Prioritizing climate adaptation limits and trade-offs

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Abstract

The impacts of climate change are growing increasingly severe, and human communities must adapt to avoid these impacts. However, adaptation options are limited by constraints, which are both natural, or 'hard', and social, or 'soft'. Fundamental transformation of social systems and structures can expand these limits by adding adaptive capacities. However, such transformations may also negatively affect the communities whose adaptive capacities they are intended to expand. This article argues that transformational adaptation should take these negative effects into account by considering the value that soft adaptation limits have for communities. According to the no-harm principle, the transformation of what we term 'devalued' soft adaptation limits should be prioritized over the transformation of 'valued' ones. However, this general recommendation for action does not suffice to deal with value conflicts where trade-offs must be made. We suggest that giving the highest priority to basic human needs is a first step towards solving this issue.

Keywords: basic needs, climate change, cultural values, no-harm principle, transformation

Introduction

The impacts of climate change are growing increasingly severe, and human communities must adapt to avoid these impacts. However, adaptation options are limited by constraints, which are both natural, or 'hard', and social, or 'soft'(IPCC, 2022; Klein *et al*., 2014). Fundamental transformation of social systems and structures can expand these limits by adding adaptive capacities. However, such transformations may also negatively affect the communities whose adaptive capacities they are intended to expand. This article examines ethical challenges related to such transformational adaptation and suggests some preliminary strategies for dealing with them.

The main motivation for our ethical discussion is the fact that the distinction between hard and soft adaptation limits advanced by the Intergovernmental Panel on Climate Change (IPCC) does not distinguish between social structures that underpin soft adaptation limits by how communities value these structures. We anticipate that this lack of differentiation may lead to ethically challenging situations in transformational adaptation scenarios because transformation may impose unnecessary harm on people and communities (Carrillo and Wallimann-Helmer, 2021). For example, the adaptation opportunities of an indigenous community may be limited by their cultural beliefs, which lead them to avoid integrating into a colonial settler society, or they are limited by restrictions stemming from the organisation settler society that disable the community to follow an adaptation pathway they approve of. If transformational adaptation measures are taken to overcome these limiting factors, whether the indigenous community's cultural beliefs or the social setting of the settler state is altered makes a significant difference to the community. The former would be a loss to them whereas the latter could even improve their circumstances (Reibold, 2023).

To account for the differing impacts that can arise from transforming the social structures underpinning soft adaptation limits, we introduce an ideal-typical distinction between 'valued' and 'devalued' limits to adaptation. We label adaptation limits that correlate with, for example, cultural values, moral beliefs,

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and collective self-determination as 'valued'. Conversely, devalued adaptation limits are related to, for example, unjustified vulnerabilities and racial and gender inequalities. We do not claim that the distinction between valued and devalued is categorical. We argue that a continuum exists between these extremes. Nonetheless, distinguishing the two appears fruitful for more fine-grained analysis. We argue that transformational adaptation should, if possible, prioritize the transformation of devalued adaptation limits over valued ones, meaning that the underpinning social structure of devalued limits should first be altered to improve the adaptive capacities of a social objective. This strategy avoids inflicting unnecessary harm on communities by not transforming social structures that are endorsed by the members of the communities, and in many cases, the strategy may lead to mutual benefits by transforming devalued social structures that have negative impacts on the lives of the people and community.

We further argue that this initial distinction is insufficient to deal with all the potential challenges arising from transformational adaptation measures. We examine specific problems arising from value conflicts where trade-offs must be made. To deal with such problems, additional ethical concepts must be considered. Among many potential additional ethical concepts, we propose that minimally basic human needs should guide evaluations of these trade-offs. From this, we conclude that prioritizing the transformation of devalued adaptation limits over the transformation of valued ones is only valid if basic human needs are not threatened.

The paper proceeds as follows: First, we clarify the concept of adaptation limits and how it relates to transformational adaptation. Second, we introduce ethical challenges arising from transformational adaptation measures and introduce our ideal-typical distinction of valued and devalued adaptation limits. Third, we consider the problem of value conflicts and argue how additional ethical considerations may be mobilized to deal with them. We specifically focus on the concept of basic human needs. Then, the paper concludes.

Adaptation and transformation

Together with mitigation and loss and damage, adaptation is one of the main pillars of the United Nations Framework Convention on Climate Change (UNFCCC)efforts to combat the adverse impacts of climate change. According to the Paris Agreement, the aim of adaptation is 'a contribution to the long-term global response to climate change to protect people, livelihoods and ecosystems' (UNFCCC, 2015). Thus, adaptation aims to ensure sufficiently decent living conditions for people and communities (Wallimann-Helmer, 2016; Wallimann-Helmer *et al*., 2021).

The predominant form of adaptation is called incremental adaptation (Berrang-Ford *et al*., 2021; Thomas *et al*., 2021). The IPCC defines this as 'adaptation that maintains the essence and integrity of a system or process at a given scale' (IPCC, 2022). This means that incremental adaptation aims to sustain the current way a community lives without changing any of its fundamental attributes. For instance, a rural village dependent on cultivating rice may face difficulties in sustaining rice production due to rising temperatures. Adjusting to these rises by increasing the irrigation of their fields would not alter fundamental attributes of the community's life (Dow *et al*., 2013). Such a measure allows the village to continue planting rice as it used to.

However, incremental adaptation has its limits. The IPCC defines these limits to adaptation (or adaptation limits) as 'the point at which an actor's objectives (or system needs) cannot be secured from intolerable risks through adaptive actions' (Dow *et al*., 2013; IPCC, 2022; Klein *et al*., 2014). Thus, these limits mark a point beyond which incremental adaptation can no longer sustain some important aspect of a community's way of life. Changing irrigation practices in rice cultivation may be physically limited by how much water the ground can hold or is generally available in a region; or the community

may reach a point beyond which it can no longer afford additional water supplies; or water might be accessible, but only from a source that holds deep spiritual value to the community and cannot be used for mundane purposes.

These examples highlight how adaptation limits may differ in their binding force. Whether additional water is physically unavailable appears to differ from whether water becomes too expensive or cannot be used for spiritual reasons. It seems that the physical unavailability of water is harder to overcome than providing money to buy water or than changing cultural beliefs. Following this general insight, the literature and policy debate distinguishes between two forms of limits to adaptation: hard and soft (IPCC, 2022; Klein *et al*., 2014; Thomas *et al*., 2021). Hard limits are defined as the point beyond which 'no adaptive actions are possible to avoid intolerable risks' (IPCC, 2022). They are commonly associated with biophysical restrictions on opportunities for action and can be understood as outlining the general space of possible adaptation action.

Conversely, soft limits to adaptation are defined as the point where 'options may exist but are currently not available to avoid intolerable risks through adaptive action' (IPCC, 2022). These limits are commonly associated with social causes, which we term the social structures of communities and societies (Young, 2011), and can be extended if the underlying social causes are transformed. For example, if additional water cannot be afforded by a community, changing how the larger society to which the community belongs redistributes money, such as through the tax system, may enable the community to overcome this limiting factor. Similarly, if spiritual beliefs change, once-unavailable sacred water sources may be used for irrigation. Generally, soft adaptation limits can be conceptualized as outlining the space of possible adaptation action within specific social conditions.

In contrast to hard adaptation limits soft limits can be expanded by transformational adaptation. According to the IPCC, this second kind of adaptation should be understood as 'adaptation that changes the fundamental attributes of a social-ecological system in anticipation of climate change and its impacts' (IPCC, 2022). This means that transformational adaptation aims to change the social structures that cause these limits, for instance by altering the redistribution system of financial power in a society.

Two kinds of soft adaptation limits

The transformation of the structural causes of soft adaptation limits may strongly affect communities because they are accustomed to engaging with these structures daily, and the structures may even define a community's identity. However, not all structures play such an important role in a community's life. Some structures may even be experienced as oppressive. Thus, the transformation of social structures can also affect communities in significantly different ways (Carrillo and Wallimann-Helmer, 2021). For instance, an indigenous community that comes under pressure because rising temperatures disable its traditional agricultural practices might transform in at least two ways. First, the community may abandon its traditional agricultural practices and integrate their food production into the larger settler colonial society and its economic system. Second, the community could move to a different area of land, as has traditionally happened, for example with indigenous communities in North America, in cases of environmental changes. Both of these adaptation options are limited by social structural constraints. The first option is limited by the social structures of cultural identity that the community would have to relinquish in the case of assimilation. The second option is limited by the social structures of the land property system of the settler society, which may prohibit free movement over land. Both these structures may be transformed to extend adaptation limits. However, the community is unlikely to evaluate these transformational options in the same way: the first option would constitute a loss to community identity, whereas the second option would not and might even lead to improved social conditions (Reibold, 2023).

This example illustrates that, as adaptation limits in general, also not all soft limits to adaptation are of the same kind. Some soft adaptation limits are highly valued and endorsed by the members of a community whereas others make no difference to communities, or even represent disvalues. We term the first kind of adaptation limits valued. Valued adaptation limits can be limits related to cultural identity, attachment to place, collective self-determination, or more generally, all those limits to adaptation whose causes are related to social structures valued positively by a community (Carrillo and Wallimann-Helmer, 2021; De Shalit, 2011; Whyte, 2011; Zellentin, 2015). Thus, they are not only factors limiting the adaptive capacities of a valued social objective, but they also constitute a social objective. In the example discussed before, the soft adaptation limits constraining integration into a settler society are related to social structures formative for the identity of the community, and, hence, are a valued social objective of the community.

Conversely, soft limits to adaptation stemming from disvalues we call devalued soft limits to adaptation. Adaptation limits are devalued if they are related to disadvantages for a whole community or some of their members. In our example, the social structures of the settler colonial society, that restrict the adaptive capacity of the indigenous community, are seen as undermining a cultural way of life and are even resented by the community. Other devalued adaptation limits may stem from gender or racial inequalities or the unequal distribution of vulnerabilities. Generally, devalued limits to adaptation are limits that are connected to some form of social inequality, injustice, or wrong (Laitinen and Särkelä, 2023; Young, 2011).

We do not claim that the distinction between valued and devalued limits to adaptation is categorical. We argue that a continuum exists between these extremes, with many real-world cases at various points on the continuum and with different communities having different understandings of what may count as a valued or devalued adaptation limits. Nonetheless, even on a continuum and considering diverse understandings, morally significant distinctions are possible between soft adaptation limits by categorizing each as more valued than devalued or vice versa.

Without being able to fully justify this here, we claim that transforming valued adaptation limits inflicts harm on a community and its members and that transforming devalued limits to adaptation does not. One may argue that members of communities have legitimate expectations in the functioning of valued social structures, hence, valued adaptation limits, and that they are harmed if these expectations are frustrated (Meyer and Sanklecha, 2014). Or, one may conceive of chosen adaptation limits as formative for the identity of the members of communities and thus, central for them leading a sufficiently good life, which means that they are harmed if these structures are removed (De Shalit, 2011; Whyte, 2011; Zellentin, 2015). Devalued limits, by contrast, do not form a valued social objective: often, they are connected to social wrongs. Thus, transforming them does not harm communities and their members. In many cases, transforming devalued adaptation limits can even benefit vulnerable members of communities (Roberts and Pelling, 2020).

From these observations, we conclude that transformational adaptation should, if possible, prioritize the transformation of devalued adaptation limits over valued ones. This conclusion stems from a broad understanding of the no-harm principle, central to common morality (cf. Kyllönen, 2018). This principle holds that one should not inflict unnecessary and unjustified harm. Thus, if transforming valued adaptation limit inflicts harm, one should refrain from doing so as long as it is not necessary or justified. For the example discussed above, this implies that the preferable adaptation pathway is the one that does not undermine the agricultural practices constitutive to the identity of the indigenous community and, hence, does not harm them.

Dealing with value conflicts and trade-offs

The approach we proposed in the previous section has some important limitations. Firstly, the distinction between valued and devalued limits to adaptation is not as clear cut as one may wish. Secondly, cases will arise in which the distinction between valued and devalued cannot indicate clearly whether transformation should occur. In this section, we investigate additional ethical considerations that can help solve the second issue, in particular the concept of basic human needs.

In some cases, there will be no option to choose between the extension of a devalued and a valued adaptation limit to expand the adaptive capacities of a valued social objective, and only the transformation of a valued adaptation limit will achieve the goal. However, as we argued above, valued adaptation limits are themselves valued social objectives. Hence, a trade-off must be made between two valued social objectives. If nothing is done, the community and people suffer due to the loss of a valued social objective that cannot be adapted further. If transformation occurs, they will suffer due to the loss of a valued soft adaptation limit, and, hence, another valued social objective. For instance, collective self-determination, a valued adaptation limit and social objective, may undermine the adaptive capacities of the healthcare system, hence limiting the adaptive capacities of health, a valued social objective. Prioritizing the transformation of devalued adaptation limits does not help to solve this issue because there are no devalued adaptation limits that can be transform instead of the valued adaptation limit. Additional ethical concepts need to be considered.

Ethical theory offers many approaches that may be applied to such cases. A consequentialist may argue that the social objective that should be preserved is the one that provides the greatest overall benefit to the community and its members. Alternatively, one may argue that additional considerations of justice should be included in the argument to clarify which valued objective should be preserved.

We take the second approach and argue that, in addition to prioritizing valued over devalued adaptation limits, an ethical approach to transformational adaptation should give the highest priority to basic human needs. This appears to us reasonable because respecting basic human needs may be seen as a minimal condition of any form of climate justice. (cf. Gardiner *et al*., 2010). Thus, the valued social objectives that should be protected are those whose loss would infringe on basic human needs. This further implies that also valued soft adaptation limits can rightly be transformed if abstaining from doing so would infringe on basic human needs. For instance, if the limitation of the healthcare system by collective self-determination is so sever for it to undermine basic human needs, it appears legitimate to transform the decision processes.

This approach cannot solve all problems relating to value conflicts. In some cases, neither option for action may infringe on basic human needs. In addition, what is understood as basic needs, and what counts as an infringement upon them depends on the cultural context, and it would be necessary to further investigate how the arguments presented in this paper apply to different cultural and social circumstances. However, even with this conceptual and practical limitations, the considerations presented may still help to guide actions in some important cases.

Conclusion

In this paper, we argued that transforming the social structural causes of soft adaptation limits to expand the adaptive capacities of social objectives can run into ethical problems because in some cases these structures are also valued social objectives. We suggested that transformational adaptation policy should deal with these questions by considering the different values that social structures hold for a community. We proposed that adaptation limits can be categorized on a continuum from valued to devalued limits.

We argued that transformational adaptation should, where possible, prioritize the transformation of devalued adaptation limits over valued ones. We further pointed out that this recommendation faces difficulties when dealing with value conflicts between two valued social objectives. We highlighted that these cases need additional ethical considerations. We discussed basic human needs as one possible additional consideration. Further research should investigate how the concepts presented could be applied in different social and cultural contexts.

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