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This is the published version of a paper published in *Ethics, Policy & Environment*.

Citation for the original published paper (version of record):

Döhlen Wedin, A. (2023)

Understanding Feasibility of Climate Change Goals and Actions

Ethics, Policy & Environment, : 1-15

<https://doi.org/10.1080/21550085.2023.2180254>

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To cite this article: Anna Döhlen Wedin (2023): Understanding Feasibility of Climate Change Goals and Actions, Ethics, Policy & Environment, DOI: [10.1080/21550085.2023.2180254](https://doi.org/10.1080/21550085.2023.2180254)

To link to this article: <https://doi.org/10.1080/21550085.2023.2180254>



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Published online: 27 Feb 2023.



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Understanding Feasibility of Climate Change Goals and Actions

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ABSTRACT

Climate change goals and actions are often discussed with reference to their feasibility. However, in the climate change literature, there is no agreed upon understanding of what feasibility means. In this paper, insights from political philosophy are used to address this problem in a two-fold way. First, different uses of the term feasibility in the climate change context are critically analyzed, surfacing problematic uses that can have severe consequences for what goals or actions are considered. Second, the 'conditional probability account of feasibility' is presented as a positive account of how feasibility should be understood in the climate change context, and applied to the case of managed retreat as an approach for adaptation to sea level rise. Together, the critical analysis and the positive proposal furthers a necessary discussion on feasibility in the context of climate change.

ARTICLE HISTORY

Received 13 January 2022

Accepted 8 February 2023

KEYWORDS

Climate change; feasibility; political philosophy; conditional probability; sea level rise; adaptation

Introduction

In the climate change debate, the concept of feasibility has come to play an increasingly important part. In 2018, the Intergovernmental Panel on Climate Change (IPCC) released its Special Report on Global Warming of 1.5°C (SR1.5), in which emission pathways for limiting global warming at 1.5°C are presented. This special report was prompted by the 2015 Paris agreement, where most nations in the world committed to limiting global warming to well below 2°C, with the outspoken aspirational limit of 1.5°C. At a press conference leading up the release of the report, the chair of the IPCC, Dr Hoesung Lee, said: 'One notion that runs through all this, is feasibility. How feasible is it to limit warming to 1.5°C? How feasible is it to develop the technologies that will get us there? ... We must analyze policy measures in terms of feasibility' (Pidcock 2016).

While most of the world's nations, regions, cities, communities, and businesses have the ability of implementing policy that is consistent with limiting global warming to 1.5°C (or at least 2°C), few can claim that they are currently doing this. There is a gap between what is needed in order to meet international climate goals, and what is currently done. This gap is often explained with reference to feasibility, that the policies or sacrifices required simply are not feasible. This prompts the question: what exactly is meant by 'feasibility'?

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Generally, that something is feasible means that it can be done in practise. One understanding is that ‘feasibility of a sought (e.g. ideal) state of affairs depends on whether or not there is a trajectory leading to it from the present state of affairs’ (Gilabert & Lawford-smith, 2012, p. 813). Feasibility is thus not merely what can be done now given current circumstances, but what we can achieve given our present starting point. When analyzing the climate change debate, it becomes clear that there is no single agreed-upon understanding of feasibility. More precisely, ‘feasibility’ is used in a number of ways, implying quite different conclusions on what ought to be done in terms of climate action.

In an attempt to bring clarity to the matter, in this paper, I intend to explore and unpack different ways in which the term ‘feasibility’ appears in the climate change discourse, using insights from political philosophy, where the concept of feasibility has been extensively discussed. Building on my findings, I put forward a proposal for how feasibility should be understood in the climate change context. Rather than offering my own theory of feasibility, I will present an existing account known as the conditional probability account of feasibility. Its strength will be demonstrated as it is applied to the case of adaptation to sea level rise, and specifically the approach managed retreat. Before turning to this, however, I will linger somewhat on the importance of feasibility and explain what an understanding of feasibility ought to address and achieve in the context of climate change.

Why Feasibility Matters

In the face of climate change, feasibility becomes an important concept. Climate change goals and actions must be sensitive to what is able to be done, meaning both that all feasible options are considered and that infeasible options are dismissed in practical deliberation. Evidence suggest that proposed transformational solutions to climate change and associated challenges commonly are rejected as infeasible. In one sense, this is nothing new, there has always been a tendency toward dismissing new ideas on the grounds that they are impossible or utopian (Räikkä, 1998). However, it is problematic if feasibility is used too lightly and used to rule out options that in fact are not infeasible. We need effective action, and feasibility can be a useful parameter in comparing and choosing between climate goals and policies (Singh et al., 2020). Yet a conceptual analysis of ‘feasibility’ has not been carried out in the climate change context.

In order to further the understanding of the concept of feasibility in the climate change context, it is possible to build on political philosophy literature. The role of feasibility has been widely debated in this field. On the significance of feasibility, some suggest that the feasibility of implementing goals plays no role in political theorizing on e.g. justice. Proponents of this point of view suggest that there is no need to take real world constraints into consideration in order to arrive at general terms or principles, that in fact, doing so is wrong (for an overview of ‘Utopian theories’ see Valentini, 2012). Others have criticized such theorizing for failing to provide action-guidance, and it has been claimed that there is something wrong with a theory that makes infeasible demands, demands which we cannot fulfil. Philip Pettit calls this type of normative theories ‘moral fantasies: manuals for how God ought to have ordained the order of things . . . rather than

real-world manifestos for what the state should do in regulating the affairs of its citizens' (Pettit, 2012, p. 126).

Whatever significance feasibility is assigned in political theorizing, it is commonly assumed that questions of feasibility have *some* relevance in normative reasoning. Nicolas Southwood (2018, p. 473) lists different ways in which this is the case:

For example, the feasibility of an act might be a reason to perform it; infeasibility might be an excuse (for not doing what one ought, or what justice requires, or whatever); the feasibility of some other act may be relevant to whether I ought to perform an act; the feasibility of some response to an act might be relevant to whether we ought to perform the act; and feasibility might sometimes be valuable such that we have reason (or justice or morality requires us) to change or maintain what is feasible.

That feasibility matters for normative reasoning builds upon the Kantian proviso 'ought implies can', which essentially means that in order for an agent to be obliged to perform an act, they must be able to do so. From that follows that if a person lacks either the ability or opportunity to do something, it is false to say that they are obliged to do it (Lawford-Smith, 2013). When this reasoning is extended to that which is infeasible, feasibility can be understood as an additional filter for ethical consideration (Erman & Möller, 2019).

In political deliberation, therefore, there is a need to strike a balance; to consider facts about how the world is, but not let these facts or constraints fully determine what ought to be done. One can see potential harms in both paying too much and too little attention to the constraints of the real world. Southwood (2018) points out that an inadequate understanding of, and sensitivity to issues of feasibility can have negative consequences, and mentions the 20th century failed Marxist experiments as examples of when normative thinking was decoupled from credible assumptions on e.g. institutional constraints. At the same time, misguided ideas about feasibility can cause us to 'settle for less than we should; to make apologies for the status quo; to let political agents too easily off the hook; to embrace a cynical realpolitik; to prematurely shut down debate; and to unduly circumscribe ambition and curtail imagination' (Southwood, 2018, p. 470). Hence, it has been argued that feasibility concerns are especially important when dealing with normative theory that is meant to be action-guiding (Baatz, 2018).

In the light of this, there is good reason to discuss how feasibility is and should be understood in the climate change context. There is a need for a common understanding of feasibility, which needs to achieve three main points. First, an account of feasibility must capture what can be done in practice, i.e. what can be achieved given our present starting point. Second, it must be sensitive to various practical constraints, but must not give them undue weight. Third, an account of feasibility must be of use in the practical deliberation of climate change goals and actions. In the next section, I will critically examine examples of how the term is used in the context of climate change. This critical analysis of existing accounts of feasibility in the climate change discourse will be supported by insights from political philosophy. The analysis shows that the term often is used in ways which leads to problematic conclusions and consequences.

Feasibility and Climate Change

I will begin by turning to the IPCC's understanding of feasibility. The IPCC is the United Nations' body for assessing the science on climate change, and have thus far presented

the world with six comprehensive Assessment Reports and several Special Reports, including the previously mentioned SR1.5. In these reports, a large number of experts recapitulate what has been said in the scientific literature on climate change. The scientific reports provide the basis for climate negotiations and policy-making around the world, and given the importance seems like a natural starting point for analyzing feasibility in the context of climate change. In the glossary section of IPCC SR1.5 (IPCC, 2018, p. 549), a definition of feasibility is provided:

The degree to which climate goals and response options are considered possible and/or desirable. Feasibility depends on geophysical, ecological, technological, economic, social and institutional conditions for change. Conditions underpinning feasibility are dynamic, spatially variable, and may vary between different groups.

While it is commendable that the IPCC provides a concrete definition of feasibility, unlike most in the climate change field who merely allude to their understanding of feasibility, there are several elements of this definition that call for closer analysis. First, the IPCC defines feasibility as what can be ‘considered possible and/or desirable’. The term ‘considered’ could be understood as meaning that feasibility is a subjective notion, and that each and every one determines what is feasible for them. However, it is clearly wrong that an individual actor, such as a state or a company, should be able to determine for themselves what is feasible to do, as this judgment likely would be influenced not only by the constraints facing an agent but also by the agent’s interests.

Another more plausible understanding, takes ‘considered’ to imply what is possible and/or desirable, from an intersubjective point of view. Such a view builds on what there is good reason to consider feasible, i.e. what there is good reason to believe is achievable given our starting point. This intersubjective view is based on available scientific evidence and assessments of particular situations. If we want feasibility to be used as a factor in political deliberation, we must assume there are real-world boundaries to what is feasible. To be clear, this intersubjective understanding does not conflict with the understanding of feasibility as depending on dynamic constraints, which are spatially variable, and that may vary between different groups. However, these contextual differences can be intersubjectively determined. While it is possible that we are mistaken in the pursuit of doing this, the intersubjective view is as close as we can get to an objective truth and it is therefore the preferable reading of ‘considered possible and/or desirable’.

A more critical issue to investigate is that the IPCC defines feasibility as what is considered ‘possible and/or desirable’. This is troubling because it means feasibility can be understood in at least three ways (as either the degree to which something is possible, or desirable, or both). This introduces ambiguity into the understanding and use of feasibility, and makes the term far too broad. Particularly troubling is that this broad definition includes that which is desirable but not possible. This means that end-states that are desirable, but to which there is no available trajectory, falls under the notion of feasible, and that makes no sense. If feasibility is equated with desirability, it loses its primary function in practical deliberation.

This vagueness creates problems when the term is practically applied. In SR1.5, the IPCC reaches the conclusion that it is feasible for climate change to be limited to 1.5°C by 2100. This will require that we follow the pathway of low-emission scenarios, which might lead to a temporary increase above 1.5°C in the middle of the century, before returning to

a steady state. Given the vague definition of feasibility provided by the IPCC, there are three ways in which feasibility of reaching the 1.5° target can be understood: that it is desirable, that it is possible, and that it is both. In order to assess these respective statements, very different kinds of assessments would be needed. While it is fairly safe to assume that there is a general agreement on the desirability of reaching the 1.5°C target, the possibility of reaching it is a much more controversial issue. Therefore, a definition of feasibility that builds on several different conceptions of what feasibility means becomes too vague.

Furthermore, not only is this formulation problematic in the way it introduces ambiguity, but specifically ‘possibility’ and ‘desirability’ are concepts that there are strong reasons for keeping apart. While both are important to consider in the policy process, they serve different purposes; desirability considerations determine the goals of policy and are therefore normative, while feasibility considerations constrain the space within which these goals can be fulfilled and are therefore descriptive (Roser, 2015). Naturally public opinion, as an expression of intersubjective desirability, can affect the feasibility of an action, but theoretically they differ. In the context of climate change, issues regarding what we have moral reasons for doing or not doing tend to be harder to resolve than questions regarding states of matter. This is because people more commonly disagree on what is desirable. It has been suggested that business lobbyists tend to dismiss energy transformations on the basis of them being infeasible, rather than trying to make the case that they are unnecessary, as this line of argument has proven more strategic (Roser, 2015). By defining feasibility in terms of desirability as well as possibility, the IPCC are enabling such argumentative maneuvers, and thus limiting the chances of having a constructive discussion on climate change goals and actions.

The IPCC therefore ought to remove ‘and/or desirable’ from its definition of feasibility. That leaves us with an understanding of feasibility as ‘the degree to which goals or outcomes are considered possible’. How then, should possibility be understood in this context? In political philosophy, feasibility is commonly distinguished from plain possibility and seen as an additional filter for moral consideration. Lawford-Smith (2013) addresses that many of the challenges the world faces, such as ending global poverty or reaching climate neutrality by all means are possible, but there is reason to be hesitant to say that they are feasible, since this could involve ignoring the importance of collective action problems for infeasibility. Collective action problems are apparent when looking at international climate change negotiations, which are progressing slowly and seldom, if ever, leading to binding agreements on necessary change, even though it by all means is possible. Lawford-Smith (2013) points out that saying that all possible actions are feasible also means that they are available, and that might be too strong. It appears that in defining feasibility in terms of simple possibility, like the IPCC seemingly does, relatively few things can be deemed infeasible.

Interestingly, contrary to what the IPCC claims, many have suggested that it in fact is infeasible for the world to live up to the goals stated in the Paris agreement and meet the 1.5°C target. After all, limiting global warming even to 2°C will require unprecedented rates of decarbonization on a global level. In fact, prior to the Paris conference, the 1.5°C target had been promoted mostly by vulnerable agents (e.g. small island states), and it had been deemed infeasible by bigger powers, who claimed that 2°C was a more moderate reasonable target (Darby, 2020). In a recent study, an assessment on the

political feasibility of achieving the 1.5° target was conducted, in which it was concluded that it is politically infeasible to keep global warming below 1.5°C in 2100 (Jewell & Cherp, 2020). Building on an understanding of feasibility as when an agent or group of agents have the capacity to carry out a set of actions which will lead to a given outcome in a given context, the authors identify four variables that need to be considered in analyzing feasibility. These can be identified by answering three questions: 'Feasibility of what?', 'Feasibility when and where?', and 'Feasibility for whom?' (Jewell and Cherp 2020). In relation to the 1.5°C target, these questions translate into (a) identifying specific actions comprising the 1.5°C pathways; (b) assessing the economic and political costs of these actions in different socioeconomic and political contexts; and (c) assessing the economic and institutional capacity of relevant social actors to bear these costs (Jewell and Cherp 2019). The authors' conclusion is that the costs of the required actions are too high compared to capacities to bear these costs in relevant contexts and that the 1.5°C goal therefore is infeasible.¹

It is worthwhile to make a note on the reference Jewell and Cherp make to costs. In political philosophy, a few authors have proposed cost-based accounts of feasibility (see Southwood, 2018, p. 2 for an overview). Such accounts build on an understanding that what is feasible should be defined in terms of what is achievable without undue costs. In the case of climate change, one could say that even if it is possible to meet the 1.5°C target by killing half of the global population to limit pollution, this has too high moral costs and should therefore not be seen as feasible. While the conclusion that climate genocide is not the way to go (clearly) is correct, it seems that we yet again are meddling between the normative aspect of desirability and the descriptive element of feasibility. As I argued above, these are concepts that there is good reason for keeping apart. However, it seems that Jewell and Cherp are merely saying that the relevant actors do not have and cannot raise the necessary means to take the actions needed to meet the 1.5°C target. If this is the case, it seems that they are in fact referring to possibility, and not moral costs.

Another interpretation of the reasons behind dismissing the 1.5° target as infeasible, is that the conclusion is based on it being highly unlikely that the goal is met. Jewell and Cherp (2019), as well as others (e.g. Brutschin et al., 2021) highlight institutional constraints as central for determining the feasibility of climate change goals and actions. It has been pointed out that while it might be the case that the 1.5°C target is technologically and economically feasible, behavioral, cultural, and social factors that affect theoretical and practical mitigation pathways have been overlooked in previous assessments (Nielsen et al., 2020). It is quite uncontroversial that feasibility is agent-relative and context-dependent. Due to our different capabilities and preconditions, what is feasible for you might not be feasible for me. While it might be feasible to protect some coastal communities against a projected sea level rise of 1.5 meters, for others, say small pacific island states, it might not be. Moreover, what is feasible might differ over time. However, allowing present circumstances, be they costs or capacities, dictate the boundaries of what is to count as feasible, and thus what is seen as available options, presents a risk. When assessing an American presidential candidate's climate policy, the policy was dismissed as infeasible since it was unlikely that the opposing party would agree to all proposed points (Temple, 2020). Similarly, policies such as carbon taxes and cap-and-trade-systems have been proposed as solutions for climate change, but are quickly

dismissed as infeasible, when really, it seems that implementation is at most difficult given present circumstances.

This way of reasoning has been discussed in political philosophy, and can be categorized as probability-based accounts of feasibility. In their simplest form, these ‘hold that the feasibility of a state of affairs is a matter of the probability that the agent will realize the state of affairs’ (Southwood, 2018). The previous examples showed that this kind of reasoning is prevalent in the climate change discourse. However, as Estlund (2007) has pointed out, probabilities of something happening should not be understood to reflect its feasibility. The probabilities that Australia will invade Tuvalu, and that I will do the chicken-dance in front of my boss are close to zero, yet both of these events are feasible (Estlund, 2007, p. 13). In these cases, it is indeed possible to perceive a trajectory to the different states, even though it seems unlikely that we will get there. This shows that simple probability-based accounts fail to capture what feasibility is about.

Returning to the climate change context, we can see how claiming that infeasibility depends on simple probability can mean letting agents off the hook easily, by setting standards lower than they ought to be. An understanding of feasibility in terms of likelihood risks limiting the space for cutting-edge proposals, and instead reinforces the status quo. One must be aware that when something is defined as economically, politically and psychologically infeasible, this often just means that the burdens are not accepted by the relevant agents (Roser, 2015). However, this does not mean that it *could* not be accepted, if attitudes were changed. In fact, if something is highly desirable, one could argue that it should be required of us to try to change relevant attitudes, and in doing so, change what is seen as economically, politically or psychologically feasible. It is important to understand that when people or institutions fail to comply with their demands, this must not mean that the goal or ideal cannot be realized, but instead, it might be indicative of how the agents are acting unjustly (Chahboun, 2016). What Budolfson (2021) calls a perceived prisoners-dilemma, where no nations are willing to take the costs of emission reductions as long as it is not certain that a sufficient number of other states join in too, might explain the lack of action, but it does not necessarily justify it. That international cooperation on climate change has not yet successfully addressed the crisis is not because it is infeasible to act, but because world leaders have failed to live up to what they ought to do. We cannot let status quo determine what we see as feasible, and therefore we must not rely on simple probability-based accounts of feasibility. In the next section, I will present an alternative account which avoids the problems stated above.

A Positive Account of Feasibility for Climate Change

So far, I have pointed out problems with the way that the term feasibility is used in the climate change context. The IPCC seems to include far too much under the umbrella of feasibility as it defines feasibility in terms of what is possible. On the other hand, there are plenty of examples from the climate change discourse that seemingly rely on an account of feasibility as mere probability, paying excessive attention to present constraints and conditions and as such risk letting agents off the hook too easily. This suggests that there is a need to find an understanding of feasibility that balances between these two positions. As already stated, such an account of feasibility must capture what can be

done in practice, i.e. what can be achieved given our present starting point. Furthermore, it must be sensitive to various constraints, but must not give them undue weight. Finally, an account of feasibility must be of use in the practical deliberation of climate change goals and actions.

In this section, I will turn from the critical analysis of feasibility as commonly used in the climate change context and will instead present a positive account for how feasibility should be understood in the climate change context. Further, I will exemplify how this account can be applied turning to the case of adaptation to sea level rise. The account of feasibility which I will discuss can be found in the political philosophy literature, and has been labeled the conditional probability account.

The conditional probability account has been put forward by Gilabert and Lawford-smith (2012), who, following an increased interest amongst political philosophers, endeavored on a conceptual exploration of feasibility. Their quest departed from a number of already discussed ideas on feasibility. Among them is the idea that accessibility and stability are two important aspects of feasibility (see Cohen, 2009). By accessibility is meant that there must be a way to bring the state of affairs about, and by stability is meant that the outcome is likely to be stable (Gilabert & Lawford-smith, 2012). The question of accessibility is a question of trajectory, it concerns if there is a path available to get there from here. Whether such a trajectory exists is dependent on different kinds of constraints.

According to the conditional probability account of feasibility, there are two categories of constraints.² On the one hand, there are hard constraints, that are permanent and absolute (Gilabert & Lawford-smith, 2012). These are such that they will always be constraints and include e.g. biological constraints, 'although perhaps future biotechnological developments may be able to reshape "human nature"' (Gilabert & Lawford-smith, 2012, p. 813). Hard constraints affect the accessibility of an outcome or state of affairs, or in other words, they determine whether there is an available path or trajectory at all. They are therefore central in making judgments on feasibility in a binary sense, where a proposal is feasible only if it does not violate hard constraints.

Hard constraints are distinguished from soft constraints, that include economic, institutional and cultural constraints. Soft constraints are set apart from hard constraints in two ways. First, soft constraints normally have a probabilistic component to them. This is similar to the feasibility accounts based on mere probability that were discussed in the previous section; those who claim that reaching the 1.5°C target is culturally or institutionally infeasible do not say that it is strictly impossible, but rather that the probability for doing it is not high enough. However, Gilabert and Lawford-Smith assimilate an approach originally proposed by Brennan and Southwood (2007), which states that feasibility is probability of success *conditional* upon trying. This means that an action is feasible for an agent to the extent that the agent makes a sustained effort to bring about an end, and it is likely that they succeed. In this way we avoid having to dismiss that which is very unlikely, on basis of unwillingness, as unfeasible.

This particular aspect of the conditional probability account has been subject to criticism, as it means that we have to call proposals feasible when we know for certain there is no way that agents will try, and that the proposal will not be realized. While this might seem unintuitive at first, I believe it is right to bite the bullet here as the risks of allowing human motivation to determine what should be seen as infeasible are too great.

This is particularly important in the climate change context, where inaction often seems to boil down to a lack of motivation. I agree with Gilabert and Lawford-Smith when they point out that ‘no-one thinks people should only be required to do what they actually do’ (p. 817). Moreover, there are no hard constraints that rule out trying, but trying is something that people always can do, without us having to say anything about the likelihood of their success.³

The second aspect that sets apart soft constraints from hard constraints is that soft constraints are malleable. Unlike hard constraints, soft constraints can be shifted, through e.g. technological innovations, political revolutions and radical cultural transformations. This points to the importance of clearly specifying the context in which feasibility is assessed. For example, there are things that I cannot do now that might be feasible in a longer time-range. While it is not feasible that I perform ‘The Well-Tempered Clavier’ by Bach on the piano right now, I have a so-called ‘synchronic ability’ to learn how to play the piano, and thus have a ‘diachronic ability’ to give this performance, at a later time Brennan and Southwood (2007). Given that soft constraints are malleable and can be overcome if not now, then maybe in the future, Gilabert and Lawford-Smith (2012) argue that the existence of soft constraints is not sufficient to dismiss a proposal per se, and that giving soft constraints too much normative weight would involve accepting the status quo with regards to what we can accomplish. It is therefore not possible to make binary feasibility assessment based on soft constraints. The role of soft constraints is instead to provide a basis for *comparative* assessments between different goals, outcomes, and actions. Soft constraints affect the probability of bringing about a sought state of affairs, and therefore make it possible to see feasibility as a scalar or gradual concept, in addition to the binary sense which is dependent upon hard constraints. Introducing an understanding of feasibility as a gradual or scalar concept in this way opens up for discussing what is *more or less* feasible, and for an understanding of degrees of feasibility. This means it is possible to say that a proposal is more feasible in a scalar sense the more it accommodates soft constraints.

There are practical reasons to be able to view different options as more or less feasible, at least when comparing different alternatives. In the political philosophy literature, feasibility has traditionally been seen as a binary concept, either something is feasible or it is not. The ‘conditional probability account’ of feasibility does allow for such a binary view of feasibility, that is dependent on hard constraints. However, it also operates at another level where soft constraints are used to analyze what is more or less feasible, which can help in comparison between options. Understanding feasibility in this way can help in making priorities and inform planning, financing, and implementation of climate action. Feasibility assessments can be carried out, in part to identify ‘low-hanging fruit’, options that can be implemented immediately, but also to enable the identification of constraining factors that can be addressed to facilitate effective climate action (Singh et al., 2020). Focusing on identifying soft constraints opens up for a discussion on how these can be addressed and shifted.

To sum up, the conditional probability account, and especially the distinction between binary and scalar feasibility, provides a useful framework for the climate change context. It helps in limiting the feasibility set to that which can be done in practice, and in recognizing various constraints that might impact the level of feasibility, without giving them

undue weight. I will show this by applying the framework to the case of managed retreat as an adaptation option for climate change induced sea level rise.

Case: Managed Retreat as Adaptation to Sea Level Rise

The strengths of the conditional probability approach become apparent when turning to the case of adaptation to sea level rise and specifically the adaptation option managed retreat. There is comparatively little written about climate change adaptation and feasibility, as much more attention has been paid to climate change mitigation. Mitigation to climate change is generally discussed on a global scale and is characterized by significant collective action problems. Adaptation, on the other hand, is more often carried out on the local level where it is contextualized to address specific challenges arising from climate change, such as rising mean sea levels.

There is a scientific consensus that as a result of melting of glaciers and hydrothermal expansion of the oceans, global sea levels are rising. According to the IPCC, global mean sea levels are likely expected to rise up to one meter by the end of this century (IPCC, 2021). Some studies point to even higher levels of expected sea level rise (USGCRP 2018). Looking beyond 2100, global mean sea levels will continue to rise for centuries. In the face of these challenges, coastal communities are beginning to formulate adaptation policy. Adaptation is defined as ‘the process of adjustment to actual or expected climate and its effect’ and can take the form of soft and hard protection, accommodation, or managed retreat (Klein et al., 2014). These different adaptation options face different challenges and constraints that make them more or less feasible in the comparative sense discussed above.

A combination of adaptation measures will be required. Until now, most attention has been paid to adaptation policies promoting different forms of protection and less attention has been paid to managed retreat. For example, in a recent study it is shown that there is an emphasis on ‘holding the line’ when it comes to protection against surging seas and inland flooding, and that managed retreat is neither considered as feasible option nor has it been explicitly researched in Sweden” (Göransson et al., 2021, p. 1). Managed retreat can be defined as ‘the application of coastal zone management and mitigation tools designed to move existing and planned development out of the path of eroding coastlines and coastal hazards’ (Hino et al., 2017, p. 364). It is technically possible, but very controversial and rarely discussed as an option. I have chosen to examine managed retreat for this reason; it is often talked of as infeasible, yet in the future it will most likely be a necessary adaptation measure. Hino et al. (2017) highlight social and psychological difficulties in implementing managed retreat. It involves people leaving their home, and ensuing losses of sense of place and cultural values make it a highly complicated issue. Moreover, it can be understood as a no-regret strategy, as it requires irreversible decisions. It is also institutionally and legally rather challenging. Yet, in time, it will need to become an integral part of adaptation policy. Estimates state that by 2100, sea level rise threatens to displace 72–187 million people worldwide Hino et al. (2017). Those dismissing managed retreat as infeasible fail to see that it is a real option. By appealing to its difficulty, high costs, and unlikelihood of being implemented, they are insinuating mistaken accounts of feasibility.

It is important to be aware of the difference between what is not at all feasible and what currently seems unlikely to be feasible. While in some cases it might be clear that we are on an irreversible track and that no options are available, for other cases it might prove difficult to determine whether no options are possible at all or if we can hope for improvement of the situation in the future. We have seen how many of the actions previously deemed infeasible have been realized during the COVID-19 pandemic. As previously mentioned, it is not necessarily what we can achieve today that determines what is feasible, 'but by what is possible to reach, given the present starting-point' (Erman & Möller, 2019, p. 15). After all, that which is perceived as infeasible today may be a central part of a political consensus tomorrow (Brandstedt, 2019). An account which only rules out goals and actions based on hard constraints, but acknowledges soft constraints, is more sensitive to conditions changing over times and in different contexts. Such an account is necessary in the case of assessing climate change goals and actions.

While there are indeed constraints that make managed retreat highly complicated, these are not hard constraints and can and will need to be shifted. In the binary sense, managed retreat is by all means feasible. There is a need to go beyond what we think is implementable given our current circumstances when discussing adaptation to sea level rise. Managed retreat might not be needed or even politically feasible right now (although it is already implemented in places), but there is no reason to not begin discussions on how it can be done in as efficient and just a way as possible. After all, most agents have at least a diachronic ability to carry out managed retreat as an adaptation option. By calling it infeasible, full stop, managed retreat is taken off the drawing board, which can have severe consequences as such a delicate question likely will need extensive consideration for a long time. This shows the danger of dismissing goals or actions as infeasible on the grounds of them being improbable or unpracticable given present circumstances. A study on scenario analysis in Dutch river management shows that the participants at the workshop reasoned more from the perspective of 'what is currently possible' rather than 'what should we ideally do' (Valkering et al., 2011). However, this can have catastrophic consequences. When we focus on what is likely or possible to implement today, we might rule out options that are the best in the long run, which is worrisome in the case of adaptation to sea level rise specifically, and in the context of climate change more generally.

By acknowledging that managed retreat is feasible in the binary sense, although difficult, it is possible to shift attention toward the constraints that are currently making managed retreat comparatively less feasible as an adaptation option. Analyzing these opens up for ways to shape the 'solution space available in a given country context' (Haasnoot et al. 2021). By identifying soft constraints to adaptation and assessing how these affect the possibility of implementing adaptation, it is possible to formulate policy specifically addressing these, thus making managed retreat comparatively more feasible. This suggests that an understanding of feasibility as a restricted notion of possibility, which operates at two levels, can help making sense of a complex challenge in the climate change context. The 'conditional probability account' allows for feasibility to serve as an addition filter for moral deliberation. It opens up for a scalar understanding of feasibility, which is particularly valuable in comparative assessments between climate goals and actions. Such an account is in line with the IPCC's understanding of feasibility. After all, feasibility is defined by the IPCC as 'the *degree* to which climate goals and response

actions are considered possible and/or desirable' (my emphasis). The 'conditional probability account' of feasibility highlights the importance of viewing feasibility constraints as dynamic, and enables a constructive debate on how it is possible to shift constraints and in doing so, expanding the feasibility space. This is crucial in the context of climate change.

Concluding Remarks

In this paper I have shown that there is a tension between different uses of feasibility in the climate change context and that this can negatively impact how we combat climate change. In the first part, I highlighted problems with common uses of feasibility in the climate change context, drawing on the discourse on feasibility in the field of political philosophy. Common usages seemingly define feasibility as mere possibility or probability, which makes feasibility lose its value as a concept in practical deliberation. I have suggested that feasibility instead should be understood in line with the 'conditional probability account' of feasibility, building on the Gilabert and Lawford-Smith (2012) and Lawford-Smith (2013).

Given the urgent situation that we are in, where measures combatting climate change and its effects are direly needed, feasibility can be an important dimension for prioritizing between actions and goals. The 'conditional probability account' can help in doing this, particularly through highlighting feasibility constraints, and how these can and ought to be shifted. I have argued that to view feasibility as a scalar concept can make feasibility more useful in the climate change context. I have also suggested that this account can motivate a change in perspective when it comes to managed retreat as an option for adapting to sea level rise. This account places fairly high demands on what should be seen as feasible, which is important in a context where far too little is currently being done, in relation to what is needed. The very least that we should demand is that all feasible options for addressing climate change are seriously considered.

What an engagement with the topic has shown is that while feasibility is a frequently occurring concept in the climate change discourse, few have engaged with its underlying assumptions and meanings. This paper contributes in pointing out that feasibility is not a straightforward concept, and that different understandings can lead to quite different conclusions. Hopefully this can motivate a continued discussion on the topic.

Notes

1. At least infeasible for the time being. Admittedly, Jewell and Cherp (2019) state that costs or capacities might change over time, but that this is unlikely to happen in time to avoid a temperature overshoot. I will return to the temporal aspect of feasibility.
2. Another account of feasibility that also focuses on constraints is known as the 'restricted possibility account' (Wiens, 2015). The restricted possibility account builds on the economist concept 'production possibility frontier' which 'delimits the set of commodity bundles (including goods and services) we can produce given our production functions (one for each commodity) and a schedule of constraints on the production inputs (labor, capital, raw material, and so forth)' (p. 452). Everything that is within such a set should be seen as feasible. Extending this thinking into normative political philosophy, what is feasible for us to do is dependent on 'our current stock of all-purpose resources' (p. 455). Wiens lists a number of

constraints that restrict what is feasible, from more rigid constraints such as logical consistency, laws of nature, and human biology, to more malleable constraints including ability constraints, cognitive constraints, economic constraints, institutional constraints, technological constraints, and motivational constraints (p. 453).

3. The role of motivation in determining feasibility has been subject to much scrutiny (see e.g. Estlund, 2014; Wiens, 2016). However, I will not be able to elaborate further on this in this paper.

Disclosure statement

No potential conflict of interest was reported by the author.

Funding

This research was funded by FORMAS, grant number 2016-20135.

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