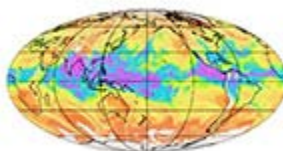
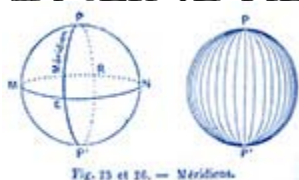


Ethics of Geoengineering Online Resource Center

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ETHICS GLOSSARY FOR CLIMATE ENGINEERING

[-A-](#) [-B-](#) [-C-](#) [-D-](#) [-E-](#) [-F-](#) [-G-](#) [-H-](#) [-I-](#) [-J-](#) [-K-](#) [-L-](#) [-M-](#) [-N-](#) [-O-](#) [-P-](#) [-Q-](#) [-R-](#) [-S-](#)
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[-A-](#)

Animal Welfare/Rights – A movement that makes an ethical commitment to the well-being or rights of non-human animals. The impact of climate change on native species promotes a discussion of whether geoengineering might be a means of promoting animal welfare or rights.

Anthropocene – A term popularized by Crutzen and Stoermer to describe the geological epoch in which human activities are the dominant force on natural systems. The term is sometimes used to justify intentional human manipulation of the climate as one of our anthropogenic responsibilities.

Anthropocentrism – A theory in ethics that considers human values and interests primary. In anthropocentric ethics, the environment is considered to be solely a resource for satisfying the needs and interests of humankind. (**Weak Anthropocentrism** is the

view that some of these needs and interests include having a high quality environment providing for a diverse array of services and recreational opportunities).

Anthropogenic – A state or change of state with its origin in human activities.

-B-

Biocentrism – A theory in ethics that centralizes the value of all living organisms.

-C-

Cessation – The discussion of how to cease any geoengineering deployment. In the ethics of geoengineering, the term has been introduced in order to suggest that any geoengineering deployment must be designed to be finite with concrete plans about how to bring the deployment to a close. See also [termination effect](#).

Co-Benefits – A term used by Holly Jean Buck to characterize potential social goods that might be designed into a geoengineering scheme.

Compensatory Justice – The demand to fairly compensate those adversely affected either by climate change itself or by geoengineering efforts to combat climate change. Sometimes called “corrective justice.”

Cultural Relativism – the view that right and wrong are to be determined from within a particular society or cultural group. Generally thought to entail that there is no universal or objective truth about right or wrong.

-D-

Designer Climates – A term used to capture the idea of climates that might be intentionally engineered to suit particular desires and needs.

Deontology — One of the major theoretical approaches in Western ethics, often associated with Immanuel Kant (1724–1804). Deontology focuses on duties, obligations, and rights. It is sometimes argued that geoengineering would violate one or more obligations, such as the obligation not to harm others intentionally or the need to gain consent before imposing a risk on others, even if it produced better consequences overall.

Distributive Justice – The demand to equitably distribute benefits and harms of an action among stakeholders. In the case of geoengineering, this usually refers to the challenge of ensuring that no one population is disproportionately impacted by temperature or precipitation changes (see also [compensatory justice](#)).

-E-

Ecocentrism - A theory in ethics that considers the value of ecosystems and larger wholes to be primary.

Ecofeminism – the view that there are important theoretical, historical, and empirical connections between how society treats women and how it treats the environment.

Ecological Restoration – Defined by the society for Ecological Restoration as “intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability.” Geoengineering is sometimes thought of as an effort to restore the climate system.

End of Nature – A term made popular by American writer and activist Bill McKibben that describes a state in which natural systems untouched by human influence no longer exist. In his 1989 book of that name, McKibben suggested that climate change ensured all natural systems now fell under human influence.

Environmental Aesthetics – the study of how to appreciate beauty in the natural world.

Environmental Justice – A movement to ensure that no population or demographic is negatively impacted by environmental harms or excluded from environmental benefits. Also seeks to ensure that environmental laws are equitably enforced across populations.

Environmental Pragmatism – An approach to environmental ethics that denies intrinsic value to nature and advocates a pluralistic approach to environmental values. Environmental pragmatists usually hold that a human centered ethic with a long-range perspective will come to many of the same conclusions in environmental policy as an ecocentric ethic.

-F-

Framing – The language or ‘frame’ that is used to characterize geoengineering. Common frames include ‘plan B,’ ‘insurance,’ and ‘technological fix.’ Frames are important because they often import values and expectations with them that can influence a person’s perception of geoengineering.

-G-

Gaia Hypothesis – A theory proposed by James Lovelock and Lynn Margulis in the 1970’s suggesting that atmospheric processes should be considered part of the biosphere for how they appear to be moderated by biotic phenomena. Lovelock and Margulis suggest that this modification of the atmosphere by the biota serves to maintain conditions that are conducive for life.

Geoclique – A term used by both Eli Kintisch and Clive Hamilton to suggest that the geoengineering discussion is being driven by a small group of elite researchers who tend to be from a particular region.

‘Greenfinger’ Scenario – The case of a **unilateral deployment** of geoengineering at the hands of a single rich individual (rather than a nation state or an intergovernmental organization).

-H-

Hubris – The character trait more commonly called ‘arrogance.’ Some have suggested that hubris attends any desire to intentionally manipulate something as complex as the atmosphere. Sometimes associated with the claim that geoengineering would be ‘playing God’.

-I-

Intergenerational Justice – Often thought of as a form of [distributive justice](#) referring to the need for distribution of climate (and geoengineering) benefits and burdens fairly between present and future generations. May also include the worry about ‘dominating’ future generations through decision-making today.

Instrumental Value – A term in environmental ethics used to describe the value or significance of something in terms the uses to which it can be put by some other being. Instrumental values are always relative to some user.

Intrinsic Value – A term in environmental ethics used to capture the idea of the moral significance something possesses in itself independent of the uses it might be put to by some other creature. Normally this refers to the supposed value nature (or living beings) possess independent of human interests. The term provides a contrast with **instrumental value**.

-L-

Lesser of two evils – A popular [frame](#) for geoengineering that captures the idea in the [presumptive argument](#) that geoengineering may be undesirable in itself but that it may be less undesirable than the alternatives.

-M-

Moral Corruption – A term that describes how present generations often use their temporal position to take advantage of future generations by foisting climate harms on them. The corruption is particularly manifest, according to Stephen Gardiner, when the present generation convinces itself that it is taking reasonable steps to address climate change (e.g. by researching geoengineering) when in fact it is doing very little.

Moral Schizophrenia – A term introduced by Stephen Gardiner to highlight the difference between the seriousness with which some advocates might consider geoengineering and the seriousness with which the same advocates might approach emissions reductions.

Moral Hazard – A term used to characterize the possible negative impact on carbon mitigation efforts should geoengineering be perceived as a realistic alternative to emissions reductions. See also risk compensation.

-N-

Non-identity Problem – A philosophical problem, most often associated with Derek Parfit, sometimes used to argue that large-scale policy choices, like choices about climate or geoengineering, cannot logically harm people in the distant future because the precise identity of those persons may change based on the policies chosen.

-O-

Oxford Principles – A set of 5 principles composed by British scholars and submitted to the United Kingdom House of Commons Select Committee on Science and Technology in 2010 for governance of research, development, and any eventual deployment of geoengineering technologies.

-P-

Parochial Geoengineering – A term used by Stephen Gardiner to describe a geoengineering deployment that was intended to serve the short-term interests of the current generation over the long-term interests of future generations.

Path Dependency – The phenomenon describing the institutional and psychological momentum that can gather behind major technological endeavors once a cadre of funders, research scientists, and advocates has formed. Also called ‘**(institutional) lock-in.**’

Political Legitimacy — The moral (as opposed to legal) right to make and enforce political decisions of a certain kind or for a certain jurisdiction. Relevant to the question of what institutions would have the right to decide whether to deploy geoengineering. See also [procedural justice](#).

Post-Naturalism – The view that we live in an age where nature no longer exists. The idea is that nothing in nature is ‘untouched’ or ‘pristine’ anymore (See [end of nature](#)). The suggestion that we now live in a post-natural age has been used by some to legitimize enhanced anthropogenic manipulation of natural processes as a human obligation in the [anthropocene](#).

Post-Wild – A term used by Emma Marris to describe our current (and future) situation in which wild or unmodified nature no longer exists. See also [Post-Naturalism](#), the [Anthropocene](#), and the [End of Nature](#). In a post-wild world, intentional manipulations of natural systems – including geoengineering – might be more acceptable than in previous eras.

Precautionary Principle – A family of moral principles stating that we ought to act so as to avoid potential disasters even if we lack certainty about the likelihood of those disasters. Such principles are sometimes used to argue against deployment of geoengineering (but they could also be used to argue in favor of geoengineering).

Predatory Geoengineering – A term used by Stephen Gardiner to describe a particular deployment of geoengineering that might intentionally serve the interests of one country at the expense of another.

Preservationism – an approach that seeks to ensure large areas of nature together with their ecological processes remain intact and as untouched as possible.

Presumptive Argument (against geoengineering) – A phrase used to suggest that, all other things being equal, nobody would intentionally choose to geoengineer the climate. The presumptive argument is based on the fact that environmental thinkers over the ages have tended to advocate a position of non-interference (or minimal interference) with natural processes.

Procedural Justice – The demand to ensure that stakeholders likely to be impacted by any geoengineering efforts have fair opportunity to participate in and influence the decision-making procedure.

Promethean – Refers to a character from Greek mythology who stole fire from the gods in order to serve mankind. According to the myth, Prometheus was cruelly punished by the Gods for his audacity. Australian philosopher Clive Hamilton has described the intention to geoengineer as embodying a ‘Promethean attitude.’

Public/Private Good – A distinction employed in the [Oxford Principles](#) between a good that is necessarily shared by all and a good that can be enjoyed by a private few. In the Oxford Principles, the distinction is employed to suggest that geoengineering should not be pursued for profit by private corporations, rather, if it is pursued, it should be managed by governmental entities with the interests of the wider public foremost.

-R-

Reverse Moral Hazard – The idea that the threat of geoengineering might actually increase the desire to do something about emissions given how it might enhance perception of the seriousness of the problem.

Risk Compensation – A term used by David Keith as an alternative to [moral hazard](#). According to Keith, the term better conveys the idea of behavioral changes in response to the perceived decrease in risk of climate harms caused by the prospect of geoengineering. Risk compensation can be a perfectly rational response to a technological development. However, the behavioral change means that overall the risk is not reduced as much as if the technology did not also cause a behavioral change.

-S-

Social Ecology – The view that social hierarchies between people in a society are directly connected to patterns of behavior that cause environmental destruction. Social ecology is a more academic way to characterize the study of the [environmental justice](#) movement.

Slippery Slope – A term used in philosophy to capture how one action might lead to another...and then another... resulting in a situation—especially an undesirable one—that was not originally intended. In the geoengineering discussion, the phrase has been used to suggest that serious research on geoengineering might lead quickly and unintentionally towards deployment (perhaps because of [path dependency](#)).

Systemic Value – A term used in environmental ethics by Holmes Rolston, III to capture the intrinsic value of large scale ecosystemic processes in themselves. In the geoengineering discussion this could be used to suggest that climatic processes have moral significance in themselves before they have been manipulated by humans. See also [ecocentrism](#).

-T-

Technological Fix – A term coined by Alvin Weinberg to characterize attempts to solve a challenging social problem with a (simpler) technical solution. In the geoengineering context this refers to using a technical solution like solar radiation management as an alternative to achieving emissions reductions through changing people's behavior.

Termination Effect – The rapid climate effects of suddenly stopping solar radiation management in the face of some unforeseen harmful side-effect or political crisis.

Testing/Deployment Distinction – The distinction between experiments to test the efficacy of a technique or technology and the full scale deployment of the technology. With solar radiation management, some have suggested that the distinction is blurry since it may not be possible to know the full impacts of the technology without actual deployment.

-U-

Unilateral Geoengineering – The idea that an SRM or CDR geoengineering project might be initiated by a single actor, such as a “rogue state,” without any international agreement or consent. The idea is usually expressed to convey a warning about how geopolitically destructive geoengineering might be. The [Greenfinger Scenario](#) is a case of unilateral geoengineering.

Upstream Engagement – The idea that geoengineering research and development should be informed by input from the public gathered through well-structured and funded engagement activities.

Utilitarianism – One of the major theoretical approaches in Western ethics often associated with John Stuart Mill (1806-1873) and Jeremy Bentham (1748-1832). Utilitarians advocate maximizing the overall amount of pleasure (i.e. utility) and minimizing the overall amount of pain (i.e. disutility) experienced by all humans (or all sentient beings) collectively. Economic cost benefit analysis is consistent with Utilitarianism. The [lesser of two evils frame](#) is typically thought to employ utilitarian thinking.

-V-

Vested Interests – Groups that might be tempted to manipulate geoengineering decision-making in pursuit of private interests over public goods. This concern gets raised particularly at the prospect of geoengineering schemes being available for profit-making.

Virtue Ethics – The approach to ethics most associated with Aristotle. In virtue ethics, the emphasis is not on particular hard and fast rules for guiding action it is on questions concerning the character traits that should be developed over time. In the discussion of geoengineering, virtue ethics is in play when the topic turns to questions concerning hubris and humility, courage, precaution, openness, compassion, and wisdom.

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