Climate Change Subject Aid

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Year

2017

Description

A short guide to some key resources and readings on the topic of climate change.

Body

Climate in a geographical area is its typical or average weather. Climate change therefore would be a change in that typical or average weather that endures over time. Usually in conversation today, climate change refers to the global phenomenon of a long term warming trend in temperatures; it is a change noted from the mid to late 20th century, and continuing, largely attributed to increased levels of carbon dioxide in the atmosphere coming from the emission of "greenhouse gases" the most prominent of which is carbon dioxide from fossil fuel use. See results of Google search on "climate change definition," and the NASA Knows? entry "What Are Climate and Climate Change?" accessed July 12, 2016. Although evidence for global warming has been increasing for many years, it has not translated into effective action.

Many options have been explored for alleviating global warming, including replacement of fossil fuels by renewable energy sources and/or nuclear power, and removal of carbon dioxide and/or direct intervention in climate

(geoengineering). See the Geoengineering Subject Aid for more information.

Human activities that create large-scale changes in human situations and even human relationships with nature raise questions about whose lot in life improves and whose deteriorates in relationship to those changes, and questions about their implications for social institutions and social justice will arise. These changes and proposals to bring them under control, in which science, engineering and technology must play an important role, have implications for all major systems by which humans organize their daily lives. Thus, ethical and social issues surrounding climate change must be addressed in the topics of social responsibility and social justice and science, engineering, and technology. See also subject aid entries for Energy, Social Justice, Environmental Justice, and Social Responsibility.

Subject Overviews

General

Hollander, Rachelle D., Frazier Benya and Cameron Fletcher. 2014. *The Climate Change Educational Partnership: Climate Change, Engineered Systems, and Society: A Report of Three Workshops*, Washington DC: National Academies Press. https://www.nap.edu/catalog/18957/the-climate-change-educational-partnership-climate-change-engineered-systems-and. Accessed on July 13, 2016.

> This publication summarizes the discussions and findings presented in three workshops that focused on the ethical, social, and technical interactions that produce and are produced by climate change, and the questions of public trust and engagement and governance, as well as questions of justice and sustainability that will have to be addressed in any attempts to confront much less resolve problems of climate change, engineered systems, and society.

Ethical Dimensions

Schienke, EW; Baum, SD; Tuana, N; et al. 2011. Intrinsic ethics regarding integrated assessment models for climate management. *SEE*. 17:503-523.

This essay argues for the adoption of a more comprehensive model of research ethics, labelled the ethical dimensions of scientific research (EDSR), as a more comprehensive approach to encouraging ethically responsible scientific research compared to the currently typically adopted approach in responsible conduct of research (RCR) training. It develops a pedagogical approach that enables scientists to better understand and appreciate one important component of EDSR that the authors call intrinsic ethics. Intrinsic ethical issues arise when values and ethical assumptions are embedded within scientific findings and analytical methods. Through a close examination of a case study and its application in teaching, namely, evaluation of climate change integrated assessment models, this paper develops a method and case for including intrinsic ethics within research ethics training. The goal is to provide scientists with a comprehensive understanding and appreciation of the critical role of values and ethical choices in the production of research outcomes.

Jamieson, Dale. 2009. "Climate Change, Responsibility, and Justice." *Science Engineering Ethics* 16: 431-445, October

In this paper the author makes the following claims: In order to see anthropogenic climate change as clearly involving moral wrongs and global injustices, we will have to revise some central concepts in these domains. Moreover, climate change threatens another value (‘‘respect for nature’’) that cannot easily be taken up by concerns of global justice or moral responsibility.

Odenbaugh, Jay. 2010. "Subsistence versus Sustainable Emissions? Equity and Climate Change." *Environmental Philosophy* 7, no. 1 (2010): 1-15.

First the author considers what the implications of global climate change will be regarding issues of equity. Secondly, he considers two types of proposals which focus on sustainable emissions and subsistence rights respectively. Thirdly, he considers where these proposal types conflict and finally he argues under plausible assumptions, these two proposals actually imply similar policies regarding global climate change.

Science Communication

Beckett, Jamie, B. J. Boyles, Caitlin Broman, Matt Lipke, Chris McCarthy, Justin Sackel, Shannon Scarbrough, and Megan Sullivan. "Communicating

the Science of Climate Change."

59% of the American public denies that climate change is the result of human activity (Leiserowitz et al. 2013). Without the support of the public, organizations like the Vermont Department of Fish and Wildlife cannot maintain the finances needed to protect their natural areas and the organisms that inhabit them. The goal of our project is to create an effective communication plan for the Vermont Department of Fish and Wildlife. It will communicate conservation issues in an effective and easy to understand manner. This will also be used as a template that other organizations can base their own communication plans from. We have several objectives pertaining to this goal, including: researching effective science communication, creating a film on the effects and mitigation techniques of Tropical Storm Irene, creating a flood resiliency conservation plan for the Vermont Department of Fish and Wildlife, and developing a survey to assess public outlook on our conservation issue. We will utilize the information we gain from the surveys and interviews to aid in our current understanding of proper science communication, which is presently supported by our research. The main idea is to communicate the importance of conservation to the public (which will indirectly aid in supporting climate change) in a friendly and easy to understand manner.

Geo- or Climate Engineering – See Geoengineering Subject Aid

Alternatives to Fossil Fuels

Chu, Steven and Arun Majumdar 2012. Opportunities and challenges for a sustainable energy future. *Nature* 488 16 August 294-303.

Access to clean, affordable and reliable energy has been a cornerstone of the world’s increasing prosperity and economic growth since the beginning of the industrial revolution. Our use of energy in the twenty-first century must also be sustainable. Solar and water-based energy generation, and engineering of microbes to produce biofuels are a few examples of the alternatives. This Perspective puts these opportunities into a larger context by relating them to a number of aspects in the transportation and electricity generation sectors. It also provides a snapshot of the current energy landscape and discusses several research and development opportunities and pathways that could lead to a prosperous, sustainable and secure energy future for the world. It maintains

that timely mitigation of climate risks requires government policies accelerating the adoption of clean-energy solutions.

Bradford, Peter A. 2013. How to close the US nuclear industry: Do nothing. *Bulletin of the Atomic Scientists* 69:2 12-21.

The United States is on course to all but exit the commercial nuclear power industry even if the country awakens to the dangers of climate change and adopts measures to favor low-carbon energy sources. Nuclear power had been in economic decline for more than three decades when the Bush administration launched a program that aimed to spark a nuclear power renaissance through subsidies and a reformed reactor licensing process. But Wall Street was already leery of the historically high costs of nuclear power. An abundance of natural gas, lower energy demand induced by the 2008 recession, increased energy-efficiency measures, nuclear's rising cost estimates, and the accident at the Fukushima Daiichi Nuclear Power Station further diminished prospects for private investment in new US nuclear plants. Without additional and significant governmental preferences for new nuclear construction, market forces will all but phase out the US nuclear fleet by midcentury.

See "Energy" Subject Aid for further entries about fossil fuel alternatives.

Policy or Guidance

Humphrey, Stephen, and Robert Archer. 2008. *Climate Change and Human Rights: A Rough Guide.* Summary, Geneva: International Council on Human Rights Policy. Accessed at http://www.ohchr.org/Documents/Issues/ClimateChange/Submissions/136_report.pd , July 13, 2016.

This report discusses human rights concerns raised by anthropogenic climate change and the strategies intended to address it. It examines areas where this change will have direct and indirect human rights impacts and where the application of human rights principles to policy making might improve results. It lays out a range of research agendas for consideration, and suggests human rights applications will be most useful if narrowly tailored to specific problems.

Klinsky, Sonja, and Hadi Dowlatabadi. 2009. "Conceptualization of justice in climate policy." *Climate Policy* 9: 88-108.

> Distributive justice in climate change has been of interest both to the ethics and to the climate policy communities, but the two have remained relatively isolated. By combining an applied ethics approach with a focus on the details of a wide range of proposed international climate policies, this article proposes two arguments. First, three categories of proposals are identified, each characterized by its assumptions about the nature of the 'problem' of climate change, the burdens that this problem imposes, and its application of distribution rules. Each category presents potential implications for distributive justice. The second, related, argument is that assumptions about technology, sovereignty, substitution and public perceptions of ethics shape the distributive justice outcomes of proposed policies even though these areas have largely been overlooked in discussions of the subject in either literature. The final lesson of this study is that the definition, measurement and distribution of burdens are all critical variables for distributive justice in climate policy.

Wihbey, John. 2016. "Pros and Cons of a Carbon Tax: Key Issues." http://www.yaleclimateconnections.org/2016/07/pros-and-cons-of-a-carbon-tax-key-issues/. Accessed July 21, 2016.

> In summer 2016, the US House of Representatives passed a bill opposing the enactment of a carbon tax – a Federal assessment on energy sources that produce carbon. This article examines why the idea creates such passion, and identifies the pros and cons that a carbon tax might create.

Bibliography

Climate Change Bibliography. Online Ethics Center. https://onlineethics.org/cases/oec-subject-aids/climate-change-subject-aid Added May 5, 2011. Accessed July 12, 2016.

> This bibliography includes a balance of articles addressing the effects of climate change on engineered systems and more philosophical articles looking at wider issues of climate change and justice and communicating about climate change to different stakeholders. There is also a section on education at the end.

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