SYMPOSIUM

The Desperation Argument for Geoengineering

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"Frankly, the Maldives could say, 'F--- you all—we want to stay alive'. Would you blame them? Wouldn't any reasonable country do the same?[1]

Geoengineering has been roughly defined as "the intentional manipulation of planetary systems at a global scale" (Keith 2000; Schelling 1996). This definition is neither as precise nor as informative as some would like. Nevertheless, we can fix ideas by focusing on the most prominent current proposal, which is to inject sulfate aerosols into the stratosphere to deflect incoming radiation and so cool the Earth's surface. This is a paradigm case: if anything counts as geoengineering, stratospheric sulfate injection (hereafter SSI) does.

At the time of writing, many in the scientific community are urgently advocating for research and some even for deployment of SSI (Artic Methane Emergency Group 2012; Blackstock et al. 2009; Caldeira and Keith 2010). The dominant argument claims that humanity faces an ethical emergency in which pursuit of a geoengineering strategy constitutes "a lesser evil" than the threat of climate catastrophe. Many proponents of this argument acknowledge that geoengineering raises serious ethical and political issues. Nevertheless, in practice these are often swept aside by the mesmerizing force of the emergency rhetoric.[2] In particular, SSI raises serious concerns about justice and the plight of the most vulnerable, but these are commonly dismissed on the basis of a challenge: "What if, in the face of catastrophic impacts, the most vulnerable countries initiate geoengineering themselves, or beg the richer, more technically sophisticated countries to do it? Wouldn't geoengineering then be ethically permissible? Who could refuse them?"

Such questions are intended to be rhetorical: it is assumed to be obvious that the appeals of the desperate would justify geoengineering. Moreover, the framing suggests that other nations would have strong moral reasons either to respect intervention by the desperate, or even to aid them by deploying themselves. Sometimes such arguments are also used to justify accelerating research on geoengineering now. If the desperate might attempt geoengineering, it is said, we should work out how best to do it, so as to assist them through advice. In general, the overriding thought is that the threat of catastrophe coupled with the plight of vulnerable populations provides most of the justification needed for the wider pursuit of a geoengineering agenda. Desperation becomes a trump card in the policy discourse.

In this short article, I shall argue that the desperation argument misses much of what is at stake, ethically speaking, in geoengineering policy. My argument will not rest on the assumption that geoengineering can never be justified. People often ask: "Are you for or against geoengineering?" However, in my view, this question is an unhelpful distraction. Everyone can agree that geoengineering is not justified under just any circumstances, and most can at least imagine a situation (however distant from our actual situation) where it might become permissible.

Given this, it is better to focus on two further questions. The more obvious—the *justificatory question*—asks "under what conditions would geoengineering become justified?", where the conditions to be considered would include, for example, the threat to be confronted, the governance mechanisms, the individual protections to be provided, the compensation provisions to be made, and so on. The less obvious question is the *contextual question*: "What is the ethical context within which geoengineering is likely to occur, and what difference does this make to our analysis of it?" (Gardiner forthcoming).

In light of this distinction, I argue for two claims. First, on neither of the two most obvious interpretations does the desperation argument clearly justify geoengineering. Indeed, it may even count against it. Second, in any case, the contextual question reveals more about the live threats and ethical import of geoengineering. For example, to push the most vulnerable to the point where they feel forced to accept pronounced subjugation to those who have made them desperate is a morally horrifying prospect which we have strong ethical reason to avoid. Such possibilities should not be concealed behind the superficial bravado of "f--- you all" and "what any reasonable country would do."

None of this implies that ethical geoengineering is impossible. However, it does suggest that geoengineering is morally complex in ways unappreciated by simple appeals to desperation.

JUSTIFYING GEOENGINEERING

Let us begin with the justificatory question. Consider two interpretations of the desperation argument. The first rests on consent.

The Consent Interpretation

Some believe that consent is one of the central moral issues raised by geoengineering (Corner and Pidgeon 2010; Preston 2012a). At first glance, the desperation argument appears to speak directly to consent. If the desperate initiate geoengineering (either by deploying themselves or asking others to deploy), then they signal some level of acceptance of it. Some seem to

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regard such acceptance as the decisive element in justification, perhaps because they believe that the plight of the vulnerable overrides all other ethical concerns. However, one might also defend the more limited claim that deployment with the agreement of the most vulnerable is at least morally better than deployment when such agreement is withheld.

The first problem with the consent argument is that the consent usually under discussion is severely restricted. Climate change stands to affect all people, future generations, and other species as well. Hence, many are vulnerable, and a large number may be put in desperate circumstances. However, typically those mentioned as candidates for desperation constitute only a small portion of the vulnerable. Proponents focus on small island states such as the Maldives, the nations of sub-Saharan Africa, and poor coastal countries such as Bangladesh. However, some of these nations are very small, and this is a modest subset even of vulnerable nations. Moreover, given the standards of governance in play in some desperate places, it is unclear whether the agreement of their national leaders truly reflects the consent of the people. Finally, given the intergenerational aspect, it is not even clear what would count as relevant consent. In sum, the net for consent is cast too narrowly. It is bizarre to claim that, by itself, the will of the government of a modest-sized country is enough to authorize geoengineering. This is to make the concerns of a very small group of people the crucial element in the fate of the Earth.

The second problem with the consent interpretation is that agreement does not have the same moral force when offered under compromised circumstances. If, at gunpoint, I hand my wallet to you, my acquiescence does not even help to justify your taking it. Moreover, in some circumstances my contribution may actually make your behavior morally worse. For example, if you force me to shoot my grandmother rather than shooting her yourself (e.g., by threatening the grandchildren), then you inflict an extra wrong on both me and my grandmother. Standard sources of compromised circumstances include force, fraud, and domination. Arguably, consent under desperate circumstances is a good candidate for a compromised circumstance (see discussion in the next section).

The third problem is that there are things that consent cannot normally justify. For instance, my agreement to become a slave does not justify it, and neither can our agreement to enslave others. Hence, fundamental rights, among other things, limit the sway of consent. Arguably, then, the agreement of the desperate would not justify geoengineering if being subject to it would violate other rights that they or others have, such as (for example) not to be subject to domination by another power.

This leads to the fourth problem with the consent interpretation: the simple consent model underestimates what is normatively at stake. To exert control over the planetary system is to determine the basic life prospects of humans within that system, including the parameters against which they pursue their conceptions of the good, generate their ideals, and even conceive of their identities. In addition, it marks a further milestone in humanity's evolving (most would say "deteriorating") relationship to nonhuman nature. Arguably, understanding these matters poses a major challenge for contemporary ethics and political philosophy. Yet this challenge cannot be answered simply by invoking the consent of a few people placed in desperate circumstances. To do so trivializes an important moment in human history.[3]

The Self-Defense Interpretation

The second interpretation of the desperation argument appeals to a right to self-defense. Initially, this appears to do better.

One reason is that the right to self-defense is in some ways less constrained than consent. Importantly, it can justify an action even if that action has bad consequences for others, including violating their rights.[4]

A second reason is that exercises of the right to self-defense often seem not only reasonable but also an expression of self-respect. There are limits to how far a moral subject should have to endure bad treatment by others, and in refusing to go beyond these limits that subject reaffirms his or her status as an entity worthy of moral respect. This captures some of the initial appeal of the desperation argument (cf. "who can blame them?" previously).

Despite these advantages, the appeal to self-defense has at least four drawbacks.

First, the right applies only in circumstances where other strategies have (or appear to have) failed. It is a right of last resort. Hence, it is important to show that what is advocated under the right is the best or only alternative available. This thought resonates with a general worry that applies to all arguments from emergency, good and bad. Appeals to moral emergency have a clear moral point: an emergency is a situation in which the normal rules and constraints either can be waived or are said to no longer apply. Hence, the point of declaring an emergency is to exempt oneself from normal constraints. Given this, arguments from emergency are notoriously vulnerable to corruption, and so should be subject to special scrutiny. For instance, tough questions should be asked about whether the emergency is genuine, whether it really warrants the expected moral exemptions, and whether there are other ways out. Elsewhere I argue that these are live questions in the case of geoengineering (Gardiner 2010). For example, it is not clear that the nightmare scenario of "climate catastrophe or geoengineering" is the correct focus for policy, whether other responses to catastrophe are preferable, that the emergency argument really engages with the ethical concerns that are supposed to motivate it, and so on.

Second, the right to self-defense is sharply limited. Prominent among these limits is proportionality: the prevention of harm cannot be achieved by causing harm that is disproportionate. Given this, it is not clear that SSI is justified. Even if it goes well, SSI involves an attempt to exert control over a whole system. This may be a disproportionate response.

Consider an analogy. Suppose country X faces a military threat from country Y. If negotiations fail, the right to self-defense may justify X in the use of force. However, even within this, there is a large difference between, say, (a) responding with an air strike and (b) initiating an invasion and military takeover of Y; hence, if the latter is chosen, there is serious work to be done to explain why. Attempting control over the

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climate of the whole planet through SSI seems more like a military takeover than air strikes. Hence, more needs to be said to justify it.

The third drawback is that the right to self-defense can be (legitimately) invoked by many parties, and in different, potentially conflicting, ways. Some countries may want to defend themselves with different levels of SSI, others with rival forms of geoengineering, and many may consider being put under the yoke of a SSI regime as itself a threat that justifies self-defense. Given this, different invocations of the right can be seriously at odds and generate legitimate conflict. This may give rise to a new emergency scenario, that of competition and conflict over SSI. Moreover, arguably, it may be more important to avoid this than the climate emergency scenario: a SSI arms race prompted by appeals to the right to self-defense could be the most dangerous scenario of all.

The fourth drawback of the self-defense interpretation is that, given that all have a claim to self-defense, it is not obvious that the right to self-defense implies either a right to aid (for them), or a strong corresponding duty to aid (on the part of others). This threatens the version of the desperation argument whereby the appeals of the desperate justify deployment by others. When confronted with conflicting appeals to self-defense, it is not clear what obligations third parties have. This undercuts the implicit attempt to simplify the ethics of deployment.

In conclusion, on neither interpretation does the desperation argument clearly justify geoengineering. On the one hand, the consent argument looks inadequate. Too few consent, the circumstances are compromised, the domain of consent is too limited, and the consent model radically underestimates what is at stake, normatively speaking. On the other hand, although the self-defense argument is initially more promising, it remains highly constrained. The right to self-defense can be appealed to only as a last resort, is sharply limited, could support multiple unilateral interventions, risks provoking legitimate ethical conflict, and does not obviously support a right or duty to aid. Most notably, desperate circumstances may bring on a new nightmare scenario (such as a SSI arms race) that we have even stronger reason to avoid than catastrophic climate change. In that case, the desperation argument actually counts against geoengineering.

THE CONTEXT OF GEOENGINEERING

Now, let us turn to the contextual question. Widespread agreement exists that the need to investigate geoengineering arises primarily because of political inertia (Crutzen 2006; Shepherd et al. 2009). What is less often appreciated is that this inertia also frames and constrains geoengineering policy. If mitigation and adaptation are first-best policies whose availability is compromised by political inertia, we must ask what implications this has for what kinds of geoengineering are really left on the table.

One approach is to ask what explains political inertia, and what this tells us about the standard threats to an ethical geoengineering policy. Elsewhere I argue that climate change is "a perfect moral storm" (Gardiner 2011).[5] It is genuinely global, seriously intergenerational, and raises deep theoretical problems. Each of these characteristics creates dangerous obstacles to ethical action. Taken together, they constitute a profound, and perhaps hitherto unprecedented, challenge. At the heart of the matter is the fact that those most responsible for past and current emissions, the relatively affluent, and especially those in the developed nations, believe that they benefit from high carbon emissions, but most of the costs of such emissions, and especially the most severe, are projected to fall on future generations, nonhuman nature, and especially the global poor. As a result, the current generation of the affluent face strong temptations to pass the buck for their behavior on to others who are extremely vulnerable to them. This buck-passing is especially problematic when the benefits taken by the affluent are relatively modest (e.g., the joy of wearing t-shirts indoors in winter) in comparison to the severe risks (e.g., famine) that they impose on others.

I argue that climate change is "a perfect moral storm" (Gardiner 2011). It is genuinely global, seriously intergenerational, and raises deep theoretical problems. Each of these characteristics creates dangerous obstacles to ethical action. Taken together, they constitute a profound, and perhaps hitherto unprecedented, challenge.

The ethical challenge of the perfect moral storm is to overcome the temptation of such buck-passing. So far the current generation has been slow to respond. As a matter of substance, since the first Intergovernmental Panel on Climate Change report of 1990, carbon dioxide emissions have risen by more than 30% globally. As a matter of procedure, despite more than 20 years of serious diplomatic activity, including a global treaty, the key questions remain unresolved, and perpetually deferred.

Some may object that the slow response arises because many remain unconvinced that climate change is a real, or major, problem. However, this may also involve buck-passing, since the perfect moral storm threatens corruption of the understanding, both epistemic and moral. In essence, for those who are able to exploit their spatial and temporal position, passing the buck to future generations and the world's poor is tempting, but having to acknowledge that this is what one is doing is ethically uncomfortable. Far better, then, to try to seize the moral high ground by denying that there is a problem at all or that it is severe, arguing that continuing to do nothing actually benefits future people, asserting that they should clean up the mess because they will be richer, and so

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on. Even if such arguments do not bear close scrutiny, they provide some moral cover under which buck-passing can continue without too much embarrassment. In a perfect moral storm, truth may be the first casualty.

Nevertheless, we should not expect buck-passing always to take the form of escalating emissions and political misdirection. At some point, the current generation of the affluent may begin to worry that the situation has deteriorated enough to threaten them. Hence, we can expect a buck-passing strategy to evolve over time. If catastrophe may be coming quickly, then even a buck-passing generation has reason to do something, and short-term fixes (i.e., those good for a generation or two) are sure to be attractive, especially if they appear to have low start-up costs and to impose most of their risks on others (e.g., in the further future or in other parts of the world).

In context, then, it is easy to see why the drive toward the age of geoengineering brings some deep ethical problems. There is every reason to expect a buck-passing generation to be tempted by interventions that do not constitute real solutions to the genuine global, intergenerational, and ecological problem of the perfect moral storm, but rather "shadow solutions" that address their own distinct concerns, but may be disguised as the real thing. In particular, we should be wary of *parochial geoengineering*, where the current generation secures short-term benefits for itself only by passing on much more serious long-term risks to the future, and *predatory geoengineering*, where one country chooses a particular form of geoengineering mainly to disadvantage its geopolitical rivals. Such temptations are easily hidden behind appeals to moral emergency; yet they are threats that any serious analysis of geoengineering must take seriously.

This context makes a difference to how we should analyze the desperation argument. Consider three issues.

The first is who actually deploys. One version of the desperation argument envisions unilateral deployment by the desperate. This version is sometimes ethically tinged. For instance, the rhetorical appeal of the "f--- you" in the epigraph is presumably that deployment by the desperate constitutes an assertion of independence and self-respect, a technological "thumbing of their noses" at the more powerful nations.

Nevertheless, in the perfect moral storm, both unilateralism and the ethical tinge seem naïve. Perhaps a small-island state could physically manage to fire a blast of sulfates into the stratosphere. However, this is not really initiation of geoengineering in the relevant sense. SSI to combat climate change is a long-term project that must be carried out over many decades, and perhaps centuries. Small island states probably lack the technical abilities to engage in such projects without outside assistance. More importantly, they lack the political and military capability to do so without at least some support from more powerful states, whether through tacit tolerance or (more likely) active engagement. Major geopolitical powers simply will not allow genuinely independent and unilateral geoengineering for long. It is too important, and they have the military and economic ability to stop it. Given this, the idea that the Maldives (for example) could carry out serious SSI without the *de facto* agreement of large nations such as the United States and China is a fantasy. If such a nation did blast sulfates into the stratosphere without permission, this intervention would be short-lived, and its role would be largely symbolic. Given this, the ethical appeal of the "f--- you" argument is mainly spurious. Even if a quick blast of sulfates might be understood as "those plucky Pacific Islanders thumbing their noses at the powerful," this will not constitute the advent of serious geoengineering. That will be done either with the permission of the powerful or (more likely) by the powerful themselves.

The second issue concerns the aims of geoengineering policy. Consider first unilateral deployment by the desperate. Often, this is implicitly assumed to reflect the aim of protecting the vulnerable, and so to be morally benign (at least in aim). Yet even here there are reasons for hesitation. Why think that the desperate would be above predatory geoengineering? If their intent were to thumb their noses at those creating the desperate situation, wouldn't they be motivated to go further and actually punish them? Moreover, even if they lack the power to do so, why expect them to engage in intergenerationally just or ecologically senstitive geoengineering? If they are genuinely desperate, they may prefer to let the future and the rest of nature "fend for themselves" (as the euphemism goes).

In a perfect moral storm, truth may be the first casualty.

Second, and more importantly, if unilateral geoengineering by the desperate is not really a live option, how might one expect a collaboration between the powerful and the desperate to go? Parochial and predatory forms of geoengineering are surely on the table. But there are also less obvious ramifications. Even if the desperate agree to geoengineering driven by the powerful, what makes us think that they will have any say in the actual content of geoengineering policy? In a perfect moral storm, this seems doubtful. Given this, the desperate may in effect assent to *predatory and parochial geoengineering against their own people*.

This leads to the third, and most important, point about the aims of geoengineering. It is possible that, far from being a declaration of independence or self-respect, the desperate's assent to geoengineering would constitute a show of *profound subjugation*—the acceptance or recognition of severe subservience or subordination to others. In an extreme case, to say "we are so very desperate that even we (the subjected) beg you (our oppressors) for geoengineering on your terms" may signal utter and abject domination (see also Nolt 2011; Smith 2012).

The specter of profound subjugation makes a big difference when we come to the third contextual issue: the ethical framing of geoengineering. In light of it, the desperation argument is deeply ethically misleading, in at least three ways.

First, it underestimates the plight of the desperate, and so overstates the attractions of geoengineering for them.

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Desperate as things are, there are many reasons why even the desperate might refuse geoengineering. For example, if geoengineering "assistance" involves profound subjugation to nations who have caused the problem and persistently refused to address it in better ways, the desperate may worry that this is no assistance worth having, and that, even if things were to go well in the short-term, assent would ultimately facilitate further domination. Moreover, appearing to legitimate control of the climate by their oppressors may be something that they are simply unwilling to countenance, and they may especially reject having to *beg* to be subjected to such control. Perhaps their sense of self-respect will not permit it.

Second, the desperation argument understates what is morally at stake for the desperate. Even if they agree that acceding to geoengineering is a lesser evil, "evil" has different meanings (Gardiner 2010). One view is that evils should never be done (even if some are in one sense "lesser"). However, one need not go this far to think that evils involve an especially serious kind of cost. Perhaps the desperate see accepting geoengineering as a genuinely tragic choice. Choosing it may be the "lesser evil," but nevertheless mar their lives from the ethical point of view. For example, in the classic case of *Sophie's Choice*, Sophie is placed in a nightmare scenario where she must decide which of her children to save from the gas chamber. Having chosen, she believes that she has done the right thing in some sense, but that the choice is nevertheless ethically compromised. Ultimately, she finds the decision "hard to live with," and ultimately commits suicide because of the burden. Although this is an extreme response, we can at least recognize that there is something ethically serious at stake: no one would want to be Sophie. Something similar may be true of the plight of the desperate. Perhaps a desperate country will feel morally forced to go to those responsible for the threat of catastrophic climate change and beg for geoengineering on their terms. Nevertheless, doing so may remain a hard ethical burden for them to carry.

Perhaps the desperate see accepting geoengineering as a genuinely tragic choice. Choosing it may be the "lesser evil," but nevertheless mar their lives from the ethical point of view.

The third way in which the desperation argument is ethically misleading is that it underestimates what is at stake even for those who bring on a climate catastrophe and then offer geoengineering assistance. The argument suggests that we can approach the plight of the desperate from some distance, thinking only "who can blame them?", "wouldn't we do the same?" and "shouldn't we help out?" However, if desperation is ever invoked, the powerful countries are unlikely to be in this situation. Instead, they are likely to have played a substantial role in reducing the desperate to the point of begging. This is horrifying moral territory. Indeed, in my view to bring others to the point of desperation, and especially to put them in a situation where they are forced to make a tragic choice, constitutes a special kind of moral wrong. Think again of Sophie. The Nazi doctor who presents her with her choice inflicts a distinctive moral horror on her. He makes her a mother who feels morally compelled to decide between her children, and thereby chooses the death of one. This is a terrible role to play in the life of another human being. Although arguably not as extreme, bringing on a desperate appeal for geoengineering may have similar resonance. Pushing the vulnerable to the point where they feel they must beg those responsible for their plight to take control of the climate on their own terms is an ethically profound matter. This is especially so if it facilitates further and ongoing domination for generations to come.

Initially, the moral import of this may be hard to grasp, so let me close with an analogy. Suppose Josef sets up a lab in his house and pumps the waste into the house next door. He then discovers that the waste is toxic. Josef recognizes that this poses a moral problem and that he has a number of options to address it. For example, he could cease his experiments, redirect his ventilation system, filter his emissions, and so on. However, Josef is unwilling to do any of these things and offers no adequate reason for his unwillingness. Unfortunately, his victim, Karla, can do very little about it. Josef is much stronger, richer, and better armed than Karla, and the local police force and courts are in Josef's pocket. Eventually, Karla becomes sick and desperate, and appeals to Josef for help. Josef says he will help, but only on the condition that Karla agrees to become an official subject of Josef's experiments. As such, Karla must put himself completely in Josef's power, and allow Josef to directly administer whatever treatment to his body and mind that Josef sees fit.

This situation is morally horrifying, and desperation arguments do not help. We might wonder whether Karla's agreement would license Josef's experiments on him, and so whether it constitutes morally important consent, or a declaration of independence and self-respect. However, these are not the most important ethical questions to be asking. Instead, most of the action lies in considering the moral context in which the agreement would take place and how this affects our understanding of the situations of both Karla and Josef. The same is true of the plight of the desperate under geoengineering.

CONCLUSION

In conclusion, the desperation argument misses much of what is at stake, ethically speaking, in geoengineering policy. As far as justification is concerned, neither the consent nor the self-defense interpretations clearly license geoengineering, and they may even count against it. Moreover, the contextual question reveals more about the live threats and ethical import of geoengineering. In a perfect moral storm, there are serious

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risks of parochial and predatory forms of geoengineering, and the desperation argument does little to dispel such worries. In addition, the image of plucky Pacific Island nations thumbing their noses at their oppressors is seriously misleading. It underestimates the plight of the desperate, as well as what is morally at stake both for them and those who drive them toward desperation. Instead, we should think more about Sophie, tragic choices, and profound subjugation. To bring others to the point where, in desperation, they feel forced to accept an extreme form of domination is a morally horrifying prospect. These and other ethical complexities should be at the forefront whenever we think about geoengineering.

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NOTES

1. Nathan Myhrvold, quoted in Specter 2012.
2. The argument makes an appearance in early written discussions but it most commonly made in comments at workshops and other venues.
3. The disconnect may be caused by the attempt to apply a medical model to geoengineering. Although it is true that in applied ethics, and especially medical ethics, actual consent is often treated as a litmus test for moral permissibility, in political theory it plays a much more complex role. Arguments about consent are key in debates about political legitimacy and justice, but even here the consent is usually stylized in certain ways, as tacit or hypothetical, and the role of consent is far from secure. Arguably, justice and legitimacy are the more central notions. Moreover, with respect to humanity's relations to nature, while it is not yet clear what the correct notion is (e.g., some candidates are respect, harmony, nondomination), it is clear that it is not consent.
4. Notably, this is especially so when the bad consequences fall on those morally blameworthy for creating the threat in the first place.
5. The next few paragraphs are adapted from Gardiner (forthcoming).

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