisfaction theory is particularly unsuited to considering the well-being of future generations, contributing to a narrow view of sustainability (O'Neill, 2011, 2015). The preferences of future generations cannot be revealed through their choices or behaviour. How, then, can any provision for future generations be decided? The orthodox view is that what should be passed on is a stock of 'capital' that will permit a level of consumption per head at least as high as present. Solow, a Nobel Prize–winning economist, concluded that sustainability entails leaving 'to the future the option or the capacity to be as well off as we are. It is not clear that one can be more precise than that' (Solow, 1991). From this it follows that 'we do not owe to the future any particular thing. There is no specific object that the goal of sustainability, the obligation of sustainability, requires us to leave untouched' (Solow, 1993, p 181). Preference satisfaction theory provides little guidance on the prerequisites for future well-being.

The conclusion is that preference satisfaction cannot provide a logical, ethical or practical conception and measure of human well-being—and especially so when we must consider well-being on a global and inter-generational scale.

2.1. A note on happiness and subjective well-being

Many of the same problems occur within a spectrum of other subjectivist conceptions of well-being. These include Kahneman *et al.*'s (1999) conception of hedonic

[2] 'The protean fallacy of individualism' entails no recognition of the interdependence of people within groups and societies, nor the role of cooperation. 'Individualism . . . is an analytical impossibility, at least for any social science' (Hodgson, 2013).

psychology—'the study of what makes experiences and life pleasant or unpleasant'; Diener's (1984, 1994) detailed researches into life satisfaction; and Layard's (2005) resurrection of the economics of happiness. This work has developed useful measures of subjective well-being and a mass of solid findings on its determinants. Interestingly these findings undermine the opulence approach by demonstrating that beyond a rather modest income level, happiness or subjective well-being is not associated with continuing growth in real incomes (Easterlin, 1995). Layard contends that happiness provides a measure of well-being, a motivating device akin to Bentham's balance of pleasure and pain, and a unifying principle to guide policy.

Unfortunately, happiness theory and metrics face some similar problems to preference satisfaction theory (for a full argument see Gough and McGregor, 2007, pp 25–33; Gasper, 2010). First, adaptation is pervasive; the process of adjusting expectations to reality appears to be a universal feature of the human condition applying to both losses and gains and individual and collective events. Second, there is evidence of cultural bias: national values of individualism are correlated with reported well-being, so that cultures evoking a 'modesty bias', as in some countries of East Asia, report lower well-being scores. Third, the pursuit of happiness may be dysfunctional in hostile environments, encouraging powerless people to believe they can significantly control their lives, and blaming themselves when they fail. These problems may be controlled for when comparing well-being within societies, and the approach yields important findings, for example, on the role of hope in subjective well-being. However, they fatally undermine the ability of happiness to provide a measure of well-being across cultures and times.

3. A theory of human need

This section sets out a rigorous theory of human needs. It draws on my book coauthored with Len Doyal, *A Theory of Human Need* (hereafter THN),[3] as well as the prior and subsequent work of other scholars, including David Wiggins (1987, 2005), David Braybrooke (1987), Des Gasper (1996, 2009), Gillian Brock (2009) and John O'Neill (2011).[4]

The THN approach is hierarchical, moving from universal goals, through basic needs to 'intermediate' needs or universal satisfier characteristics, as illustrated in Figure 1.

3.1 Identifying universal goals

'Need' refers to a particular category of goals which are believed to be universalisable. The contrast with wants—goals that derive from an individual's particular preferences and cultural environment—is central to our argument. The universality of need rests on the belief that if needs are not satisfied then serious harm of some objective kind will result (see Wiggins, 2005). We define serious harm as the

[3] Doyal and Gough (1991). The book was awarded both the Myrdal and Deutscher Prizes in 1992 and has been translated into Spanish, Italian, Chinese and Japanese. For a different presentation of this work see Gough (2003, 2014).

[4] For some subsequent contributions see also Soper (1993), Doyal (1993), Hamilton (2003), Thomson (2005), Reader (2005, 2007), Dover (2015) and Schuppert (2013). For over two decades Gasper (1996, 2004, 2005, 2007) has produced an insightful and comprehensive interrogation of the concepts of needs, well-being and associated ideas. Another wide-ranging survey is Dean (2010).

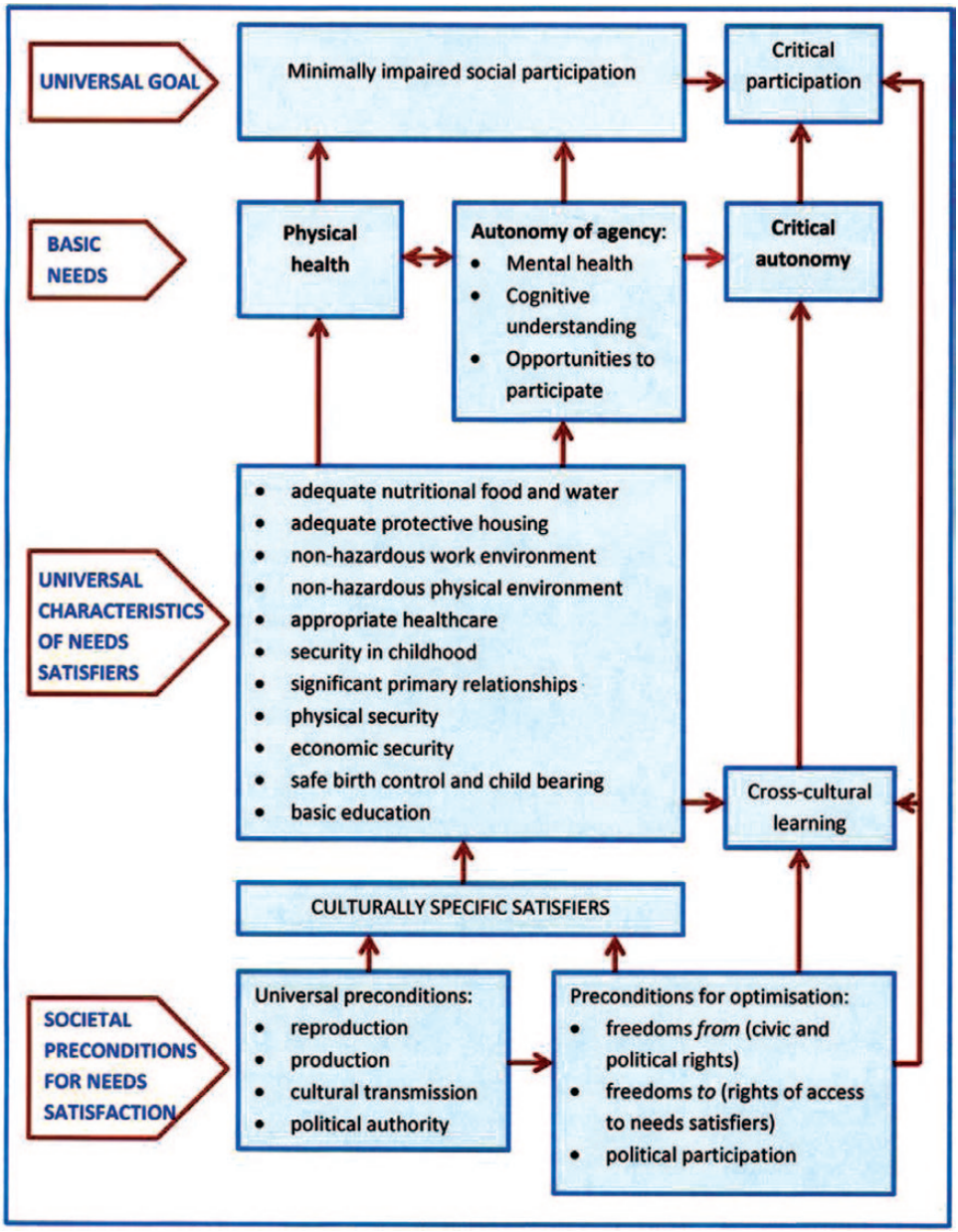

Fig. 1. *The theory of need in outline.*
Source: THN: 170

significantly impaired pursuit of goals which are deemed to be of value by individuals. Serious harm is 'fundamental disablement in the pursuit of one's vision of the good, whatever that vision is' (THN, p 50). It is not the same as subjective feelings like anxiety or unhappiness. This approach thus immediately engages with the challenges to human welfare posed by climate change, which is beginning to impose serious harm on some people today, and certainly will harm most, if not all, peoples in the future (IPCC, 2014).

Another way of describing such harm is in terms of impaired social participation. Whatever our private and public goals, they must always be achieved on the basis of successful social interaction, past, present or future, with others. This definition explicitly acknowledges the social character of human action. Whatever the time, place and cultural group that we grow up and live in, we act in it to some extent. Braybrooke (1987) relates needs to what is necessary for social functioning. It follows that participation in some form of life without serious arbitrary limitations is 'our most basic human interest' (THN, pp 50–55, chap. 5).

3.2 Basic needs: health and autonomy

Basic needs are then the universalisable preconditions for non-impaired participation in any form of life. Can these common prerequisites for avoiding serious harm be identified more systematically without smuggling in too specific a theory of the good? The approach in THN was to ask what physical and mental capacities a person must possess to pursue their goals, whatever these goals are. To do this a person must be able to formulate aims and beliefs about how to achieve them and act to strive to achieve them in practice. Thus whatever a person's goals, whatever the cultural practices and values within which she lives, she will require certain prerequisites to strive towards those goals. In this way we identify physical survival/health and personal autonomy as the most basic human needs—those that must be satisfied to some degree before actors can effectively participate in their form of life to achieve any other valued goal (THN, p 54). Let us discuss each in turn.

Survival alone cannot do justice to what it means to be a person, as a discussion of the victim of a motor accident in a deep coma on life support reveals.[5] Thus it is physical health which is a basic human need. To complete a range of practical tasks in daily life requires manual, mental and emotional abilities with which poor physical health usually interferes. Of course defining health and illness is not easy: some claim that conceptions of health are always internal to cultural systems of thought and thus inherently contesable. THN tackles this by considering persons from different cultures suffering from (what the bio-medical model terms) tuberculosis. However different people name and explain their illness, they all suffer one or more dimensions of objective disability. They also regard their situation as abnormal—unless there is some reason like famine or plague for most of their neighbours also failing in health—and seek to overcome it.

However, limiting the idea of need to maintaining physical health and its prerequisites is quite inadequate. It would be open to Sen's (1984) claim that 'need' is a more passive concept than capability; that it is associated with dependence and the person as a patient. Our second universal need is autonomy, which requires a longer discussion.

3.3 Autonomy

We define basic autonomy as the ability to make competent informed choices about what should be done and how to go about doing it (THN, p 53). This foundation of human purposive action is applicable to a wide variety of human contexts and predicaments, from oppressive and totalitarian contexts to ones with wide options for creative participation. But all can entail creative reflection; indeed, the poor and oppressed must perforce act autonomously and creatively for much of their lives to achieve minimal goals (THN, pp 59–69, 180–7; Gough, 2014).

[5] Whether such a victim regains the capacity to act will eventually determine his or her fate.

Three key variables, we argue, affect levels of individual autonomy of agency (THN, p 59). First, cognitive and emotional capacity is a necessary prerequisite for a person to initiate an action. Since all actions have to embody a modicum of reason to be classed as actions at all, it is difficult to give a precise definition of the minimum levels of rationality and responsibility present in the autonomous individual. At its most basic level it can be understood negatively as mental illness. Mental health is then the obverse of this—'practical rationality and responsibility' (THN, p 62). This again raises difficult issues of conceptualisation and measurement. However, cross-cultural analysis suggests that this is by no means an entirely relative process. For example, in the case of severe depression there is a common core of disabling symptoms found in all cultures, including hopelessness, indecisiveness, a sense of futility and lack of energy (THN, p 180). These common symptoms lead to the same kinds of disability across cultures, notwithstanding divergent—and even incompatible—ways of interpreting them.

The second determinant of individual levels of autonomy is the level of cultural understanding a person has about herself, her culture and what is expected of her as an individual within it. These understandings include both universal competences, such as the acquisition of language in early childhood, and a host of socially specific skills (which, though variable, can be objectively appraised). To deny a person such basic cognitive capacities is to threaten her self-respect. Third, autonomy of agency requires a range of opportunities to undertake socially significant activities. By 'significant' we mean activities that are central in all societies (Braybrooke, 1987; this is discussed further later). Again, there is a problem in determining minimum opportunity sets, given that even the most oppressed of people can and will exercise choices. Nevertheless, some minimum freedom of agency is an essential component of autonomy of agency in all cultures. We use these three components to operationalise and measure autonomy and its absence (THN, chap. 9).[6]

Basic autonomy of agency enables people to achieve a minimally disabled level of participation in their social environment. But we can go on to distinguish a higher level of critical autonomy: 'the capacity to compare cultural rules, to reflect upon the rules of one's own culture, to work with others to change them and, *in extremis*, to move to another culture' (THN, p 187). This requires, beyond freedom of agency, some measure of political freedom.[7] At this level, drawing on imagination, past examples, or comparisons with other ways of life, people can begin to question the *doxa* or taken-for-granted cultural frames of their own ways of life. This distinct notion of critical participation is illustrated on the rightside of Fig. 1. Critical autonomy and critical participation are of vital importance in the era of climate change, enabling groups to adapt to changing habitats and shape policies to lower emissions. Some implications for collective decision making are discussed shortly.

This brief discussion of autonomy as the second universal basic human need hopefully makes clear that need theory is far from a passive and meagre conception of well-being, as argued by Sen (2009, p 250). Indeed, it brings it closer to the capability approach, discussed in the Appendix. I hope it also dispels an opposite critique: that our theory of human need posits a crassly individualist view of personhood that undergirds

[6] There is considerable overlap here with research within Sen's capabilities approach. For example, Burchardt *et al.* (2013) define autonomy as choice, control and empowerment in critical areas of a person's life, and distinguishes three components: self-reflection, active decision making and having a range of (high-quality) options.

[7] THN (pp 67–9) compares our approach to such 'second-order autonomy' with that of Dworkin (1988).

the preference satisfaction approach—an asocial, Western view of humanity. On the contrary, we conceive autonomy as a relational, not an individualistic, capacity. People build a self-conception of their own capabilities through interacting with and learning from others (THN, pp 76–80). Autonomy pre-supposes inter-dependence (THN, chap. 5; Devine *et al*., 2008).

O'Neill (2011) echoes this, arguing that needs theory, whilst clearly advocating autonomy, avoids a 'vice' of *Homo economicus* and preference satisfaction theory: what MacIntyre (1999) calls 'unacknowledged dependence' and Benson (1983) refers to as 'arrogant self-sufficiency'. Claims of self-sufficient individuals ignore our dependence, not only on other people but also on planetary physical and biological systems. 'There is hubris in the failure to acknowledge our dependence on natural processes and the limits of our knowledge of these processes and our capacities to control them'. The concept of needs 'may have its own virtues in drawing attention to the vulnerabilities and dependence that are constitutive of human life' (O'Neill, 2011, p 38). This is of central importance when considering sustainable well-being in the context of environmental threats such as climate change.

3.4 Biological constraints on human needs

The foregoing argument has assumed a biological background to human needs: it accepts the constraints on human needs given by prior evolution and our genetic structure. We are linked to other animals in a variety of ways, through being bipedal mammals, warm-blooded, suckling, naked descendants of apes, with an upright gait and flexible hands. But we also have large, developed brains and a corresponding capacity unmatched in evolution to communicate with each other, to reason and to create projects. As a direct result of our brain size, which has necessitated the relatively early birth of human babies, we have a remarkably extended period of dependence in childhood. These features roughly define human nature as distinct from that of dogs or trout, say. They set natural boundaries on human needs (THN, 37). Our mammalian constitution shapes our needs for such things as food and warmth to survive and maintain health. Our cognitive aptitudes and the bases of our emotionality in childhood shape many other needs—for supportive and close relationships with others, for example.

The recognition of genetic and biological constraints distinguishes human need theory from alternative approaches to well-being. But 'constraint' must not be confused with 'determination'. There are numerous examples where choices of reasons and actions may challenge genetic predispositions, even if the latter can be objectively established. For this reason we reject what is probably still the most famous analysis of human needs: that of Abraham Maslow (1970). This is a theory of motivations or drivers of human action, whereas ours is a theory of universalisable goals. One result is that the pursuit of universal human needs will not necessarily be internally motivated; one may desire things harmful to need satisfaction and not desire essential need satisfiers. Most need theories 'lack a behavioural motor behind them', in Gasper's words (2007, p 66). There will be many times when motives, and the preferences they support, will drive the meeting of basic needs, but that cannot be assumed.

The eudaimonic school of psychology studies the biological and evolutionary foundations of human needs and provides powerful support for our approach (Ryan and Deci, 2001; Ryan and Sapp, 2007). Starting from the non-controversial observation that all living things need nourishment, a variety of harms result when this is not available, as all

tenders of house plants know. In the case of the human species, they identify universal psychological needs and propose cross-cultural ways of measuring their satisfaction. These needs comprise, first, autonomy: the capacity to experience one's actions as self-regulated, volitional and integrated; second, competence: the experience of opportunities to exercise and expand one's capacities; third, relatedness: feeling socially connected, both in a general sense of social integration and a specific sense of feeling cared for and significant to others. They argue that these needs are cross-cultural; their satisfaction is required by all humans to experience well-being (Ryan and Sapp, 2007; Gough and McGregor, 2007). Their conclusion mirrors that of THN (though they were arrived at independently): that basic needs are universal and it is possible in principle and in practice to compare levels of basic need satisfaction across cultures (THN, pp 73–4; see below).

3.5 Needs and need satisfiers

Whilst basic needs are universal, many goods, services, activities and relationships required to satisfy them are culturally and temporally variable. For example, the needs for food and shelter apply to all peoples, but there are a large variety of cuisines and forms of dwelling that can meet any given specification of nutrition and protection from the elements. We follow Max-Neef (1989) in distinguishing need satisfiers from human needs. This distinction plays an important part in rebutting another common objection: that need theory is paternalist and insensitive to context.

However, if this were all that a theory of human need could offer, it would lay itself open to a common critique: that needs can only be identified at such a high level of abstraction that they offer no purchase on real human dilemmas and policy choices for their satisfaction. Can a conceptual bridge be built to link basic needs and specific satisfiers? We contend that the notion of 'universal satisfier characteristics' fulfils that role (THN, pp 155–7). If one defines 'satisfier characteristics' as that set of all characteristics that have the property of contributing to the satisfaction of our basic needs in one or any cultural setting, then one can in principle identify a subset of universal satisfier characteristics (USCs): those characteristics of satisfiers which apply to all cultures. USCs are thus those properties of goods, services, activities and relationships that enhance physical health and human autonomy in all cultures. For example, calories per day for a specified group of people constitutes a characteristic of (most) foodstuffs which has transcultural relevance. This bridging role of USCs is illustrated in Fig. 1.

To identify these USCs, two sorts of scientific understanding can be drawn on (see Braybrooke, 1987). First, there is the best available scientific/technical knowledge articulating causal relationships between physical health or autonomy and the numerous factors affecting them. Second, there is comparative anthropological knowledge about practices in the numerous cultures and sub-cultures, states and political systems in the contemporary world. Thus to begin with, the codified knowledge of the natural and social sciences enable us to determine the composition of such 'intermediate' needs. This knowledge changes and typically expands through time. The concept of human need we develop is historically open to such continual improvements in understanding, for example, the astonishing advances in the bio-medical understanding of health and disease.

Such codified knowledge is inherently elitist, which gives rise to another common criticism of the needs approach—that it is paternalist at best, totalitarian at worst. But this criticism is deflected by a further epistemic requirement – that such codified

knowledge must be tested by an appeal to the experientially grounded knowledge of people (THN, pp 120–26, 309–10). The world is replete with examples where 'top-down' knowledge is imposed on peoples without any understanding of context and practical knowledge, resulting in oppressive or absurd outcomes. Conversely, there are numerous examples of the countervailing advantages of participation and decentralisation, admirably theorised by Alkire (2002, chap. 4). Thus any rational and effective attempt to resolve disputes over how best to meet needs in specific contexts must bring to bear the codified knowledge of experts and the experiential knowledge of those whose basic needs and daily life world are under consideration. It requires a dual strategy of public policy formation. This also applies to understanding the synergies and conflicts between satisfiers of different groups of needs (Max-Neef, 1992). However, this participation should not extend to defining the general character of basic human needs, nor to determining which characteristics of specific need satisfiers are universal and which are not (THN, p 141; Doyal, 1998).

It follows that identifying USCs is a collective process, akin to Dewey's idea of 'social intelligence' (Dewey, 1935; Hodgson, 2013). It is the very opposite of individuals arriving at their own preferences, or, far more common today, arriving at them within a context of vested interests and constellations of power. Reasons for needing are essentially public, drawing on a shared understanding of what sorts of strategies actually do avoid harm. Weighing environmental damage and human welfare precisely requires such social intelligence, not the blind pursuit of consumer preferences.

3.6 The objectivity of needs

Finally, needs are objective, whereas preferences are subjective. The truth of the claim that a person needs clean water depends on the objective physiological requirements of human beings and the nature of the satisfier, including its capacity to contribute to the health of the person. In contrast, the truth of the claim that a person prefers David Bowie to the Beatles depends on the nature of the person's beliefs about and attitudes towards the objects. Put another way, statements about wants are intentional, whereas statements of need are 'extentional': their truth depends on 'the way the world is' and not 'the workings of my mind' (Wiggins, 1987, p 152). It is quite possible to need something that you do not want; indeed you may need it without even knowing of its existence, as a diabetic needs insulin to avoid serious harm (THN, p 42).

4. Climate change and human needs: further theoretical issues

At this point the major features of our theory of human need have been summarised, as illustrated in Fig. 1. (The final level, 'social preconditions', will be discussed later). The article now considers some further implications of the approach of special relevance to understanding and rationally confronting threats posed by climate change.

4.1 Non-substitutability and lists of needs

Unlike preferences, human needs are not additive. Certain packages of need satisfiers are necessary for the avoidance of harm, and one domain of intermediate need satisfaction cannot be traded off against another (THN, p 166; see Nussbaum, 2000, p 81). More education is of no help to someone who is starving. Human needs are irreducibly plural. This is quite different from preferences where

continuity is the default assumption: given any two goods in a bundle it is always possible—by reducing the amount of one fractionally and increasing the amount of the other fractionally—to define another bundle which is indifferent to the first (O'Neill, 2011).

The construction of lists of needs follows from this. In THN, the category of USCs provides a list of derived or second-order goals, which must be achieved if the first-order goals of health and autonomy are to be attained (THN, pp 155–9). We group these USCs, or 'intermediate needs', in the following 11 categories: nutritional food and clean water, protective housing, non-hazardous living and work environments, safe birth control and child-bearing, appropriate health care, significant primary relationships, security in childhood, physical and economic security and appropriate education. Broadly speaking, the first six contribute to physical health and the last five to autonomy.[8]

There exist many other similar lists, differing in their 'verbal wrappings' and ontological and epistemological features. Alkire's thorough research (2002) finds 39 lists of dimensions of human development, ranging from Nussbaum's central human functional capabilities to Max-Neef's axiological categories, from Narayan's dimensions of well-being to Qizilbash's prudential values for development. She focusses on nine, including THN, and identifies a wide overlap. For example, when comparing Nussbaum's influential list with our own, her 'affiliation' is similar to our central goal of participation (though with a greater recognition of emotional affiliation), her 'practical reason' is closely related to our basic need for autonomy and her 'bodily integrity' and 'bodily health' to our physical health (Gough, 2003, 2014). These in turn map closely on Ryan's basic psychological needs for relatedness, competence and autonomy, introduced already. These very substantial overlaps give us confidence in enabling need theory to provide substantive guidance for tracking and satisfying unmet needs.

4.2 Satiability, sufficiency and need thresholds

The non-additivity of need is related to another feature quite distinct from preference: need is a threshold concept or, put another way, basic needs and intermediate needs (USCs) are satiable. Even in the case of health and autonomy, thresholds can be conceived where serious harm is avoided such that non-disabled social participation can take place. The distributive principle entailed by the needs approach is to minimise 'shortfall equality': the shortfall of actual achievement from the optimum average (Sen, 1992; Ruger, 2009). The implied goal is sufficientarian: to bring all individuals up to such a threshold. It says nothing at this stage about inequalities above this level.

How are appropriate thresholds to be decided and measured? In our case, the ideas of 'appropriate' and 'adequate' must be defined at the level of both basic needs and USCs (Doyal and Doyal, 2013, pp 11–7; Gough, 2014, pp 375–8). Because this process is complex and disputable, it is helpful to distinguish arguments in principle and in practice. '*In principle*, (need) satisfaction is adequate when, using a minimum amount of appropriate resources, it optimises the potential of each individual to sustain their participation in those constitutive activities important for furthering

[8] Doyal (1997) subsequently argued that 'privacy' should be added to this list of USCs.

their critical interests'.[9] 'What this means *in practice* is that levels of intermediate need satisfiers should be linked to what has been shown to be possible in countries with the best physical cognitive, emotional, environmental and political indicators. The Scandinavian countries remain good examples' (Doyal and Doyal, 2013, p 14).

This approach to thresholds requires two qualifications when discussing need satisfaction on a global and inter-generational scale in the face of harmful climate change. First, given the vast differences in socio-economic resources between nations and peoples, a 'constrained optimum' threshold is more realistic when assessing low- and low-middle-income countries. The achievements of best-performing countries within income groups provides one standard here: for example, Costa Rica regularly heads social and environmental indices amongst middle-income countries. But this does not and should not justify complacency and obviate the necessity to eliminate arbitrary socio-economic constraints on individual and collective well-being (THN, p 161, chap. 11).

Second, climate change and a diminishing environmental space impose a further aggregate constraint. If this closes down the opportunity to permit high standards of sustainable need satisfaction across peoples now and in the future, so be it. 'Ought' always implies 'can'. The goal will then be to negotiate a constrained global optimum level of need satisfaction, one as high and as equal across peoples as possible, but still constrained compared with what was potentially achievable, say, 50 years ago (THN, pp 143–5).

4.3 The needs of future generations

The Brundtland Report refers to the needs of people in the present and the future, and I turn now to demonstrate that our need theory can conceptualise well-being across generations.

To begin with, the basic needs of future generations of humans will be the same as those of present humans. To avoid serious harm and to participate and act within future human societies, people will require the same logical pre-conditions: not just survival but health and critical autonomy. The epistemology of reasoning about needs remains extensional, not intentional, and thus avoids the indeterminacy of reasoning about future preferences.

Furthermore, the broad categories of USCs will apply to future generations of humans as much as the present. This stems from the biological, physiological and psychological foundations of human needs outlined already. Unless and until the genetic make-up of *Homo sapiens* changes significantly, we can assume that the same universal satisfier characteristics will apply. Future people will have needs for affiliation, cognitive and emotional expression, understanding and critical thought. To achieve these they will need specific minima or minopt levels of water and nutrition, shelter, a non-threatening environment and work practices, significant primary relationships, security in childhood, physical and economic security, education and health care.

[9] More specifically, at the level of USCs we can identify a 'minimum optimorum' or *minopt* threshold. Increasing inputs of USCs, such as nutrition or child security, will typically yield increasing increments of health or autonomy but with diminishing returns—beyond a certain point there is no further benefit. In principle, this defines threshold levels of each USC. In practice, there are problems in the area of health care where huge resources can secure marginal improvements in health, and to a lesser extent in education and economic security. But in principle the method for identifying a sufficiency level or range is clear (THN, chap. 10; Doyal, 1995; Ruger, 2009).

Together, this amounts to a remarkable—and pretty obvious—degree of knowledge about the constituents of future people's well-being. Compared to the indeterminacy of future generations' preferences, a theory of need provides some firm foundations on which to build sustainability targets for public policy. For example, given the limits to the substitutability of different need satisfiers, we can say more about what needs to be 'passed down' to future generations. In O'Neill's (2011, p 33) words (and using the terminology of functionings): 'Each generation needs to pass down the conditions for livelihood and good health, for social affiliation, for the development of capacities for practical reasoning, for engaging with the wider natural world and so on'.[10]

However, there remains much greater uncertainty about the specific need satisfiers for achieving such future need satisfactions. This reflects amongst other things our inherent ignorance about the pace and direction of future technological change. Whilst specific numbers of calories and nutrients will be needed, we cannot know how agricultural techniques and food production will or could change. We do now know what breakthroughs in preventive or genetically based health care will take place. We do not know what new threats to human security will require extensive or novel forms of remedial action. At this level, we remain ignorant about the detailed nature and quantum of need satisfiers that future peoples in future contexts will require to achieve USC thresholds.

4.4 Societal preconditions for sustainable well-being

We can say more about the institutional satisfiers or societal pre-conditions for delivering need satisfactions in the future. These will vary over time and space, but it is possible to identify certain universal 'societal pre-conditions' that have to be satisfied by all collectives if they are to survive and flourish over long periods of time. Braybrooke (1987, pp 48–50) identifies four universal roles of 'parent, householder, worker and citizen', which THN recasts as four pre-conditions: production, reproduction, cultural transmission and political authority (THN, chaps 5, 11; see Fig. 1).

To take just the first, for example, all economic systems would need to be assessed according to their ability to identify and produce enough appropriate need satisfiers (Gough, 2000, chap. 2). Rather than aggregates of income or capital, qualitative distinctions are called for: (i) between the production of need satisfiers that eliminate shortfall inequality and surplus goods which do not, (ii) between the distribution of satisfiers according to need, and distributions based on income or other factors and (iii) between the effective and ineffective transformation of need satisfiers into actual need satisfactions, processes that mainly take place within households and communities. This leaves out of account the production of a full range of capital goods—man-made, human, social and natural—both substitutable and non-substitutable. The plurality, complexity and inter-dependence of human needs requires a model of the economy with richer features than orthodox macroeconomic models (conventional GDP does not even achieve the first requisite, having no distinction between need satisfiers and 'luxuries' or 'surplus goods'). Similar auditing is necessary of institutions providing for the reproduction and care of children, the transmission and renewal of cultural understandings and the exercise of political authority.

[10] But this does not entail, as he writes in the previous sentence, 'each generation to pass on a bundle of incommensurable *goods* that is disaggregated across the different dimensions of human functioning'. This is to move too quickly from needs to satisfiers, without passing through USCs.

Thus a conception of human need imposes a more demanding audit of social institutions than does preference satisfaction theory. For well-being to be sustained over time, a rich nexus of qualitatively different, incommensurable institutions must be passed on to future generations (as Hodgson, 2013, and others have argued).

Finally, in the spirit of Dewey's social intelligence and collective deliberation, need theory implies a requirement for cross-generational dialogue. In place of either total ignorance about future well-being or the imposition of current views about well-being on future generations, we need to recognise that there can be 'an ongoing dialogue about the nature of the good life that crosses generations' (O'Neill, 2015). Of course that is impossible with distant generations, but to think one generation ahead is conceivable and sufficient: the process can then be repeated by the next generation, and so on. After all, following the rapid growth of life expectancy, four generations commonly co-exist in societies today, and it is not impossible to reason about the needs of the next. A variety of institutions are emerging to represent the interests of near-future generations, such as Finland's Committee for the Future and Hungary's Parliamentary Commissioner for Future Generations (Coote, 2012).

5. Climate change and ethical arguments for respecting universal need satisfaction

Wants or preferences, I have noted, flatten moral distinctions between human situations. By contrast, 'claims of need make moral demands on agents that preferences do not' (O'Neill, 2011). These moral demands concern inflicting harm and meeting basic needs. The universal nature of human needs leads to universal moral obligations transcending space and time (THN, chap. 6). This section surveys a range of such ethical obligations to demonstrate that they all require or imply a concept of universal human need.

One important link is that a theory of universal needs provides a strong ethical grounding for human rights: moral or legal 'claims' possessed by 'right-bearers' that corresponding 'duty-bearers' must take seriously (Doyal and Doyal, 2013). Within this class of rights it is usual to distinguish 'negative' civil and political rights from 'positive' socio-economic rights. The former entail a duty of forbearance and protection, for example, rights to freedom of expression and against discrimination; the latter a duty of assistance and provision, for example, rights to education or health care. Universal human rights can be justified in a number of ways, but need theory provides strong reasons for, and a deeper understanding of, socio-economic rights in particular (THN, p 92 et seq; Brock, 2009; Gasper, 2009). Both sets of rights can be traced back to the 1948 Universal Declaration of Human Rights, and have been elaborated and specified in a series of covenants since then. However, their impact on international justice has been rather minimal, and their impact on inter-generational justice non-existent.

There is a dialectical relation between rights and duties. The ascription of a duty logically entails that the bearer of the duty is entitled to the need satisfaction necessary to enable her or him to undertake that duty. It is inconsistent for a social group to lay responsibilities on some person without ensuring she has the wherewithal to discharge those responsibilities. At a more collective level it implies combatting poverty and social exclusion and the implementation of a wide range of social programmes to enhance health and critical autonomy (THN, chap. 6).

Thus ascribing rights imposes duties or obligations on agents or institutions.[11] In larger social groups, meeting obligations to strangers, whose unmet needs we do not directly witness and can do nothing individually to satisfy, will require support for social agencies. Yet the respective role of individual versus institutional obligations is much debated. In a closely integrated world economic system with global threats to human well-being stemming from climate change and environmental degradation, there are clear ethical issues facing individuals, in particular affluent consumers. Harris (2010) argues strongly that we—notably affluent individuals—must act as moral agents with duties to exercise self-restraint and pursue frugality. 'Human survival and world ethics go hand in hand'.

However, in this complex and unequal world there are 'innumerable agents and innumerable victims' (Gasper, 2012, p 989). It is difficult to imagine how a global ethics can attain such traction as to bring about rapid decarbonisation of the economic system within the tiny time horizon now available. This ethical approach ignores or underplays the existence of structures and path-dependent institutions in the world, notably the world capitalist system.[12] Consequently, much of what follows regards institutions as the main bearers of the duties stemming from climate change.

What are these duties? Three are commonly distinguished (Gardiner, 2004; Baer, 2011; Caney, 2012; Shue, 2014):[13]

1. To drastically curtail future emissions: to set a planetary emissions ceiling
2. To allocate this quantum of emissions fairly between nations and peoples
3. In the face of unpreventable ongoing climate change, to fund adaptation and compensation programmes for the groups affected.

1. The ceiling. Unrestrained climate change threatens severe, ultimately catastrophic harm to future peoples and thus by definition their ability to meet their needs and pursue their critical interests. Almost all ethical principles argue that this is unacceptable (Gardiner, 2011). It violates the 'do no harm' principle, if the harm is foreseeable and preventable. It can be argued as a violation of people's negative and positive rights to pursue their interests. It violates the precautionary principle. For all these reasons, it imposes a strong obligation on present peoples to avoid dangerous levels of greenhouse gase emissions.[14]

In essence this requires that an envelope of future global emissions be somehow agreed. The broad framework agreed by the Intergovernmental Panel on Climate Change (IPCC) is for a pathway of global emissions judged to ensure a high chance that the rise in global temperatures since the Industrial Revolution will not exceed 2°C. But this envelope is shrinking fast. According to the counter-measures taken and the speed of climate change, it also implies a need to start planning for a world where

[11] Since Rawls's *A Theory of Justice* (1971) it has been common to distinguish social institutions as a distinct domain of moral assessment, distinct, that is, from the actions of individuals or collectives. The former refers to arguments of justice, the latter to arguments of ethics (Pogge and Moellendorf, 2008; Pogge and Horton, 2008).

[12] This is not to deny the central role of agency and critical autonomy in social change. However, big questions concerning the relation between individual capacity and social structure cannot be addressed here, though they are in THN (chap. 5).

[13] Like the entire paper, this considers just climate change and not other global and intergenerational threats to human welfare.

[14] Which 'present peoples' is discussed shortly.

things are getting worse—which will necessarily limit the standards of generalisable need satisfaction to which we can aspire.

2. The distribution. But this then poses a question of distributive ethics. In a world of egregious inequalities, how is this quantum of emissions to be allocated between present nations and peoples? Arguments for global distributive justice are derived from several normative approaches. I shall concentrate on three, all based on human rights and corresponding obligations, and a somewhat broader fourth position. The intention is not to survey this voluminous literature but to show that all are founded on some concept of common human needs.

2a. The first is Shue's (1993) argument that people should have inalienable rights to subsistence emissions: the minimum emissions necessary to their survival or to some minimal quality of life. Though he avoids confronting a theory of need, Shue (2014) throughout his penetrating writings returns time and again to ideas of subsistence, 'inherent necessities' and such. The argument is that emissions incurred in producing some quantum of need satisfaction have priority over remaining 'luxury emissions'.[15]

2b. This approach has been criticised by Caney (2012) because it divorces climate change from other environmental impacts and from all other issues pertaining to global and inter-generational justice: trade, development, poverty, health and so on. He argues on ethical and practical grounds that these should be integrated. The fundamental point is that poor people want energy, not emissions, and the link between the two depends on technical and institutional factors. They are 'substitutable in a narrow sense': it is perfectly possible to achieve improving energy with falling emissions, by shifting to renewable energy, reducing deforestation, changing agricultural practices, increasing energy efficiency, shifting consumption patterns and so on.

Thus it is the fair distribution of 'overall goods and bads' that matters. But how are these various goods and bads to be related and compared? Caney calls for a new normative starting point, a moral minimum. Without advocating a substantive answer he assumes that this requires 'meeting the basic needs of all now and in the future'. Citing the research of Rao and Baer (2012), this would entail meeting certain standards everywhere of such satisfiers as food, household energy, water and sanitation and health care.

2c. A third group of distributive criteria derive from Rawls's well-known difference principle, but extend it (as Rawls does not) both globally and inter-generationally. In THN we take Rawls as our starting point but, following Pogge (1989), argue that a right to basic need satisfaction has equal priority with Rawls's two principles[16] (THN, pp 132–4). More recently, Wolf has gone further and concluded that 'meeting people's basic needs should be the *first* priority of justice' (Wolf, 2009, p 355). Brock (2009) and Wolf (2009) follow THN in extending this right to all peoples and future generations of peoples.

These arguments can be applied to threats from climate change.

> Since protection from harm is a matter of basic need, and since significant climate mitigation can be accomplished without compromising the *needs* of present persons, climate policy is an urgent priority of justice . . . Where our present activities are not necessary for satisfaction of

[15] One implication of this minimalist approach is that the allocation of emissions above this subsistence level does not necessarily have to be egalitarian.

[16] First, equal basic rights and liberties; second, the difference principle, that socially inequality is tolerated only to the extent that it benefits the least well off in society, together with equality of opportunity (Rawls, 1971, pp 63, 538–9).

present fundamental needs, and put at risk the basic needs of future generations, then they are unjust. (Wolf, 2009, p 373)

This results, according to Wolf, in a principle of moderate sufficiency: that people be provided with a sufficient minimum as first principle of justice.

Such a principle implies a strict limit on the kinds of intergenerational trade-offs justice will permit when the interests of present and future persons are in conflict . . . Thus it will be impermissible to promote the less basic interests of members of the present generation if this would compromise the needs of future generations. (Wolf, 2009, p 367)

Future—and present—human needs take precedence over present wants.

2d. This is also the conclusion of Gasper's (2012) distinct 'human security framework' which seeks to marry human rights language with a broader social ontology of interconnectedness: a framework that recognises our vulnerability and mutual dependence, our connection to future generations and our dependence on a global ecology; in short, our membership of a 'community of fate'. In similar vein, Dobson concludes: 'The futurity that is central to all conceptions of sustainability is represented by the way in which future generation human needs take precedence over present generation human wants' (Dobson, 1998, p 46).

By this stage, the goal of securing well-being in the face of climate change has resulted in two ethical demands: sustainability (in the form of the emissions envelope) and equality (in the form of prioritising the satisfaction of human needs, present and future, over surplus wants). In theory, the needs and sustainability criterion must continuously be iterated until they become compatible. Practical examples of such iteration are found in Millennium Ecosystem Assessment, the GEO Assessments, the IPCC Reports, the GECHS publications and the 2013 World Social Science Report.

3. The funding obligations. This still leaves the third ethical question: in the face of unavoidable ongoing climate change, and the enduring hardships it will impose, who has the obligation to fund adaptation and compensation programmes for the groups affected? Here also there is considerable agreement. There are basically three answers to this question: those who have enjoyed the fruits of energy consumption in the past and imposed the global burdens of emissions up to the present; those who have the greater ability to pay; and those least likely to be plunged into deprivation and unmet basic needs as a result. These are distinct moral arguments, but they all converge in practice when considering international justice: in today's egregiously unequal world the costs should be borne by the rich countries of the North (and by the rich in middle- and low-income countries—see later discussion) (Baer, 2011; Shue, 2014). This is the ethical foundation of the Kyoto principle of 'common but differentiated responsibilities' agreed in 1997. Nevertheless, the pattern of international emissions is changing rapidly following the fast industrialisation and growing affluence of China, Brazil, India and other countries in the South. As a result the pattern of international obligations, according to these three criteria, is changing—but slowly and with a lag.

4. A fourth principle: domestic justice. This raises a fourth distinct and less discussed principle of global justice. Cosmopolitan theories of justice typically begin with the case for domestic social justice and then argue that the logic that underpins this applies at the global and inter-generational level (THN, chap. 7; Caney, 2005, chap. 3). But

it behoves us not to forget the original case for domestic distributive justice in this process. For example, it is well established that many policies to reduce emissions bear more heavily on the poor and subsistence emissions than the rich and luxury emissions: the double injustice becomes a triple injustice (Gough, 2013). And this applies to justice within rich and poor—and developing—nations.

Intra-national inequality is exploding as a new affluent middle class emerges alongside persisting poverty. By 2030 one half of 'high emitters' will live outside the OECD (Chakravarty *et al.*, 2009). At the same time, rising numbers in the North will suffer deprivation and energy poverty. Hence, the claims of global and inter-generational justice will need to be matched by intra-national social justice in both North and South. This does not conflict with the obligations already listed; rather, it endorses the cosmopolitan starting point that the individual is the basic unit, not nation-states, and that all individuals count equally. One interesting global approach that takes this into account is the Greenhouse Development Rights framework (Baer, 2013).

I have surveyed some of the principal proposals to derive a moral basis for limiting the present and future harm likely to be caused by climate change and to distribute the burdens and benefits of such programmes between peoples and nations both globally and over time. I conclude that all require a robust conception of basic human needs. That is what this article has sought to provide.[17]

Obviously, the ethical and justice positions argued here sound utopian today, in the face of indifference, ideological differences, outright opposition from vested interests, political corruption, growing inequality and vast gaps in the power of different states. Unfortunately, at the end of a long article, these issues of politics and power and the role of political strategies and transition programmes cannot be addressed.

6. Conclusion

The Brundtland Commission's near-hegemonic definition of sustainable development, with which I began, relies on a robust and coherent account of what human needs are. It would make no sense to substitute the term 'preferences' or 'happiness' for needs in their definition. Thus one would imagine that the Brundtland Commission and the numerous publications citing it would at least define the term 'needs' and engage with the concept. But on the whole this has not happened. This article seeks to fill this gap. In conclusion, we can identify three basic strengths of a need theory along the lines argued herein.

First, because human needs are conceived to be universal to all peoples, a sound theory of need permits inter-personal comparisons of well-being, including comparisons between radically different cultures and time periods. It is informationally more rewarding than alternative conceptions, encompassing both individual and population-level evaluations of well-being. It provides a more secure theoretical foundation for the numerous current empirical efforts to devise non-monetary indicators of well-being, pursued by numerous organisations including the OECD, EU and UN (Brainpool, 2014).

[17] The foregoing arguments assume that what matters is maintaining or improving future human welfare. They recognise the *instrumental* role played by large-scale ecological processes, such as climate and biodiversity, and the critical limits these impose on human well-being. But they do not recognise an intrinsic value of Nature, which might imply giving priority to 'nonhuman needs' over human needs, now or in the future (Dobson, 1998).

Second, it provides a critique of 'unexamined sentiments' and an advocacy of reflective and public reasoning. This it shares with the capabilities approach (see Appendix below), but it has the advantage that human needs are more 'vividly intuitive'. The idea of common human needs challenges current obeisance to unregulated markets as allocative mechanisms (and indeed simple majoritarian decision making). Needs provide a route to questioning the idea of 'consumer sovereignty' and the justice and sustainability of current social structures.

Third, it supports strong moral obligations and claims to meet basic needs and provides a secure foundation for universal human rights. It thus lends powerful support for those pressing for the pursuit of both social and inter-generational justice: the twin and linked global challenges we face today. Global warming now poses an overwhelming threat to human well-being present and future. This imposes additional and urgent ethical demands for just and sustainable global welfare. Yet a survey of a wide range of different proposals shows that all imply and rely on some notion of universal human need. A sound concept of universal basic human needs is now more essential than ever to guide policies that simultaneously sustain the planet and human well-being.

Appendix: needs and the capability/capabilities approaches

The capability approach, first elaborated by Amartya Sen, has mounted a powerful challenge to orthodox welfare economics, has helped establish a more rounded conception of the human person than *Homo economicus* and has founded the only globally accepted alternative metric to GDP so far—the Human Development Index (Sen, 1992, 1999; Alkire, 2002). Furthermore it shares several common features with the needs approach advocated here. They include (Sen, 2009, chaps 11–13):

- A rejection of utility/happiness, resources and crude 'basic physiological needs' approaches
- A recognition of the complexity of human lives and the plurality and non-commensurability of needs/functionings
- A recognition that inter-personal comparisons of well-being are essential and not impossible
- A critique of 'unexamined sentiments' and an advocacy of reflective and public reasoning
- A conception of obligations to others

With so much in common, what is to be gained by insisting on the needs approach? There are two fundamental problems with the capability alternative: first, there appears to be no way of identifying basic universal functionings and capabilities, and second, capabilities are extremely difficult to operationalise. Though the second is less fundamental, I start with this. The capability set of a person includes not only the opportunities to have and to be that people actually choose but also the near-infinite counter-factual opportunities that were open to them that they did not choose. Rawls's (1999) regarded the capability approach as too 'informationally demanding', and others have echoed this criticism. One response to this is to argue that chosen functionings can act as proxies for capabilities: one's health status can act as a proxy for one's substantive freedom and opportunity to be healthy. However, since the list of potential functionings that people 'have reason to value' is almost endless (to be a good parent,

to play football, to make lots of money), this leads back to subjective choice, unless discriminations are made between different functionings.

Yet the approach provides no means for identifying basic functionings common to a group of people let alone to all people. Sen's oeuvre provides examples of significant functionings but in an unsystematic way. He famously rejects the search for and lists of universal valued functionings. Yet without such a list, achieved human functionings cannot be compared across radically different cultures or across time.

Martha Nussbaum's capabilities approach argues for the universality of 'human functional capabilities' and is content to identify these in a cross-cultural way. But to justify this, in her later book, *Frontiers of Justice,* she relies heavily on the language of need: 'human need is a relatively stable matter, and thus there is some hope that we can give an account of basic human needs that will remain reasonably constant over time . . . the idea of what human beings need for fully human living is among the most vivid intuitive ideas we share' (Nussbaum, 2006, pp 278, 279). Gasper (2005) and Brock conclude that the capability approach is then derivative of the need approach. 'The notion of need is a valuable member of the team of concepts widely used in discussions of global justice, both in the capabilities and the human rights approaches. The case for these is often built on the more fundamental concept of needs' (Brock, 2009, pp 73–4).

The needs approach also addresses more directly issues of sustainability and intergenerational comparability, topics rarely addressed within the capability approach. Sen (2009, p 250) recognises the importance of the Brundtland definition but contends that its reliance on human needs is insufficiently 'capacious'. 'Certainly people do have needs, but they also have values and, in particular cherish their ability to reason, appraise, participate, choose and act. Seeing people only in terms of their needs may give us a rather meagre view of humanity'. This repeats an earlier criticism which this article has been at pains to refute.

In rejecting needs, Sen is left with a very thin protection for future generations in a current world where present actions are wreaking environmental devastation and unconstrained consumption of natural resources. According to Leßmann (2011, p 58), 'The capability approach offers a theory that respects the freedom of choice of people whether they live today or in the future. Thus the CA does not prescribe a certain type of life for either the current or future generations and in consequence does not schedule sustaining a certain state of the world'. In contrast, Nussbaum's quite different, universalist approach ultimately relies on the idea of basic human needs applicable now and in the future. The capability approach cannot 'dispense with the concept of needs, at any rate when applied to sustainable development' (Boulanger, 2011, p 99).

In a nutshell, the capability approach needs the underpinning of a rigorous theory of human need.

Bibliography

Alkire, S. 2002. *Valuing Freedoms: Sen's Capability Approach and Poverty Reduction*, Oxford, Oxford University Press

Baer, P. 2011. International justice, pp. 323–37 in Dryzek, J., Norgaard, R. B. and Schlosberg, D. (eds) *The Oxford Handbook of Climate Change and Society*, Oxford, Oxford University Press

Baer, P. 2013. The greenhouse development rights framework for global burden sharing: reflection on principles and prospects, *Wiley Interdisciplinary Reviews: Climate Change*, vol. 4, no. 1, 61–71

Benson, J. 1983. Who is the autonomous man?, *Philosophy*, vol. 58, no. 223, 5–17

Boulanger, P.-M. 2011. The life-chances concept: a sociological perspective in equity and sustainable development, pp. 83–104 in Rauschmayer, F., Omann, I. and Frühmann, J. (eds) *Sustainable Development: Capabilities, Needs, and Well-Being*, London, Routledge
Bowles, S. 1998. Endogenous preferences: the cultural consequences of markets and other economic institutions, *Journal of Economic Literature*, vol. 36, no. 1, 75–111
Bowles, S. and Gintis, H. 2011. *A Cooperative Species: Human Reciprocity and Its Evolution*, Princeton, NJ, Princeton University Press
Brainpool. March 2014. Final reports, *BRAINPOoL*, available at http://www.brainpoolproject.eu/the-way-forward/final-reports/
Braybrooke, D. 1987. *Meeting Needs*, Princeton, NJ, Princeton University Press
Brock, G. 2009. *Global Justice: A Cosmopolitan Account*, Oxford, Oxford University Press
Burchardt, T., Evans, M. and Holder, H. 2013. *Public policy and inequalities of choice and autonomy*, CASEpaper 174, London, London School of Economics
Caney, S. 2005. *Justice Beyond Borders*. Oxford University Press
Caney, S. 2012. Just emissions, *Philosophy & Public Affairs*, vol. 40, no. 4, 255–300
Chakravarty, S. *et al.* 2009. Sharing global CO2 emission reductions among one billion high emitters. *Proceedings of the National Academy of Sciences*, July 6
Coote, A. 2012. *Intergenerational Equity: A Briefing Paper*, Copenhagen, WHO Regional Office for Europe
Dean, H. 2010. *Understanding Human Need*, Clifton, Policy Press
Devine, J., Camfield, L. and Gough, I. Autonomy or dependence—or both? Perspectives from Bangladesh, *Journal of Happiness Studies*, vol. 9, no. 1, 105–38
Dewey, J. 1935. *Liberalism and Social Action*, New York, G.P. Putnam and Sons
Diener, E. 1984. Subjective well-being, *Psychological Bulletin*, vol. 95, no. 3, 542–75
Diener, E. 1994. Assessing subjective well-being: progress and opportunities, *Social Indicators Research*, vol. 31, no. 2, 103–57
Dobson, A. 1998. *Justice and the Environment*, Oxford, Oxford University Press
Dover, M. 2015. Human needs: overview, in Franklin, C. (ed.) *The Encyclopedia of Social Work*, New York, Oxford University Press and the National Association of Social Workers
Doyal, L. 1993. Thinking about human need, *New Left Review*, no. 201, 113–28
Doyal, L. 1995. Needs, rights, and equity: moral quality in healthcare rationing, *Quality in Health Care*, vol. 4, no. 4, 273–83
Doyal, L. 1997. Human need and the right of patients to privacy, *Journal of Contemporary Health Law and Policy*, vol. 14, no. 1, 1–21
Doyal, L. 1998. Public participation and the moral quality of healthcare rationing, *Quality in Health Care: QHC*, vol. 7, no. 2, 98–102
Doyal, L. and Gough, I. 1991. *A Theory of Human Need*, New York, Palgrave Macmillan
Doyal, L. and Doyal, L. 2013. *Living with HIV and Dying with AIDS*, Surrey, Ashgate
Dworkin, R. 1988. *The Theory and Practice of Autonomy*, New York, Cambridge University Press
Easterlin, R. A. 1995. Will raising the incomes of all increase the happiness of all?, *Journal of Economic Behavior & Organization*, vol. 27, no. 1, 35–47
Elster, J. 1982. Sour grapes: utilitarianism and the genesis of wants, pp. 219–38 in Sen, A. and Williams, B. (eds) *Utilitarianism and Beyond*, Cambridge, Cambridge University Press
Gardiner, S. 2004. Ethics and global climate change, *Ethics*, vol. 114, no. 3, 555–600
Gardiner, S. 2011. Climate justice, pp. 309–22 in Dryzek, J. S., Norgaard, R. B. and Schlosberg, D. (eds.) *The Oxford Handbook of Climate Change and Society, Oxford Handbooks in Politics & International Relations*, Oxford, Oxford University Press
Gasper, D. 1996. Needs and basic needs: a clarification of foundational concepts for development ethics and policy, ISS Working Paper, The Hague
Gasper, D. 2004. *The Ethics of Development: From Economism to Human Development*, Edinburgh, Edinburgh University Press
Gasper, D. 2005. Subjective and objective well-being in relation to economic inputs: puzzles and responses, *Review of Social Economy*, vol. 63, no. 2, 177–206
Gasper, D. 2012. Climate change: the need for a human rights agenda within a framework of shared human security, *Social Research*, vol. 79, no. 4, 983–1014, 1084
Gasper, D. 2007. Conceptualising human needs and wellbeing, pp. 47–70 in Gough, I. and McGregor, J. A. (eds) *Wellbeing in Developing Countries: From Theory to Research*, Cambridge, Cambridge University Press

Gasper, D. 2009. The human and the social: a comparison of the discourses of human development, human security and social quality, *International Journal of Social Quality*, vol. 1, no. 1, 91–108

Gasper, D. 2010. Understanding the diversity of conceptions of well-being and quality of life, *The Journal of Socio-Economics, Financial Crisis: Capabilities and Happiness*, vol. 39, no. 3, 351–60

Gough, I. 2000. *Global Capital, Human Needs and Social Policies: Selected Essays, 1994–99*, Basingstoke, Palgrave Macmillan

Gough, I. 2003. Lists and thresholds: comparing the Doyal-Gough theory of human need with Nussbaum's capabilities approach, WeD Working Paper 1, ESRC Research Group on Wellbeing in Developing Countries, available at http://www.welldev.org.uk/research/workingpaperpdf/wed01.pdf

Gough, I. 2013. Carbon mitigation policies, distributional dilemmas and social policies, *Journal of Social Policy*, vol. 42, no. 2, 191–213

Gough, I. 2014. Lists and thresholds: comparing the Doyal-Gough theory of human need with Nussbaum's capabilities approach, pp. 357–83 in Comim, F. and Nussbaum, M. C. (eds) *Capabilities, Gender, Equality: Towards Fundamental Entitlements*, Cambridge, Cambridge University Press

Gough, I. and McGregor, J. A. 2007. *Wellbeing in Developing Countries: From Theory to Research*, Cambridge, Cambridge University Press

Guillen Royo, M. 2007. *Consumption and wellbeing: motives for consumption and needs satisfiers in Peru*, PhD thesis, University of Bath, available at http://opus.bath.ac.uk/23624/

Hamilton, L. A. 2003. *The Political Philosophy of Needs*, Cambridge, Cambridge University Press

Harris, P. 2010. *World Ethics and Climate Change*, Edinburgh, Edinburgh University Press

Hausman, D. M. and McPherson, M. S. 2006. *Economic Analysis, Moral Philosophy and Public Policy*, 2nd ed., Cambrige, Cambridge University Press

Hodgson, G. M. 2013. *From Pleasure Machines to Moral Communities: An Evolutionary Economics without Homo Economicus*, Chicago, University of Chicago Press

IPCC. 2014. Climate Change Report 2013. Synthesis Report. Summary for Policymakers, November 2014

Kahneman, D., Diener, E. and Schwarz, N. 1999. *Well-Being: Foundations of Hedonic Psychology*, New York, Russell Sage Foundation

Kahneman, D. 2011. *Thinking, Fast and Slow. London*, Allen Lane

Layard, R. 2005. *Happiness: Lessons from a New Science*, London, Allen Lane

Leßmann, O. 2011. Sustainability as a challenge to the capabilities approach, pp. 43–61 in Rauschmayer, F., Omann, I. and Frühmann, J. (eds) *Sustainable Development: Capabilities, Needs, and Well-Being*, London, Routledge

MacIntyre, A. C. 1999. *Dependent Rational Animals: Why Human Beings Need the Virtues*, Chicago, Open Court

Maslow, A. 1970. *Motivation and Personality*, 2nd edn, New York, Harper and Row

Max-Neef, M. 1989. Human scale development: an option for the future, *Development Dialogue*, vol. 1

Max-Neef, M. A. 1992. Development and human needs, pp. 197–214 in Ekins, P. and Max-Neef, M. A. (eds) *Real-Life Economics: Understanding Wealth Creation*, London, Routledge

Nussbaum, M. C. 2000. *Women and Human Development: The Capabilities Approach*, Cambridge, Cambridge University Press

Nussbaum, M. C. 2006. *Frontiers of Justice: Disability, Nationality, Species Membership*, Cambridge, MA, Belknap Press

O'Neill, J. 2011. The overshadowing of needs, pp. 25–43 in Rauschmayer, F., Omann, I. and Frühmann, J. (eds) *Sustainable Development: Capabilities, Needs, and Well-Being*, London, Routledge

O'Neill, J. 2015. Sustainability, in Moellendorf, D. and Widdows, H. (eds), *The Handbook of Global Ethics*, Durham, Acumen Publishing.

Penz, G. P. 1986. *Consumer Sovereignty and Human Interests*, Cambridge, Cambridge University Press

Pogge, T. 1989. *Realizing Rawls*, Ithaca, NY, Cornell University Press

Pogge, T. and Horton, K. (eds) 2008. *Global Ethics: Seminal Essays*, St. Paul, MN, Paragon House Publishers

Pogge, T. and Moellendorf, D. (eds) 2008. *Global Justice: Seminal Essays*, St. Paul, MN, Paragon House Publishers
Rao, N. and Baer, P. 2012. Decent living emissions: a conceptual framework, *Sustainability*, vol. 4, no. 4, 656–81
Rawls, J. 1971. *A Theory of Justice*, Oxford, Clarendon Press
Rawls, J. 1999. *A Theory of Justice*, revised edition, Cambridge, MA, Belknap Press
Reader, S. 2005. Aristotle on necessities and needs, *Royal Institute of Philosophy Supplements*, vol. 57, 113–36
Reader, S. 2007. *Needs and Moral Necessity*, London, Routledge
Ruger, J. P. 2009. *Health and Social Justice*, Oxford, Oxford University Press
Ryan, R. M. and Deci, E. L. 2001. On happiness and human potentials: a review of research on hedonic and eudaimonic well-being, *Annual Review of Psychology*, vol. 52, no. 1, 141–66
Ryan, R. M. and Sapp, A. R. 2007. Basic psychological needs: a self-determination theory perspective on the promotion of wellness across development and cultures, pp. 71–92 in Gough, I. and McGregor, J. A. (eds) *Wellbeing in Developing Countries: From Theory to Research*, Cambridge, Cambridge University Press
Sandel, M. 2012. *What Money Can't Buy*, London, Allen Lane
Schuppert, F. 2013. Distinguishing basic needs and fundamental interests, *Critical Review of International Social and Political Philosophy*, vol. 16, no. 1, 24–44
Sen, A. 1984. *Resources, Values, and Development*. Oxford, Blackwell
Sen, A. 1992. *Inequality Reexamined*, Oxford, Oxford University Press
Sen, A. 1999. *Development as Freedom*, Oxford, Oxford University Press
Sen, A. 2009. *The Idea of Justice*, London, Allen Lane
Skidelsky, R. and Skidelsky, E. 2013. *How Much is Enough?* Penguin
Shue, H. 1993. Subsistence emissions and luxury emissions, *Law & Policy*, vol. 15, no. 1, 39–60
Shue, H. 2006. Ethical dimensions of public policy, pp. 709–28 in Moran, M., Rein, M. and Goodin, R. (eds) *The Oxford Handbook of Public Policy*, Oxford, Oxford Handbooks of Political Science
Shue, H. 2014. *Climate Justice: Vulnerability and Protection*, Oxford, Oxford University Press
Solow, R. M. 1993. An almost practical step toward sustainability, *Resources Policy*, vol. 19, no. 3, 162–72
Solow, R. M. 1991. *Sustainability: An Economist's Perspective*, paper presented at the Marine Policy Center, Woods Hole Oceanographic Institution, MA, 14 June
Soper, K. 1993. A theory of human need, *New Left Review*, no. 197, 113–28
Thomson, G. 2005. Fundamental needs, *Royal Institute of Philosophy Supplements*, vol. 57, 175–86
Wiggins, D. 2005. An idea we cannot do without: what difference will it make (e.g., to moral, political and environmental philosophy) to recognize and put to use a substantial conception of need?, *Royal Institute of Philosophy Supplements*, vol. 57, 25–50
Wiggins, D. 1987, Essay 1: claims of need, pp. 1–59 in *Needs, Values, Truth: Essays in the Philosophy of Value*, Oxford, Oxford University Press
Willaims, R. 1983. *Keywords: A Vocabulary of Cutlure and Sociaty*, Oxford, Oxford University Press
Wolf, C. 2009. Intergenerational justice, human needs, and climate policy, pp. 347–76 in Gosseries, A. and Meyer, L. H. (eds) *Intergenerational Justice*, Oxford, Oxford University Press
World Commission on Environment and Development (Brundtland Commission). 1987. *Our Common Future*, Oxford, Oxford Paperbacks