

Master of Science in Sustainability Science

Navigating conflict: Diverging stakeholder interests in a finite world

1 hr. 50 minutes, once weekly

3 Credits

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Office Hours: 1 hour, before and one hour after class, location TBD. Any time by appointment, on Zoom.
Response Policy: Available via e-mail 24/7. Will respond within 24 hours. Can be reached via cell phone for anything urgent.

Facilitator/Teaching Assistant: None

Course Overview

This course will explore ways in which the shifting relationship between the human economy and our physical environment drive divergent, often conflicting, responses from different segments of society, including distinct economic classes, communities, nations, industries, etc. For the sustainability professional, such conflicts are important in the development of equitable solutions. They are also critical pragmatic issues in implementation of any new policies. The relative strength of different stakeholders, and the tactics they deploy to pursue their goals can determine what actually happens “on the ground”. We will take a case study approach, looking at how specific socio-economic impacts of environmental change generate calls for social change, shift alignments, deepen stakeholder entrenchment, and influence sustainability policy. Our cases include impacts of global warming, land-use changes, and expanded material throughputs as a result of growing demand in agriculture, fishing, forestry, mining and manufacturing.

The course starts with some introductory material which is expected to provoke conversations about how environmental change may cause conflict, how sustainability professionals might conceptualize those conflicts, how potential solutions can exacerbate tensions, and what it might mean to navigate such troubled waters. Then I will present 4 cases: oil exploration in the Arctic, deforestation in Indonesia, wind farming in Mexico, and uranium mining in Gambia and the American southwest, taking about 2 weeks on each case. In the Arctic and Mexican cases, the underlying driver is climate change. In Gambia and the Navajo reservation, we look back over several timescales, from decades to billions of years, to explore connections between earth evolution, colonialism and environmental justice. In Indonesia, we see how the expansion of global markets and the plantation model to modern production in tropical forests impacts human (and non-human) lives, creating struggles over the future.

As we work through the cases, I will give several ‘mini’ lectures, raising questions central to environmental conflicts:

- What are the differential impacts of environmental change? ... and how do these shift power relations?
- How do we allocate responsibility across nations and classes; and how does responsibility differ between production-based and consumption-based allocations?
- How can one translate between economic flows of material, ecological impacts, and social responses?

Master of Science in Sustainability Science

- Can we grow our way through these conflicts with a Green New Deal?
- How do ‘planetary boundaries’ translate to specific conflicts, and what limits do they place on sustainable resolutions?
- Finally: why is conflict resolution in the context of the current crises inherently more difficult than in the recent past?

Most of our class time will be dedicated to discussion. I will prompt you to consider your potential role, as a sustainability professional, researcher, or ‘stakeholder’ in these conflicts. The classroom will be a safe space for dialogue, in which all thoughts, musings, proposals, and points of view are welcome.

Each student will develop a case study as a term project. You will be encouraged (though not required) to team with one or two partners. Projects will be delivered as either a PowerPoint deck or a video (or both), along with an oral presentation to the class. I will be available to work with you on your projects, from concept to presentation.

Each week you will be responsible for a written reflection on the class. I’m interested an honest telling of your response to the material and/or to our discussion of it. In the past, students have used this as an opportunity for: a ‘life writing’ piece, describing how your own history entangles with these topics; detailing your point of view on the topics; critiquing the dialogue, or my pedagogical practice; and stating your own position vis-à-vis the conflicts. All of these and more are fair game. The writing needs to be cogent, on point to the class dialogue that week, and between 700 and 1200 words long.

‘My’ case studies:

It is often said that “society lacks political will” to implement effective policy to address climate change or other ecological crises. I’d say, rather, that strong, but conflicting, interests have delayed action. Similarly, it is commonplace for scientists to say things like, “Society often deliberately chooses low-diversity options ... because these can be managed efficiently.” (Chapin, et al., 2009), a statement that assumes a unitary “society” making choices based on a shared understanding of “efficient” management. Such perspectives gloss over conflicts within ‘society’. Environmental costs often accrue to one social group while the benefits of new opportunities reach another. In such cases, relative positions of power and control of resources can drive implementation choices. From a sustainability perspective, policy can then be badly distorted.

I’ve assigned some readings that provide a broad view of environmental conflicts and a theoretical framework within which to understand the role of conflict in determining what can be implemented in specific real-world contexts. Then we will dig into four place-based struggles. The readings represent a breadth of perspectives on these conflicts, including the voices of those engaged locally. Our first goal will be to understand the developments from the perspective of the stakeholders. Then, we will try to think critically about what useful roles there are for sustainability professionals in exposing, and perhaps advocating for, the most sustainable and equitable possibilities.

Warming in the **Arctic** region has been about 3 times the global average, and recent winters have seen open water as far north as the Pole. With about 25% of the planet’s unexploited oil and gas resources, very large deposits of essential metals and rare earths, some of the planet’s most sensitive ecosystems, and a history of

Master of Science in Sustainability Science

semi-autonomous governance arrangements, the Arctic is already seeing heightened tensions. Examples include:

- Conflict between nations that are more cautious about pollution associated with oil exploration (e.g.: Norway) and those that prioritize rapid expansion of offshore oil drilling (e.g.: Russia) – made more intense by the fact that as the Arctic warms, transport of ice-rafted pollutants between nations is increasing.
- Conflict between indigenous people who see oil and gas production as a threat to traditional cultures, including the Arctic ecosystem, and those who see it as a bulwark against rural poverty – a conflict accentuated by the retreat of sea ice, which opens the continental shelves to off-shore drilling.
- Conflict between impacted poor and working class communities that cannot afford expensive adaptations to a warmer world and fossil fuel industry groups that lobby against action to mitigate or adapt to climate change – a conflict sharpened in the Arctic where whole villages are eroding away and broad stretches of the tundra melt.

We will focus on the concrete (and still unresolved) issue of drilling in the American Arctic Ocean, beginning with the words of native Alaskans, who are both at the tip of the spear of climate change, and also potential beneficiaries of enormous royalties from offshore drilling. We will expand from there to the broader questions of how decarbonization policy is entangled with environmental justice conflicts.

The mountainous backbone of the Isthmus of **Tehuantepec**, in **southern Mexico**, funnels the trade winds into one of the most consistently windy corridors on earth. Central to Mexico's green development strategy, a massive collection of wind farms has sprung up in and around Tehuantepec, on the Pacific coast of southern Mexico. However, implementation has been slowed by strong, sometimes violent, grassroots resistance from local and indigenous communities. We will start with the geography of the isthmus and the physical potential of the area; move on to the prior local economy and some of the basic political realities; and finally read about the conflict from two or three distinct perspectives.

As the material throughflow of the global economy continues to grow, **deforestation** to serve a modernized plantation economy is a growing sustainability challenge. In **Indonesia**, **oil palm plantations** are expanding into forests that previously hosted diverse mixtures of cultivated and feral ecologies. We will briefly review the history of oil palm plantations, government policies that have facilitated the transfer of vast tracts of 'customary' landholdings to corporate plantations, and popular political struggles in Indonesia. Then we will focus on reactions from local and indigenous landholders, plantation laborers (many of who are migrants), and frontline managers. We will discuss resistance to the transfer of lands, construction of plantations, and corporate labor policy, and responses to the ensuing conflicts from a range of stakeholders. The well-documented responses of international groups, including environmentalists and sustainability professionals, will be discussed in a critical frame.

Finally, **Nuclear power** is considered by many to be a clean pathway to decarbonization. A lot has been said about the downstream issues of waste disposal and proliferation. So we will look upstream, to uranium mining. We start with a short introduction to the geochemistry of uranium and uranium mines, and then trace the troubled history of uranium in two disparate locations united by colonial occupation and environmental poisons: the Oklo mines in Gabon and mines on Navajo lands in the American southwest. This case study spans broad spatial and temporal scales, linking local conflicts over safety, health and wellbeing, with legacies of the Cold War, with the relationship between colonialism and extractivism. We

Master of Science in Sustainability Science

will even touch on the Earth's history, and the formation of critical mineral deposits. This case, fascinating for its own merits, will also serve as a window into the rapid growth of mineral extraction worldwide, the conflicts with which extractivism is entangled, and how sustainable resolutions might (or might not) emerge.

The course will follow a graduate seminar style. Each case study will begin with a presentation and literature discussion exploring the underlying science and summarizing the existing policy situation. Any questions raised by the readings will be discussed. Then students will explore stakeholder voices, and their own thoughts about how to navigate towards useful solutions.

'Your' Case Studies:

The last weeks of class-time will be focused on student-presented cases. In the first two weeks of the semester, you will have to form into small teams (2 or 3 students) and select your topics. I will work with each team to refine your case into something that is tractable as a semester project. The range of possible projects is as large as planet Earth.

Course Requirements (Assignments)

Class participation: 25%

Students must keep up with the assigned readings. 25% of the grade will be tied to class participation. All perspectives will be welcome, but the instructor will intervene to encourage science- and fact-based, historically rooted, argumentation.

Reflections. 40%

Each week each student will submit a reflection on the week's discussion and/or readings. I'm interested in an honest telling of your response to the material and our discussion of it. In the past, students have used this as an opportunity for: a 'life writing' piece, describing how your own history entangles with these topics; detailing your own point of view on the topics; critiquing the dialogue, or my pedagogical practice; espousing a political stance re. the conflicts. All of these and more are fair game. The writing needs to be cogent, on point to the class dialogue that week, and between 700 and 1200 words long.

Final Project. 35%

There will be an independent project, due at the end of the course, which can take the form of a PowerPoint presentation, video presentation or written paper (or a combination), applying the analytic techniques of the course to a situation not covered in class. The project will be graded on the extent to which the student can:

- identify the major stakeholder groups impacting an area of policy related to sustainability;
- explain what resources and methods each group can bring to bear on policy implementations;
- describe efforts to date by each group to have its voice heard and its needs addressed;

Master of Science in Sustainability Science

- discuss how ongoing environmental (including climate) change is likely to impact stakeholders' positions and their prospects for influencing policy choices.

If you choose to write a paper, the target length should be 12 pages (11 or 12 point type; double spaced; 1” margins), plus references and figures.

If you choose to create a video presentation, the target length should be 15 minutes, and not more than 20 minutes.

Role-plays are an acceptable form of presentation. Drafting the class as participants ... likewise.

Course Schedule/Course and Readings:

Readings will combine academic literature on environmental conflict; journalistic coverage of current controversies; academic literature on climatic changes and extractivism; and literature on policy process (governance). All readings will be provided as pdf files by the instructor. They will be available on CourseWorks, organized by the week they will be discussed. Some short documentary videos will be included as well. The list below is subject to updates as I uncover new resources and as the class progresses. The “gold source” of readings will be the Courseworks folders.

Week	Topics and Activities	Readings (due by class time)	Assignments
1	<p>Why is sustainability such a wicked problem? Environmental limits, boundaries, and impacts. Including, but not limited to, climate change.</p> <p>Overview of course reading materials and requirements.</p> <p>Explore students' pre-course conceptions about societal responses to climate change.</p> <p>Explore students' areas of interest and potential adjustments to the course focus.</p>	<p>Scheidel, et al., Ecological distribution conflicts as force for sustainability.</p> <p>Brulle, Networks of Opposition.</p> <p>Brulle and Downie, Following the Money: trade associations, political activity and climate change, Climatic Change, 2022</p>	
2	<p>Week 1 discussion continues. Week ½ readings due.</p>	<p>Temper, et al., Introduction to the Environmental Justice Atlas</p> <p>Franks, et al. (2014), Conflict, social risk, and business costs.</p> <p>Hopkis (2021), Inequality Doubles Energy Demand</p> <p>Kraussman, et al. (2013), Global human appropriation of net primary production doubled in the 20th century. PNAS.</p>	Reflection 1

Master of Science in Sustainability Science

		UNEP Material Flows Database: https://www.resourcepanel.org/global-material-flows-database	
3	Case study 1: Fossil fuel extraction in the Arctic	Bird, et al, USGS, Arctic hydrocarbon resources Laurelle, Russian Arctic Policy IARC, Alaska's Changing Environment McGlade and Ekins (2015), Distribution of fossil fuels unused for a 2C world Petrick EtAl (2017) Arctic Oil and Gas, Climate Change, and Competitive Markets Aslaksen, et al. (2008) Subsistence and Market Economy in Alaska (first seven pages) Newton EtAl, Arctic Last Ice Area	Reflection 2
4	Arctic Case Study Cont'd. Discussion of approaches to diverging interests. Policy process in a warming world: how does uncertainty in a continually warming world shift the traditional cost/benefit calculus? Are there strategies to cut through uncertainty-driven policy paralysis? Is "nature" a stakeholder? Are there ways to give voice to plants, animals, biomes or ecozones in policy debates?.	Stakeholder testimony to Congress, March, 2019. Coverage of split in 1 st Nations positions toward pipelines: https://www.youtube.com/watch?v=FG154RwoM-8 https://www.theglobeandmail.com/news/british-columbia/first-nations-split-on-pacific-northwest-lng-decision/article32119967/ https://www.nationalobserver.com/2018/01/22/news/paternalistic-first-nations-plan-flagged-trudeau-ministers-kinder-morgan-memos Hamilton EtAl (2014) Projected polar bear sea ice habitat.	Reflection 3
5	Case Study 2: Wind farms in the Tehuantepec Isthmus (southern Mexico).	Avila and Calero (2017) Tehuantepec, Contesting Energy Transitions Marena Renovables press releas re. wind farms in Mexico Dunlop, Tehuantepec: Insurrection for land, sea and dignity Martinez-Mendoza, et al. (2020), Tehuantepec: Social impacts Wilson Center study of Tehuantepec: Enticed by Wind.	Reflection 4

Master of Science in Sustainability Science

6	Case Study 2 (cont'd):	<p>Avila (2018) Environmental Justice and the Geography of Wind Power</p> <p>Culhane, et al. (2021), Who delays climate action</p> <p>Becker, energy democracy: Mapping the debate on energy alternatives</p> <p>Temper, et al. (2020), ... mapping protests against fossil fuel and low-carbon energy projects</p>	Reflection 5
7	Case Study 3: Palm-oil plantations in Indonesia	<p>Plantation Life, Li and Semedi, 2021 Introduction, Ch. 1, Ch. 5, and conclusion.</p> <p>Nanang Sujana videos:</p> <p>World Resources Inst. (2020), Estimating the hole of seven commodities in agriculture-linked deforestation</p>	Reflection 6
8	Case Study 3 (cont'd).	<p>Forest Peoples Program (FPP) Palm Oil Report</p> <p>Tropical Forest Alliance (TFA) report: Decade of Progress, reducing deforestation.</p> <p>Wilmar International: Sustainability Report 2021</p> <p>TFA/GAR: Smallholder Revitalization case study.</p>	Reflection 7
9	Case Study 4: Uranium mining	<p>Hecht (2018), Interscalar Vehicles for an African Anthropocene</p> <p>Freeman (1980), Nuclear Witnesses, chapter of interviews with miners and their widows.</p> <p>Navajo testimony to Congress: HHRG-116 ...</p>	Reflection 8
10	Case Study 4 (cont'd):	<p>Toxic Legacy of Uranium Mines on Navajo Nation ...</p> <p>The US Nuclear Weapons Program Left a Horrible Legacy ...</p> <p>Villarreal, et al. (2018), Pacha Defending the Land: Extractivism, conflicts and alternatives in Latin America</p>	Reflection 9
11	Student Presentations 1	Student-assigned readings	Reflection 10
12	Student Presentations 2	Student-assigned readings	Critique of student presentations
13	Wrap-up option one. material flows and growth?	Possibly:	Critique of student presentations

Master of Science in Sustainability Science

	(May be displaced by student presentations, depending on enrollment.)	Hickel and Slamersak (2022) Existing climate mitigation scenarios perpetuate colonial inequalities. <i>Lancet Planetary Health</i> . Motesharrei, et al. (2014). Anderies (2000). Lowder, S.K., Scoet, J., Raney, T., 2016. The Number, Size, and Distribution of Farms, Smallholder Farms, and Family Farms Worldwide. <i>World Dev.</i> 87, 16–29. https://doi.org/10.1016/j.worlddev.2015.10.041 Taylor, M., 2018. Climate-smart agriculture: what is it good for? <i>J. Peasant Stud.</i> 45, 89–107. https://doi.org/10.1080/03066150.2017.1312355	
14	No exam. Students’ choice, whether to have class. Wrap-up options two: A meta-conversation and summary of the course.		All reflections due. Case study artifacts (slide decks, papers, videos) due.

The final grade will be calculated as described below:

FINAL GRADING SCALE

Grade	Percentage
A+	98–100 %
A	93–97.9 %
A-	90–92.9 %
B+	87–89.9 %
B	83–86.9 %
B-	80–82.9 %
C+	77–79.9 %
C	73–76.9 %
C-	70–72.9 %
D	60–69.9 %
F	59.9% and below

ASSIGNMENT	% Weight
Classroom participation	25
Summative reviews of case studies	40
Final project	35

Course Policies:

The classroom and your weekly reflections constitute a safe academic space in which wide-ranging dialogue is encouraged. We will all treat each other with respect and care. Mistakes, missteps, and novel perspectives will be treasured. We will criticize

Master of Science in Sustainability Science

each other's positions and receive critiques of our own positions with open hearts. Our goal will be to learn as much as possible, which will require all of us to acknowledge how little we know.

School Policies:

Copyright Policy

Please note—Due to copyright restrictions, online access to this material is limited to instructors and students currently registered for this course. Please be advised that by clicking the link to the electronic materials in this course, you have read and accept the following:

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Columbia University expects its students to act with honesty and propriety at all times and to respect the rights of others. It is fundamental University policy that academic dishonesty in any guise or personal conduct of any sort that disrupts the life of the University or denigrates or endangers members of the University community is unacceptable and will be dealt with severely. It is essential to the academic integrity and vitality of this community that individuals do their own work and properly

SPS holds each member of its community responsible for understanding and abiding by the SPS Academic Integrity and Community Standards posted at <http://sps.columbia.edu/student-life-and-alumni-relations/academic-integrity-and-community-standards>. You are required to read these standards within the first few days of class. Ignorance of the School's policy concerning academic dishonesty shall not be a defense in any disciplinary proceedings.

Accessibility

Columbia is committed to providing equal access to qualified students with documented disabilities. A student's disability status and reasonable accommodations are individually determined based upon disability documentation and related information gathered through the intake process. For more information regarding this service, please visit the University's Health Services website: <http://health.columbia.edu/services/ods/support>.