



A DCI Deliberation Guide

Environmental Challenges of the 21st Century:

Which are the most important and what should we do about them?

Format for Deliberation

Before the Deliberation

- I. Read this document's Background, Expected Outcomes and Conversation Agreements section.
- II. (Optional) Check out [Earth Day 2020: A Guide for All Ages](#), a website created by a class of Davidson students to help the public better understand environmental issues.
- III. (Optional) Review any of the resources listed in the footnotes or conduct your own research on the topic for familiarity.

During the Deliberation

- I. Expected Outcomes and Conversation Agreements - 5 min.
- II. Personal Stakes and Values - 30 min.
- III. Naming Environmental Challenges and Evaluating Different Solutions - 40 min.
- IV. Reflections - 15 min.

Background

Over the past century, the American public has paid increasing attention to the myriad environmental challenges facing both the United States and the global community. In recent years, global temperatures have been rising, extreme natural disasters such as hurricanes and wildfires have impacted more people, and advocacy for sustainable environmental solutions has become more mainstream. Indeed, in 2020 - 50 years after the first Earth Day - a majority of American adults said the federal government is doing too little to reduce the effects of global climate change, with 63% of Americans saying stricter environmental regulations are worth the cost.¹

Even though more Americans are coalescing around a shared concern about the environment, there is still significant debate (including among environmentalists) about which environmental

¹ ["How Americans See Climate Change and the Environment in 7 Charts,"](#) PEW Research Center

challenges are the most important to prioritize. And even among groups who have identified their environmental priorities, there is still disagreement about which policies and ideas are the most promising to mitigate environmental damage.

This background section is designed to provide you with some basic information about some of the most commonly discussed environmental challenges and proposed solutions to them. It covers five major environmental topics in the 21st century - air pollution, climate change, energy, water pollution, and environmental justice. However, it is important to point out that there are several other topics related to the environment that are also important, including food sustainability, food waste, biodiversity, land and marine conservation, urbanization, extreme weather events, coastal erosion, and population growth.

It should be noted that for all of the topics listed below, some politicians, experts, and citizens have a general skepticism about either the importance of these issues or the solutions that are often promoted to address them. This skepticism comes in many forms. For example, some are concerned about the accuracy of the available data about the topic. Others question the ability of government agencies to effectively respond to these challenges or fear the unintended consequences of giving the government the power to do so. Still others believe our priority should be to grow and develop our economy as fast as possible, which will generate the wealth and technology that will enable us to effectively address all of these environmental challenges.

Other skeptics argue that we should focus more on adapting to the consequences of these issues rather than trying to mitigate them at the source, as doing so may be infeasible, enormously expensive, and detrimental to other values we hold. Finally, some believe we should be focusing on other issues they see as more urgent, such as the eradication of hunger and poverty, the provision of housing and shelter, or the elimination of human trafficking. As you consider each topic, try to keep these various forms of skepticism in mind. You may find they apply equally to all these issues, or that some apply more than others.

Air Pollution

Air pollution is the result of solid and liquid particles and gases concentrating at harmful levels in the air and atmosphere.² Common air pollutants include ozone, carbon monoxide and particulate matter such as soot, pollen, soil particles, and chemicals.³ These pollutants can enter the lungs and bloodstream, worsen medical conditions like allergies or asthma, and even lead to long-term cardiovascular damage.⁴

According to the EPA, nearly 70 million tons of pollution were emitted into the atmosphere in 2019 in the United States alone.⁵ While air quality based on concentrations of common pollutants like carbon monoxide, ozone, and particulate matter have improved nationally since

² ["Air Pollution,"](#) EarthDay2020 Davidson Digital Projects

³ ["Air Pollutants,"](#) Centers for Disease Control and Prevention

⁴ ["Air Pollution,"](#) National Institute of Environmental Health Science

⁵ ["Air Quality - National Summary,"](#) U.S. Environmental Protection Agency

1980, CO2 emissions increased by 15% between 1980 and 2018, in part due to increased total vehicle miles traveled by Americans in that same time frame.⁶

While air pollutants come from both natural and man-made sources, most proponents of strategies to reduce harmful levels of air pollution focus their ideas around man-made sources. A few common ideas and tradeoffs are listed in the table below.

Air Pollution	
Ideas	Objections
Institute a gas or carbon tax to incentivize consumer and producer transitions to more fuel-efficient or electric vehicles, while raising government revenue that could be put towards subsidizing alternatives or other air pollution-reducing strategies.	This kind of tax might do little to decrease demand, marginally reduce the amount of air pollution, and disadvantage those who can only afford or utilize traditional gas-powered transportation. Plus, there would likely be political resistance to new taxes.
Use air quality information and emissions data to design city planning in ways that would reduce residents' exposure to the harmful effects of pollution (ex. Build schools and new housing developments away from major sources of pollution).	Reducing exposure is helpful, but the only way to truly tackle air pollution is at its sources.
Provide more public education about behaviors that lead to air pollution in an effort to promote change.	Persuading people to take individual actions that reduce air pollution may be difficult.

Climate Change

Climate change and global warming are two of the most common phrases used in discussions about the environmental challenges we face in the 21st century. Climate change refers to long-term changes in weather patterns due to both natural and human causes. Global warming is one aspect of recent climate change and typically refers to the increase in the Earth's average surface temperature since the 19th century.⁷

Climate change has long been a polarizing issue, despite survey results that show two-thirds of American adults think the federal government is doing too little to reduce the effects of climate change.⁸ A 2019 Pew Research Center survey found that partisanship is a stronger factor in people's beliefs about climate change than their level of knowledge and understanding about

⁶ ["Air Quality - National Summary,"](#) U.S. Environmental Protection Agency

⁷ ["Climate Change,"](#) EarthDay 2020 Davidson Digital Projects

⁸ ["How Americans See Climate Change and the Environment in 7 Charts,"](#) Pew Research Center

science.⁹ While there are still partisan debates about the truthfulness of scientific evidence used to support theories of climate change,¹⁰ much of the disagreement has shifted in recent years from whether climate change is real to what kinds of policies the government should enact to combat climate change, if at all.

Climate Change	
Ideas	Objections
Institute a market-based national cap-and-trade program , which “caps” the amount of CO2 emissions a company can produce but allows other companies who have reduced their CO2 emissions to sell (“trade”) their unused credits to those who have reached their cap. ¹¹	Direct regulation of oil and gas companies is the only way to directly impact CO2 emissions, and cap-and-trade programs can actually result in increased emissions from oil and gas companies. Additionally, some experts believe cap-and-trade as a standalone cannot effectively reduce emissions - it must be paired with other initiatives. ¹²
Focus on eliminating regulatory barriers to energy innovation in the United States. ¹³	Energy innovation offers long-term potential but does nothing to minimize the urgent negative impacts of using fossil fuels.
Regulate industrial agriculture and farming to improve their use and management of nutrients, pesticides, energy, and water. ¹⁴	Farmers cannot afford to make the infrastructure and farming practices changes that such regulation would require. As a result, local food chains would suffer and more rural American communities would experience economic downturns.

Energy

Energy - light, heat, motion, electricity - can be categorized as renewable or nonrenewable. Nonrenewable sources of energy such as coal, natural gas, and oil emit the greatest amount of CO2 and other gases into the environment. Renewable sources of energy such as hydroelectricity, wind, solar, and nuclear power are entirely or mostly non-emitting.¹⁵

⁹ [“How Americans See Climate Change and the Environment in 7 Charts,”](#) Pew Research Center

¹⁰ [“Climate Change: How Do We Know?,”](#) NASA

¹¹ [“How Cap and Trade Works,”](#) EDF.

¹² [“Cap and Trade is Supposed to Solve Climate Change, but Oil and Gas Emissions are Up,”](#) ProPublica

¹³ [“The Right Way to Ensure a Cleaner Environment,”](#) Heritage Foundation

¹⁴ [“Legislative approaches to sustainable agriculture and natural resources governance,”](#) UN FAO

¹⁵ [“Sources of Greenhouse Gas Emissions,”](#) U.S. Environmental Protection Agency

Energy use in the United States is concentrated in four main sectors: industry, transportation, residential, and commercial.¹⁶ The choice to use nonrenewable or renewable energy sources in each of these sectors have significant effects on the environmental challenges we face, but also on issues related to equity and the economy.

Energy	
Ideas	Objections
<p>Close high-emission coal plants in favor of renewable energy sources such as wind and solar, and train former coal workers in the skills needed to transition to a new energy economy.¹⁷</p>	<p>Coal communities may not be geographically suited to wind and solar power energy infrastructures, so new jobs in those communities are not guaranteed. Training programs are costly and time-intensive - where would the money come from and what would people do for income in the interim?</p>
<p>Create programs and tax incentives that encourage the production and use of electric vehicles over traditional gas-powered vehicles.¹⁸</p>	<p>This type of program could contribute to inequality by disproportionately benefiting those wealthy enough to purchase an electric vehicle and privileged enough to have convenient access to charging stations in their neighborhoods and communities.</p>
<p>Invest in energy efficient homes in under-resourced neighborhoods to eliminate excess energy burdens and high electric bills for minority renters and homeowners.¹⁹</p>	<p>Who will pay for this investment and how will it be enacted equitably in both urban and rural communities?</p>

Water Pollution

Fresh water is one of the world’s most precious resources, and water pollution can be detrimental to the health of people, marine life, and entire ecosystems. The Clean Water Act of 1972 has helped limit and penalize direct pollution of water sources from industrial or sewage plants, but water is still polluted by the runoff from many forms of “nonpoint sources.”²⁰

This water contamination can include excess chemicals from agricultural properties, uncontrolled hazardous waste sites, oil and chemical runoff in urban environments, and bacteria from pet wastes and faulty septic systems.²¹ Adverse health conditions can result from

¹⁶ [“Energy.”](#) EarthDay 2020 Davidson Digital Projects

¹⁷ [“And Now the Really Big Coal Plants Begin to Close,”](#) Scientific American

¹⁸ [“5 ways Biden can help Tesla, GM and others increase electric vehicle sales in the U.S.”](#) CNBC

¹⁹ [“Reducing Energy Burdens,”](#) Energy Efficiency for All

²⁰ [“Basic Information About Nonpoint Source \(NPS\) Pollution,”](#) U.S. Environmental Protection Agency

²¹ [“Basic Information About Nonpoint Source \(NPS\) Pollution,”](#) U.S. Environmental Protection Agency

coming into contact with polluted water, whether by swimming in sewage-laden lakes and oceans or drinking tap water contaminated by lead, as was the case in Flint, Michigan and Pittsburgh, Pennsylvania.²²

Water Pollution	
Ideas	Objections
Promote public education about individual actions that can help reduce water pollution in communities (proper disposal of household cleaners, not littering, avoiding plastic containers).	Relying on voluntary individual action to mitigate water pollution isn't as efficient as focusing on instituting large-scale regulation and reform.
Increase regulation of farming systems to decrease agricultural nonpoint pollution. ²³	Increased regulation may be economically harmful to farmers and could raise the costs of agricultural products in the United States.

Environmental Justice

Environmental justice is “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations and policies.”²⁴ The environmental justice movement began with the Civil Rights Movement in the 1960s due to the inequity with which communities of color experienced adverse impacts from lack of environmental protections.²⁵

Examples of these adverse impacts in the U.S. can range from deteriorated sanitation systems and excessive energy bills to a lack of flood mitigation infrastructure and storm water management in under-resourced or minority neighborhoods. Proponents of environmental justice argue that communities of color and low-income communities are at greater risk for these types of pollution and environmental harm because land is cheap, these communities have less political clout, and thus they are exposed to more industry and government-run facilities like sewage treatment plants.²⁶

Internationally, environmental justice advocates point to the ways that northern hemisphere countries’ pollution and emissions contributions to climate change (the “Global North”) have impacted poor and sub-Saharan countries in the southern hemisphere (the “Global South”). The Paris Climate Accord is one of a few international agreements aimed at creating a collaborative global response to the negative effects of climate change.²⁷

²² [“Why Do American Cities Fail to Protect Our Water.”](#) *RollingStone*

²³ [“Legislative approaches to sustainable agriculture and natural resources governance,”](#) UN FAO

²⁴ [“Environmental Justice.”](#) U.S. Environmental Protection Agency

²⁵ [“Environmental Justice.”](#) EarthDay 2020 Davidson Digital Projects

²⁶ [“Two Different Realities: Why America Needs Environmental Justice.”](#) CBS

²⁷ [“Climate Action.”](#) The United Nations

Environmental Justice	
Ideas	Objections
<p>Create local government-community partnerships that seek to identify and address policies that have resulted in negative environmental impacts in low-income communities and communities of color.</p>	<p>This requires the political and community will of several stakeholders that might be hard to bring together. Who will bear the cost of fixing problems that emerge from these investigations?</p>
<p>Evaluate and redesign local urban planning policies that put communities of color at greater risk of exposure to environmental pollution.</p>	<p>Relying on local elected officials could result in unequal or inconsistent change - a federal policy would be better.</p>
<p>Increase public education and awareness about issues related to environmental justice.</p>	<p>Education and awareness don't go far enough - policy change should be the focus.</p>

Expected Outcomes and Conversation Agreements (5 min.)

Expected Outcomes of the Conversation

Issues related to the environment can seem intimidating due to their inherently technical and scientific nature, especially for those who do not have a background in the natural sciences. We do not expect you to remember everything from this guide or enter or depart this D Team meeting as an environmental expert! We do, however, hope you will engage with the ideas shared during your D Team with an open mind, even if you don't feel you have the professional expertise or depth of knowledge you think is necessary to speak with authority on this topic.

The goal of this D Team is for participants to share their perspectives and learn from others about what environmental challenges are the most important and which solutions for addressing these challenges participants think are the best. At the end of this D Team, participants should have explored some of the ideas and tradeoffs for solving different environmental challenges and determined what ideas seem most promising to them.

Deliberative Dispositions

The DCI has identified several "deliberative dispositions" as critical to the success of deliberative enterprises. When participants adopt these dispositions, they are much more likely to feel their deliberations are meaningful, respectful, and productive. Several of the Conversation Agreements recommended below directly reflect and reinforce these dispositions, which include a commitment to egalitarianism, open mindedness, empathy, charity, attentiveness, and

anticipation, among others. A full list and description of these dispositions is available at <https://deliberativecitizenship.org/deliberative-dispositions/>.

Conversation Agreements

In entering into this discussion, to the best of our ability we each agree to:

1. Be authentic and respectful
2. Be an attentive and active listener
3. Be a purposeful and concise speaker
4. Approach fellow deliberators' stories, experiences, and arguments with curiosity, not hostility
5. Assume the best - and not the worst - about the intentions and values of others, and avoid snap judgements
6. Demonstrate intellectual humility, recognizing that no one has all the answers, by asking questions and making space for others to do the same
7. Critique the idea we disagree with, not the person expressing it, and remember to practice empathy
8. Note areas of both agreement and disagreement
9. Respect the confidentiality of the discussion
10. Avoid speaking in absolutes (i.e. "All people think this," or "No educated people hold that view")

Personal Stakes and Values (30 min.)

The environment is considered by many to be a "global common" - a natural resource that cannot be owned.²⁸ As such, everyone has a personal stake in the environmental factors that impact and shape our daily lives. Please use this time to consider the experiences, relationships, or circumstances that help inform your perspective on this topic. You may also use this time to express any questions or concerns about the topic.

Personal Stakes (10 - 15 min.)

1. How do you interact with the natural environment around you?
2. How do you define "environmental challenges," and what has shaped your understanding of both our local and global commons?
3. When you think about issues related to the environment, what bothers you? What encourages you?
4. Do you have any close friends or family members who have been affected by issues or work in professions related to the environment?

²⁸ [United Nations Think Piece on Governance of Global Commons](#)

Personal Values (15 - 20 min.)

Some psychology-based theory suggests that all humans share a set of six common values or moral foundations, similar to how people have five different taste buds. But different people and cultures make use of these moral foundations in different ways and to different degrees – in the same way that people experience taste differently. While this is not to say we cannot come to appreciate and value particular moral foundations and tastes more over time, the way in which we rely on and interpret these foundations very much shapes our core values and worldview. These are not the only foundations but may be a helpful framework to identify your core values and those of your group.²⁹



As you consider the following questions, think about how some of these moral foundations might shape your worldview and how you think about the environment.

1. When you consider how you think about environmental challenges, which of the six values listed above do you think underlie your perspective and why?
2. What have you been taught about individual versus collective responsibility, and how might your perspective on the environment differ from someone who was taught the opposite?
3. How do your values shape your perspective about government and the role you think it should play or not play in addressing environmental challenges?
4. Can you think of an example of when some of the values listed above might be in conflict with one another in the context of our environmental challenges? How might we resolve this conflict?

Identifying Environmental Challenges and Evaluating Solutions (40 min.)

Identifying Environmental Challenges (~15 - 20 min.)

As you consider the following questions, think about what environmental challenges are most important to you and why you view some challenges as more important than others.

1. Of the environmental challenges listed in the background section, which is most important to you and why?

²⁹ [OpenMinds](#) Platform

2. Are there environmental challenges not listed in the background section that are important to you? What are they, and why are they important to you?
3. How do you think individuals, communities, or governments should prioritize which environmental challenges they seek to address with their policies?
4. To what extent are these challenges driven by the same causes? By different causes? By each other? How might these dynamics influence how we prioritize them?

Evaluating Solutions and Policies (~20 - 35 min.)

Now that you have shared which environmental challenges are most important to you, consider possible ideas for addressing these challenges and possible tradeoffs or other opinions about those ideas.

1. What ideas to combat the environmental challenge that is most important to you do you think are the best or most important to prioritize? Why?
2. Many of the ideas to combat environmental challenges will require a significant combination of money, sacrifice, public support, and political will. Which solutions do you think are most likely to succeed?
3. How might people not represented in this group respond to the policies and priorities identified today?
4. Would the policies and priorities you've identified affect any particular groups in different ways that are important to consider?

Reflections (15 min.)

1. In one sentence, share what was most meaningful or valuable to you during this deliberation.
2. Was there anything that was said or not said that you think should be addressed with the group?
3. Are there any perspectives missing from this conversation that you feel would be important to hear?
4. What did you hear that gives you hope for the future of conversations on environmental challenges of the 21st century?
5. Were there any moments of tension that highlight different values in this conversation?
6. Is there a next step you would like to take based upon the deliberation you just had? What questions remain?

About This Guide

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The Deliberative Citizenship Initiative

The Deliberative Citizenship Initiative (DCI) is dedicated to the creation of opportunities for Davidson students, faculty, staff, alumni, and members of the wider community to productively engage with one another on difficult and contentious issues facing our community and society. The DCI regularly hosts facilitated deliberations on a wide range of topics as well as organizes training workshops for deliberation facilitators. To learn more about these opportunities, visit www.deliberativecitizenship.org.

DCI Deliberation Guides

The DCI has launched this series of Deliberation Guides as a foundation for such conversations. They provide both important background information on the topics in question and a specific framework for engaging with these topics. The Guides are designed to be informative without being overwhelming and structured without being inflexible. They cover a range of topics and come in a variety of formats but share several common elements, including opportunities to commit to a shared set of Conversation Agreements, learn about diverse perspectives, and reflect together on the conversation and its yield. The DCI encourages conversations based on these guides to be moderated by a trained facilitator. After each conversation, the DCI also suggests that its associated Pathway Guide be distributed to the conversation's participants.

DCI Pathways Guides

For every Deliberation Guide, the DCI has also developed an associated Pathways Guide, which outline opportunities for action that participants can consider that are related to the covered topic. These Pathways Guides reinforce the DCI's commitment to an action orientation, a key deliberative disposition. While dialogue and deliberation are themselves important contributors to a healthy democracy, they become even more valuable when they lead to individual or collective action on the key issues facing society. Such action can come in a range of forms and should be broadly understood. It might involve developing a better understanding of a topic, connecting with relevant local or national organizations, generating new approaches to an issue. or deciding to support a particular policy.

If you make use of this guide in a deliberation, please provide attribution to the Deliberative Citizenship Initiative and email dcideliberativecitizenship.org to tell us about your event. To access more of our growing library of Deliberation Guides, Pathway Guides and other resources, visit www.deliberativecitizenship.org/readings-and-resources.