**Habitability as capability: proposing a normative definition of the concept**


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The background document for this panel refers to concerns that "declining habitability due to climate change and environmental degradation will lead to widespread migration". This statement suggests that habitability and migration are inversely related: as habitability decreases migration increases. But we should not let fears of widespread migration determine our conceptualisation of habitability as an emerging scientific concept. Even before we have arrived at a solid definition of habitability, it appears that there are some very important exceptions to the above proposed relationship. While it is quite intuitive to assume that as a place becomes less habitable people will leave, we know from the history of development and migration studies that as many places have become *more* habitable (as the quality-of-life has increased) *more* people have left [1]. Conversely, we know of many instances where people unfortunately choose to stay in disaster zones, sometimes with fatal consequences, and tragically, there are many cases where people are unable to leave in order to avoid deteriorating living conditions [2]. A simple inverse relationship between habitability and migration does not seem to stand up to the evidence. How then can we relate them more precisely, and in doing so come to a partial definition of what habitability might mean? I propose to do this by thinking in terms of their normative content.

One way to categorize scientific concepts is to distinguish descriptive from normative concepts (or descriptive from normative uses of the same concept). In brief, descriptive concepts explain how the world is, whereas normative concepts say something about how the world ought to be[1]. In general migration and mobility are used descriptively. In fact, a recent landmark publication argued explicitly for this: Boas et al. [4] argue that mobility research should "focus on the movement of people in more neutral (and therefore analytical) terms — avoiding assumptions that mobility is unidirectional or monocausal, or inherently positive or negative". It is very hard, on the other hand, to think of habitability in such neutral terms. Surely habitability is something that we want to see maintained and improved? And even if we could define it in purely descriptive terms, this would be negated when it came to recommending policies or actions to address habitability. Any time we promote particular actions we are being normative. If we accept that habitability is, and should be, a normative concept, this necessitates a well justified and coherent normative orientation. This will give us as researchers a consistent and communicable foundation from which to engage in questions of practice and policy [5]. So how can we go about defining its normative content?

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[1] There is a long-standing debate about whether values do, or can, or should ever, enter into science. In modern social sciences the view that they should not is generally associated with the work of Max Weber. But there are many positions that argue that excluding values from science is neither desirable nor possible. This is not the place to rehearse these discussions. I presume most readers in this forum will agree that science ought to act on climate change, ought to reduce human suffering, and therefore ought to try to maintain the planet's habitability. I refer you to [3], for my more detailed arguments on values and normativity in science.

Just because mobility is generally used in a descriptive sense, this has not prevented discussion of normative questions around mobility. Emerging from these discussions we have the decidedly normative concepts of *forced displacement* and *involuntary immobility*, amongst others. What the language of these concepts suggests is that both mobility and immobility can be desirable or not, and, crucially, we judge this desirability in relation to the ability of the individuals and households to choose ("forced", "involuntary"). Freedom is central.

In line with this thinking, I propose that the habitability of a region should be understood in terms of the freedoms which are available to the people of that region. I will proceed to give content to this below. But for now, we can see that according to this understanding, the relationship of habitability to migration can be specified differently from the above: as the habitability of a place increases so too does the likelihood that *if* people migrate it is because of their *free choice* to do so. As habitability increases both forced displacement and involuntary immobility will be reduced, but overall mobility may increase or decrease.

So far this is still a vague definition, and hardly specific enough to be useful in scientific research. What content then can be given to this concept of *habitability as freedom* to make it more useful? It would of course be possible to leave it here, with freedom being understood in opposition to involuntary immobility and forced displacement. But for these we still need a definition of what forced, involuntary, and, conversely, freedom mean. Furthermore, when it comes to practical action or policies on habitability it does not make sense to mitigate only these mobility related unfreedoms. We ought to try to relate and integrate their removal with the removal of other unfreedoms that may exist in a given society. We need a more complete understanding of freedom that is more than but includes its impacts on mobility.

**Habitability as capability**

I propose to understand habitability using Amartya Sen's account of freedom in terms of capability [6, 7]. Sen seeks to move away from the association of well-being with income, which he argues is a limited proxy for freedom, and to focus on what actual conditions contribute to an individual's freedom [6]. Sen's is a positive idea of freedom, meaning that it is more than the removal of restrictions placed on the individual by others or the state and includes what positively contributes to a freer life. Capabilities, sometimes called substantive freedoms [8], can therefore range from the basic necessities of life like being nourished and sheltered, to more complex and social capabilities, like being well-educated and having meaningful connections to community. With this idea of freedom in mind, we can say that people are *forced* to leave when it results from a loss of one or more of these capabilities: when there is an objective loss of substantive freedom. And, people stay *involuntarily* when they lack some objective freedoms that they would require in order to move.

Thinking of habitability in terms of capability does not furnish us with a complete conceptualization. For example, it provides little further insight into the drivers behind migration or immobility. But as an attempt to describe the normative content of habitability, it can be useful in describing what we aim for when we try to improve habitability. Using a capability approach, we could construct a scale of habitability, from places where it is barely possible for people to access fundamental capabilities, e.g., to be nourished with food and water and have shelter, to places that are much more habitable, where freedoms like education, belonging to a community, and having access to safe recreational spaces, for example, are available. Following Sen, expanding substantive freedom must necessarily start with removing the unfreedom of the most unfree. This implies that when seeking to improve habitability it is necessary to focus on inequality in capabilities.

According to this approach, in principle, there are a huge number of factors that could be considered to affect habitability. But capabilities are not without delimitation. Sen describes freedom as the ability to "lead the kinds of lives we have reason to value"[6] p. 14. This "we" is significant. The capabilities framework is intended to be used for deciding on priorities in *public* decision-making, one that represents a marked departure from the focus on income and GDP. But Sen recognises that in this move from the focus on income to the focus on actual freedoms things become more complicated. What might contribute to one individual's freedom will differ from another's; individuals will have different priorities. The same can be said for habitability. While Sen argues we will never agree on an exact set of priorities, we can recognise when others' claims are reasonable – a parent with children might prioritise education whereas an elderly person might prioritise healthcare, but both could find the other's prioritisation reasonable. Where this recognition is possible, individual priorities can be aggregated to find an overall compromise set of priorities for the community[2]. In this way, Sen mediates between objective and subjective measures of capability. This could be useful for guiding policy for habitability. While different groups will have different needs, there is a sense in which these needs must be reasonable to a wider group of people. Every subjective desire cannot be considered to contribute to a public definition of habitability.

With that said, many of the capabilities threatened by climate change will be of a fundamental nature, for example, the ability to maintain the capacity for work under increased temperature or the ability to access shelter in the face of increased flooding. These are the types of capabilities we believe will be the major focus of discussion in relation to habitability, without denying that the most habitable region is the one that allows the greatest freedom to its inhabitants.

**Politics of habitability as capability**

If we take the social mission of science seriously, a normative definition of habitability is just part of the task. We should also try to understand what barriers lie in the way to habitability being maintained and improved.

Sen sees only minimal barriers to the implementation of a capability approach. He relies on the power of rational arguments to convince decision makers. However, studies have suggested it will take more than strong arguments to implement a capability approach in environmental policy [9, 10]. It is likely to require political contention. Sen himself has admitted this has been the case in the past, using the example of the feminist and workers' movements, which were necessary for the expansion of the capabilities of these groups [11].

Understanding habitability as capability, we can see that context dependent social-structural and environmental conditions, interacting with individual level factors, shape the substantive freedoms that people can achieve in a particular regions [12]. These factors are, in turn, subject to influence by political processes. The state has an important but limited role in determining the habitability of particular regions. It is limited by a range of economic, political, and environmental factors, at multiple levels. Nevertheless, it has the nominal power to influence both environmental and social conditions. It can thereby make places more or less habitable, both for particular social groups and society in general. For example, the government can mandate labor protections for workers in hot climates [13] or build flood-protection infrastructures [14], and so on. Governments are also subject

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[2] This procedure involves sophisticated mathematical techniques (as well as participatory processes and institutional support) the development of which contributed to Sen winning the Nobel Memorial Prize in Economic Sciences.

to influence from below, in the form of pressure from the public and social movements [15, 16], for example, environmental justice movements [17].

This is to say that though the state is not the only cause of a lack of habitability, it holds the power in society to regulate other factors that influence capabilities, be they economic, political, cultural, or environmental. It thereby represents a point of influence for politics-from-below on the factors that affect habitability. While these struggles do not encompass the totality of political dynamics that determine individual capabilities (e.g. international relations between states), this level of politics is essential to study for at least two reasons. Firstly, it is often the only means through which ordinary people can influence the political system and thereby habitability. Secondly, this pressure from below has been a major source of change in modern societies from the labor and feminist movements to anti-colonial and independence struggles [15, 18].

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