Business and the Environment: An Introduction

[from *Ethical Issues in Business: Inquiries, Cases, and Readings* (2e)]

The following is the introduction (well, except for the end) to Chapter 10, Business and the Environment, of my business ethics text, Ethical Issues in Business *2e, Peg Tittle (Broadview Press, 2016). Although it doesn't quite fit here (in terms of style, tone, length) (well, except for the end), I feel obliged to include it because of the recent astounding meltdown of the Greenland ice sheet and the reports that the Alaska glaciers are melting 100 times faster than projected.*

I'd hoped, five years ago, already too late, that it would have some impact among business students who might become … influential, but too few professors are choosing the text for their business ethics course. And/or too few business departments have a business ethics course.

In any case, much of it speaks not only to business students, so … (And, given "Business Rules the World. Do we want it to?" in the first edition part of this collection …)

Why should you be concerned about our environment? Broadly speaking, there are two approaches to this question, depending on whether you think out environment has intrinsic or instrumental value. (Of course, it could have both. Did you catch that almost false dichotomy mistake?) If our environment has intrinsic value, then even if we didn't need to breathe and drink, even if we didn't find starry night skies stunningly beautiful, we should refrain from damaging it. See Rolston for this view; see Stone too, who argues not only for value, but also for rights. In a sense, our environment can be considered a stakeholder (see Starik, as well as Hoch and Giacalone): it can be affected by business decisions.

More common, however, is to consider our environment's instrumental value: what's in it for us? (See Baxter for a good articulation of this view.) As long as the "us" is human beings, it's a rather speciesist view: after all, we're as much a part of the beaver's or tree's environment as the beaver or tree is part of ours.

So on what ethical basis can one justify concern for our environment, given this instrumental view? Egoism probably comes to mind first. As a person, you need the environment to live (food, water) and you need it pretty much the way it is to live the way you do (reliable, nutritious, relatively inexpensive food, ditto water, plus all the other stuff that makes life worth living). But as a *business* person, you'll need the environment to maintain your supply: if your source material runs out, you're out of business. Same goes if you run out of dumping grounds or they become scarce and disposal costs increase—there goes your profit. (Can you develop a fully recyclable product, eliminating the disposal problem? Consider the ice cream cone.) Quite simply, our environment has economic value to business.

That is, if *you're* the one who has to pay for disposal. Recall the discussion in the chapter on Profit and Capitalism about externalities. Traditionally, the impact of business operations on the environment has been considered an externality. (Which may account for the shape it's in.) But is that morally right? Why should others bear the consequences (environmental damage) of your profit-making? Justice theories come in handy here.

You may say 'Well, it's not my fault, or not only my fault, after all, you *bought* X, *you* wanted it!" See Bowie, who argues that if consumers aren't willing to pay more for environmentally friendly products, it's not the responsibility of business to "correct" that "market failure." But that argument depends on consumers *knowing* the environmental cost of the products they buy. And if you've externalized it, if you haven't included it in your price, how *could* they know? If the cost to the environment *were* included, people may well decide *not* to buy it, they may not want it *that* badly. And what about the people who *don't* buy it, at *any* cost? Why should *I* have to pay to clean up the mess you made, or, if you're a consumer, the mess you paid to have made, because you had to make/have your wedding rings and steak? (Gold mining means deforestation and mercury poisoning; beef production releases 5 times the greenhouse gas emissions as other meat production, and requires 28 times more land and 11 times more water [Boehrer]—one study goes so far as to say that eating meat is worse for our environment than driving a car.)

If you're running your business according to the stakeholder model, however, egoism won't cut it. You'll be concerned about the effects of your business on your customers, your employees, the community, perhaps even society-at-large if you have that much influence/power, all of whom/which depend on the environment as much as you do. In that case, utilitarianism would be more appropriate.

However, assessing the consequences, as utilitarianism requires, is particularly complicated when it comes to the environment, for a number of reasons. First, everything is connected. For that reason, it's difficult to *identify* the consequences. Furthermore—and this goes to determining moral responsibility rather than determining consequences—it's impossible to keep the consequences of what you do on (or with) your own property *on* your own property. If I burn tires or even leaves on my so-called private property, chances are good the smoke will drift over onto your so-called private property and give you a headache or, if you have your windows open, require you to (pay hundreds of dollars to) clean your drapes and carpets. Less easy to see, but hopefully just as easy to understand, if I send carbon molecules (or CFCs or PCBs) into my air, or if I dump toxins (including fertilizers, pesticides, herbicides, fungicides, BGH—what goes in, comes out) onto my ground (or even straight into my stream, bypassing the groundwater system), they will, maybe not today, maybe not tomorrow, but eventually, show up somewhere else. Earth is a closed system. What goes around comes around.

Which is why, as far as the environment is concerned, every business issue will be a global business issue; environmental issues are international issues. (So if you're doing business in other countries *because* they have lower environmental standards—should you do that? just because you can? (and why does a dog—never mind)—it'll come back to bite you. Or your grandkids. Read on.)

This interconnectedness, by the way, may be a good reason *against* private ownership of natural resources. (See the "Property and Ownership" entry in the *Stanford Encyclopedia of Philosophy* for a good introduction to this topic, and Lefevre and many

others have written entire books on the matter.) *Can* water, earth, and air *be* owned? Because if not, that would radically change the way we do business.

The question applies, of course, not only to water, earth, and air per se. "One drug company extracted the multimillion-dollar cancer drug, vincristine, from Madagascar rosy periwinkle, paying just a few dollars for the plant. The company made millions, and Madagascar received nothing" (De George 573). Was that morally right? Why/not? Did they pay too little? Or did they pay too much? That is, should the periwinkle have even *been* for sale? Should *vincristine* be for sale? Can the company claim ownership of—can it patent—vincristine? Can it patent the periwinkle?

So, similarly, what about the fish that swim in the ocean—who owns them? Everyone? No one? Whoever catches them? Without regulation or joint consent, overfishing can (will?) occur. This is the 'tragedy of the commons' (so named and perhaps best articulated by Garrett Hardin). But see the piece by Angus, the accompanying comments, and his reply. Private ownership is suggested as the solution to this overuse (and contamination): if someone owned the lake, the argument goes, it would be in their best interest to look after it (would it?) (in the long-term?), so they wouldn't allow overfishing (or pollution). Of course, if privatization of our water, for example, would mean cleaner water, then we should go for it. (See Carty, Clarke and Barlow, and Brubaker on this issue.) Though it must be said that there's a difference between owing the water and owing the treatment plants that deliver and keep the water clean. (Is there?) (So the rich can afford *clean* water, but the poor can't…)

But *would* private ownership mean cleaner water? Yes, in theory, it would, or should: Roark argues that Locke's Proviso concerning the duty of appropriators of natural resources to leave enough and as good for others should apply to appropriation *and* use; he considers the destructive use, degrading use, overuse and restricting access use of unappropriated natural resources.) But in practice? People, private owners, can be short-sighted or reckless or ignorant. So just because it's privately owned, that doesn't mean it'll be taken care of.

But the same is true when it's *not* privately owned. Many people consider crown land and water not as something that is *jointly* owned and so requiring the consent of others before doing something, but as land and water that is *un*owned which they understand to mean they can do whatever they want on it. For example, ATVs and snowmobiles have the (legal) right to go wherever they want on crown land. But that means that others' enjoyment of said crown land is lost. I haven't been able to go for a walk in the forest for over five years—unless I want to hear constant engine noise (a two-stroke engine can be heard for about five miles in every direction) and breathe neurotoxic fumes (whether I turn around or keep going, I'll have to walk in the fume trail). Compared to drinkable water and breathable air, that's a relatively trivial example, but hopefully it makes the point: as a result of others' freedom and/or rights to basically do whatever they want—which is how they understand 'crown land' *and/or which is how the government is regulating, or failing to regulate*—my freedom and/or rights have been severely constrained.

Another reason against private ownership is that water is a basic need, like, presumably, healthcare and education, neither of which (for the most part) is privatized in Canada for that reason. (But then, isn't warmth also a basic need? And yet we pay private companies for oil, propane, electricity, and wood to heat our homes. Maybe we shouldn't.

Somehow.) But if we treat water like a commodity… Consider the comments by Barlow and Clarke (especially relevant given the fact that our water consumption doubles every twenty years):

> Water is listed as a "good" in the WTO and NAFTA, and as an "investment" in NAFTA. It is to be included as a "service" in the upcoming WTO services negotiations (the General Agreement on Trade in Services) and in the FTAA.
> …
> NAFTA contains a provision that requires "proportional sharing" of energy resources now being traded between the signatory countries. This means that the oil and gas resources no longer belong to the country of extraction, but are a shared resource of the continent. For example, under NAFTA, Canada now exports 57 percent of its natural gas to the United States and is not allowed to cut back on these supplies… Under this same provision, if Canada started selling its water to the United States … the State Department would consider it to be a trade violation if Canada tried to turn off the tap.
> …
> The commodification of water is wrong—ethically, environmentally and socially. It ensures that decisions regarding the allocation of water would center on commercial, not environmental or social justice considerations. Privatization means that the management of water resources is based on principles of scarcity and profit maximization rather than long-term sustainability. Corporations are dependent on increased consumption to generate profits and are much more likely to invest in the use of chemical technology, desalination, marketing and water trading than in conservation. (Barlow and Clarke, *The Nation)*

They also note that "In England and France, where water has already been privatized, rates have soared, and water shortages have been severe. The major bottled-water producers—Perrier, Evian, Naya, and now Coca-Cola and PepsiCo—are part of one of the fastest-growing and least regulated industries, buying up freshwater rights and drying up crucial supplies" (The New Press about Barlow and Clarke's book, *Blue Gold*).

The second factor that complicates assessing the consequences of our actions on our environment is that the consequences are far-reaching, space-wise. PCBs emitted in the U.S., Russia, and/or Asia (and quite possibly other countries) are now in breast milk in the Arctic. For another example, consider the 2011 legal case about whether Monsanto has the right to sue farmers for patent infringement if their seed should end up on their property. Did they really not consider this possibility beforehand? Did they not know that creatures fly and walk from one field to another? That pollen drifts with the wind? And do they really think they can hold the *farmers* responsible?) (And, by the way, tumours develop on rats that eat genetically modified corn. You *have* to be suspicious of a company that inserts into a contract a clause that absolves them of all responsibility [see Organic Alberta]. No wonder people are protesting, trying to keep Monsanto out of Canada…)

The third factor is that the consequences are far-reaching, time-wise. The use of CFCs in the 70s led to a 70+% increase in skin cancer in the 90s. Consider Chernobyl. Consider the following, which illustrates both previous points:

> Since its massive use in the 1940s, the footsteps of DDT [hey! made by Monsanto!] can be followed from wheat, to insects, to rodents, to larger animals and birds, and to man [sic]. In its wake it left whole species of animals more or less extinct or with serious reproductive problems. To illustrate the degree of interaction involved and the insignificance of time and distance, traces of DDT can now be found in the flesh of polar bears. (Law Reform Commission of Canada, 22)

Relevant to the 'far-reaching time-wise' factor is the practice of discounting: "Economists generally value future goods less than present ones: they discount future goods. Furthermore, the more distant the future in which goods become available, the more the goods are discounted" (Broome). Is that morally acceptable? The rationale is that a dollar to a poor person means more than a dollar to a rich person, and future people will be richer than current people. How do they figure that, exactly? Won't a litre of drinkable water be *more* precious in 2030 than now? See Broome (a moral philosopher trained in economics) for further discussion about the discount rate used by economists when they consider whether and what to do about climate change.

Yet another factor, but one that should make assessment simple, rather than complicated, is that environmental consequences are now pretty much life-threatening. So, the question that applies to business is the same one that applies to the drunk driver: What right do you have to put me, my life, at risk? Ever.

And, the effects are persistent; they won't, they don't, they can't, just 'go away'. (For example, carbon stays in the atmosphere for over a hundred years. It just does. And CFCs, PCBs, DDT…?)

Now surely the developers among you are sputtering, our environment doesn't sustain us *just as is*. Mining? Agriculture? Paper doesn't grow on trees, you know! If we didn't develop the environment, we'd still be hunters and gatherers. And every development, even agriculture, causes some environmental destruction. It's a trade-off.

And therein lies an important ethical question: Is X worth Y? For example, are cars worth smog? Is a cheap burger worth the loss of rainforests? (See Baxter's *People or Penguins* on this.)

Before you answer, consider your alternatives: crop rotation "costs" less than other agricultural methods that wreak havoc on the topsoil; solar and wind power costs less than nuclear or hydroelectric power (*and* provides six to eight times as many jobs), etc. So maybe you *can* have your cake and clean air too. But it's not easy to figure this out: producing plastic bags requires 20-40% less energy than producing paper bags (Fredericksen and Jones), but paper bags decompose in the dump while plastic bags don't—so which should you go with? Hopefully, environmental scientists, *independent* environmental scientists, can tell us.

But let's back up a step: Who decides? Who decides whether the trade-off is a good one? Utilitarianism and justice theories probably lead you to 'whoever would be affected'—which is, given the inter-connectedness, pretty much everyone, right? So am I saying you have to get everyone's permission before you open your business? Well, if your business creates by-product A which does B which affects C which makes a hundred lakes toxic for half a century, yes. Even if it makes one lake toxic for ten years, yes. No?

This may be where government plays a part: by setting regulations (e.g., don't change the climate) (this much? this way?), isn't it granting or withholding permission on

behalf of "everyone"? So, as long as you conform to the regulations, you're okay? (How is the government doing on this regulation thing? Those of you with Minamata disease from mercury, or skin cancer from the ultraviolet, is it doing all right?)

But what if your by-product A isn't the only cause (of B which does C)? One smokestack may be okay; it may be within the coping threshold of the natural environment. But two may not be. So are you in the wrong only if your smokestack is the second one? That doesn't seem quite right. Or, if another factory wants to set up, and you're the first one, should you cut your exhaust in half, should you share responsibility? Think of China as the second smokestack. Can we defensibly deny them the benefits of the industrialization we've had—just because, due to that industrialization, the planet is now maxed out in terms of emissions? Does it matter what the alternatives are? (Can the second factory set up somewhere else? [Mars, maybe?] Is there a way to manufacture your product with less exhaust?) Does it matter what you're making? (Do we need it? badly?)

And, of course, after from 'Who', the big question is 'How'—How do we decide if X is worth Y? Unless we can use some common measure (like money?), we're measuring apples against oranges. We can put a monetary price on paper, cars, and burgers. But should we, could we, put a dollar value on the starry sky, the quiet, the loon's call, drinkable water, breathable air—life itself? If we say we can't, because we say they're "priceless," then they're certainly worth more than what's on the other side of the equation. In addition to Barlow and Clarke mentioned above, and Kelman (and a great many more), Sagoff questions whether we should put a price on our environment, whether we should figure in how much people would be willing to pay for environmental qualities: "What is wrong with that?" he asks, and answers, "Not all of us think of ourselves simply as *consumers.*" See Shrader-Frechette for a response to his critique.

But of course it's not so black and white. Surely a few cars — police cars and ambulances, at least — are worth a little air pollution and noise. And, well, the freight trucks that get food to my local stores (even bananas that come all the way from the tropics?) are worth a little pollution. And where do we draw the line? Two-car households? Single-occupant trips? Bananas from the tropics?

The utilitarian approach, weighing the consequences on both sides, is not the only way to approach this decision. Perhaps a principle-based approach can be enlightening. Do no harm. Period. So find yourself a nontoxic way to make money. Is that really too much to ask? (Is it really that simple?)

We could also, or instead, as suggested above, look at the issue as a conflict of rights: my right to a certain quality of life against your right to profit (i.e., a certain quality of life?) — my clean air or your idling BMW? See Blackstone for an analysis of this right to a livable environment. Right to private property is also invoked in this context. But see above. Also, are rights ever absolute? Does the right to private property include the right to do anything you want to your property, on your property, regardless of harm to others? See Harbrecht for an interesting angle on this issue. Is the right to a livable environment a *human* right? If so, then any company that contaminates the air, water, or earth is guilty of human rights violations. Why isn't it that simple? And if that right extends to future generations …

Speaking of rights, I keep coming back to 'Why does business have the right of way?' * Even for something as simple as turning out the lights. People were asked to do that in their homes long ago: turn down your thermostat at night, turn out the light when you leave a room. But most businesses keep at least some of their lights on all night. Especially

their advertising sign lights. (Why are you even still advertising with electricity? What is so god-damned important about your business that you get to let the world know you exist 24/7 while the rest of us put on a sweater in the evening?)

One might object to all these complicating factors, and the difficulty of weighing X against Y, with 'I can only mind my *own* business, here and now, the rest is really none of my business.' Really? On what basis, on what *moral* basis, do you make *that* claim? Besides which, that's what your predecessors thought. And now look. Bluntly put, business as usual is killing us. The way we've been doing business is leading us to an almost-certain death. Planet-wide. And I'm not exaggerating or speaking metaphorically.

Climate Change 101

An increase of one degree, two, three, four… Ambient air temperature doesn't have much of a direct effect on humans—the difference between 15 degrees and 18 degrees on any given day isn't that big of a deal. But when we talk about climate change and global warming, we're talking about *average global* temperature.

Many species thrive in a much narrower temperature range than we do; they will not survive. Other species could adapt if they had enough time, but the warming is happening too fast for that to happen. This will have a number of food chain reactions that will eventually affect us; the lower on the chain, the more effect their extinction will have. Also, if species we depend on to pollinate food crops become extinct (bees, for example) (though they're dying off because of pesticides and fungicides, not warming), that too will have an effect. An increase in global temperature will also affect disease vectors; tropical diseases will increase their range.

However, more to the point is how such an increase affects our climate.

CFCs (chlorofluorocarbons) released into the air (prior to their replacement with HCFCs in the late 70s), mostly through the use of spray cans and refrigeration, drifted up into the ozone layer, where the solar radiation breaks down the CFC, freeing the chlorine molecules, which then eat away at the ozone layer. This means that more of the sun's heat is getting through, which means that the earth's surface is getting warmer.

Carbon dioxide, water vapour, and methane that is released into the air form a blanket that keeps the heat in (normally the earth reflects much of it back out into the atmosphere). The thicker the blanket, the warmer we get. Since the industrialization era, primarily due to the production and consumption of fossil fuels, carbon dioxide emissions into the air have increased significantly, thickening the blanket.

This means that both the permafrost and the polar ice has started melting. As the permafrost melts, the methane currently underground will be released; the more methane, the more melting, the more melting, the more methane… Since ice reflects the sun's radiation, loss of ice also means more warming, and more warming means more loss of ice…

Trees and other vegetation 'breathe in' carbon dioxide (and 'breathe out' oxygen), so cutting down the forests means even more carbon dioxide in the atmosphere, which means more of a blanket…

When the surface of the earth gets warmer, the air patterns change. This means that storms become more severe. Warming also puts more water vapour in the air which also contributes to more severe storms.

Heat waves will increase and become more severe as well. As will wildfires.

Rainfall patterns will also change, which means availability of drinking water will change.

A warmer surface also means more deserts. This further decreases (compounding the effects of urbanization and industry) the amount of arable soil.

Dry earth absorbs water less well, so flooding will increase.

As the polar ice melts and the sun's heat coming through increases, the oceans will get warmer. Warm water is less dense than cold water, so it takes up more space. This means that the ocean levels will rise, flooding islands and coastal areas.

These are facts. Cause and effect. Not a matter of opinion.) (How can the polar ice melt and the ocean level *not* rise? How can the ocean level rise and the coastal areas *not* flood?

There is a relationship, then, between the amount of carbon in the atmosphere and warming. There is a broad consensus that anything higher than a 2 degree increase would be disastrous. (Some say 1.5 is dangerous enough.)

And there is a broad consensus that more than 450ppm (parts per million) will put us over 2 degrees. (Some say 430, some say 480.) In January 2013, we were at 396ppm and adding 2ppm/year. In January 2015, we were at 400ppm and adding 3ppm/year. Which is why many scientists think we're past trying to stay under a two degree increase. (And look, even the economists agree! "The door to reach two degrees is about to close. In 2017 it will be closed forever" Faith Birol, Chief Economist, International Energy Agency [Klein 23].)

Harris notes that "Only in the United States is there still considerable discussion about whether global warming is happening and whether humans are causing climate change, and only there is uncertainty about the precise consequences used to stifle debate and prevent any real action" I'd add "and in Canada". (You don't think global warming is happening? See if your reasons are among the 117 dealt with on the Skeptical Science website.)

Some Alarming Facts about the Fossil Fuel Business

"[M]methane emissions linked to fracked natural gas are at least 30% higher than the emissions linked to conventional gas. … And methane is … thirty-four times more effective at trapping heat than carbon dioxide, based on the latest Intergovernmental Panel on Climate Change estimates. … Cornell biogeochemist Robert Howarth says that in the first ten to fifteen years after it is released, methane 'carries a warming potential that is eighty-six times greater than that of carbon dioxide'" (Klein 143).

*

"Every industry in the country [the U.S.] has to follow the Clean Water Act, the Clean Air Act, the Safe Drinking Act, and the Resource Conservation and Recovery Act (which deals with hazardous waste) except one: the oil and gas industry" (*The Ethics of Fracking*).

*

"As a joint 2011 report published by the Natural Resources Defense council, the Sierra Club, and others notes, 'There are many indications that dilbit is significantly more corrosive to pipeline systems than conventional crude. For example, the Alberta pipeline system has had approximately sixteen times as many spills due to internal corrosion as the U.S. system'" (Klein 325).

The Keystone XL pipeline goes through the Ogallala Aquifer —"a vast underground source of freshwater … that … supplies roughly 30% of the country's irrigation groundwater" (Klein 346, referencing the Natural Resources Conservation Service, U. S. Department of Agriculture).

*

"[I]t takes 2.3 barrels of water to produce a single barrel of oil from tar sands mining—much more than the 0.1 to 0.3 barrels of water needed for each barrel of conventional crude" (Klein 346, referencing the Government of Alberta).

"According to a 2012 study, modern fracking 'events' (as they are called) use an average of five million gallons of water—'70 to 300 times the amount of fluid used in traditional fracking'. Once used, much of this water is radioactive and toxic" (Klein 346, referencing Seth B. Shonkoff, "Public Health Dimensions …" http://www.psr.org).

"In other words, extreme energy demands that we destroy a whole lot of the essential substance we need to survive—water—just to keep extracting more of the very substances threatening our survival and that we can power our lives without … at a time when freshwater sources are imperilled around the world" (Klein 346-7).

*

"[Investments in the fossil fuel industry] won't be recouped unless the companies that made them are able to keep extracting for decades, since the up-front costs are amortized over the life of the projects. … Exxon's Alberta mine is projected to operate for forty years … The long time frames attached to all these projects tell us something critical about the assumptions under which the fossil fuel industry is working: it is betting that governments are not going to get serious about emissions cuts for the next twenty-five to forty years. And yet climate experts tell us that if we want to have a shot at keeping warming below 2 degrees Celsius, then developed country economies need to have begun their energy turnaround *by the end of this decade* and to be almost completely weaned from fossil fuels before 2050" (my emphasis, Klein 146, referencing Shell Global, Imperial Oil, Husky Energy, and Kevin Anderson and Alice Bows, "Beyond 'Dangerous'...").

"From the perspective of a fossil fuel company, going after these high-risk carbon deposits is not a matter of choice—it is its fiduciary responsibility to shareholders, who insist on earning the same kinds of mega-profits next year as they did this year and last year. And yet fulfilling that fiduciary responsibility virtually guarantees that the planet will cook.

This is not hyperbole. In 2011, a think tank in London called the Carbon Tracker Initiative conducted a breakthrough study that added together the reserves claimed by all the fossil fuel companies, private and state-owned. It found that the oil, gas, and coal to which these players had already laid claim—deposits they have on their books and which were already making money for shareholders—represented 2,795 gigatons of carbon. … That's a very big problem because we know roughly how much carbon can be burned between now and 2050 and still leave us a solid chance (roughly 80%) of keeping warming below 2 degrees Celsius. According to one highly credible study, that amount of carbon is 565 gigatons between 2011 and 2049. And as Bill McKibben [author of *Oil and Honey*] points out, 'The thing to notice is, 2,795 is five times 565. It's not even close.' He adds: 'What those numbers mean is quite simple. This industry has announced, in filings to the SEC and in promises to shareholders, that they're determined to burn five times more fossil fuel than the planet's atmosphere can begin to absorb'" (Klein 148, referencing the Carbon Tracker reports based on papers published in *Nature* and *Climate Change*). [In other words, "the fossil fuel companies have every intention of pushing the planet beyond the boiling point" (Klein 353-4).]

"McKibben leads us inexorably to the staggering conclusion that the work of the climate movement is to find a way to force the powers that be, from the government of Saudi Arabia to the board and shareholders of ExxonMobil, to leave 80 percent of

the carbon they have claims on in the ground. That stuff you own, that property you're counting on and pricing into your stocks? You can't have it.

Given the fluctuations of fuel prices, it's a bit tricky to put an exact price tag on how much money all that unexcavated carbon would be worth, but one financial analyst puts the price at somewhere in the ballpark of $20 trillion. So in order to preserve a roughly habitable planet, we somehow need to convince or coerce the world's most profitable corporations and the nations that partner with them to walk away from $20 trillion of wealth" (Hayes).

*

"Given these stakes, it is no mystery why the fossil fuel companies fight furiously to block every piece of legislation that would point us in the right emissions direction, and why some directly fund the climate change denier movement" (Klein 149, referencing John Fullerton, "The Big Choice" and James Leaton, "Unburnable Carbon").

"In 2013 in the United States alone, the oil and gas industry spent just under $400,000 *a day* lobbying Congress and government officials, and the industry doled out a record $73 million in federal campaign and political donations during the 2012 election cycle, an 87 percent jump from the 2008 elections" (Klein 149, referencing the Center for Responsive Politics).

"A 2012 report found that a single industry organization—the Canadian Association of Petroleum Producers—spoke with federal government officials 536 times between 2008 and 2012, while TransCanada, the company behind the Keystone XL pipeline, had 279 communications. The Climate Action Network, on the other hand, the country's broadest coalition devoted to emission reductions, only logged six communications in the same period" (Klein 149, referencing the Polaris Institute). [And probably not for lack of trying.]

*

"So much oil is now being extracted in the U.S. (or 'Saudi America' as some market watchers call it) that the number of rail cars carrying oil has increased by *4111 percent* in just five years, from 9,500 cars in 2008 to an estimated 4,000,000 in 2013" (Klein 311, referencing the *Globe and Mail*).

*

And the last word?

"[Y]our fundamental business model of extracting and burning carbon is going to create an uninhabitable planet. So you need to stop. You need a new business model." Chloe Maxmin, Coordinator of Divest Harvard (Klein 354)

References

Hayes, Christopher. "The New Abolitionism." *The Nation* May12/14
http://www.thenation.com/article/179461/new-abolitionism
Klein, Naomi. *This Changes Everything*. New York: Simon & Schuster, 2014.

We made the wrong decisions. We used the wrong formulae to calculate the trade-offs. Or something. Because half of the world's wetlands are gone (The EcoAmbassador). Half the world's major rivers are seriously polluted or depleted (The Nature Conservancy). Half of the world's topsoil is gone (World Wildlife Foundation). Half of our forests are gone (World Revolution). We're losing species at 1,000 to 10,000 times the normal rate (Center for Biological Diversity). And there are an estimated 200 million tonnes of uranium tailings in Canada. (Tailings are nuclear waste: when ingested through the air, water, or food, they cause cancer and genetic mutations. See more about our toxic environment at "Our home and toxic land.")

So now what? How do we fix things?

Well, first, and the more ethically-relevant question, is *'Who* should fix things?' How do we apportion responsibility? Consider Leahy's description of our current state of affairs:

> "The family has just finished up an expensive seven-course restaurant meal, and the late-arriving cousins can only snack on bread sticks. When the bill arrives, the truculent, rich uncles — Canada, Japan and the United States — insist that the cousins, although poor and still very hungry, ought to pay a full share.
>
> And then Uncle Canada suggests that he pay less because he has a big appetite and can't help himself.
>
> With the fate of the planet in the balance, many critics say that is the current state of the negotiations ongoing in Bali at the international climate change talks."

Consider also the comments (made at the UN climate negotiation in Bonn, Germany in 2009) of Navarro Llanos, chief climate negotiator for Bolivia:

> "Millions of people — in small islands, least-developed countries, landlocked countries as well as vulnerable communities in Brazil, India, and China, and all around the world — are suffering from the effects of a problem to which they did not contribute…" In addition to facing an increasingly hostile climate, she added, countries like Bolivia cannot fuel economic growth with cheap and dirty energy, as the rich countries did, since that would only add to the climate crisis — yet they cannot afford the heavy upfront costs of switching to renewable energies like wind and solar." (as reported by Klein, *Rolling Stone*)

Klein goes on to say this:

> "The developing world has always had plenty of reasons to be pissed off with their northern neighbors, with our tendency to overthrow their governments, invade their countries, and pillage their natural resources. But never before has there been an issue so politically inflammatory as the refusal of people living in the rich world to make even small sacrifices to avert a potential climate catastrophe. In

> Bangladesh, the Maldives, Bolivia, the Arctic, our climate pollution is directly responsible for destroying entire ways of life — yet we keep doing it."

There are a few principles one could use to determine who should pay. (See Gardiner, Rosa and Munasinghe, and Wesley and Peterson for further discussion of this matter.) The preceding comments implicitly endorse the 'polluter pays' principle: the ones who made the mess should be the ones to pay to clean it up. (A quick comparison: in 2010, Americans emitted about 17.6 tons of carbon dioxide per person; India, by contrast, emitted about 1.7 tons of carbon dioxide per person. [Ezra Klein]) This principle is the one endorsed by Brown and Garver, among many others, who say "The rules for the developed countries that are responsible for the current financial and ecological crisis should be different from those for developing ones." A standard objection is 'But we didn't know!' And a standard reply is 'You should've found out!' (Well, that and 'Liar!') Another reply is 'Even so, you've benefitted.'

Harris adds two other dimensions, with his comment about the nature of the emission-generating activities and the effect of refusal to take responsibility:

> "No country, however, bears more responsibility than the United States. With about one-twentieth of the world's population, the United States produces about one-quarter of the world's greenhouse gases. Much of that comes from arguably frivolous and certainly nonessential activities, whereas most of the emissions of the world's poor are due to activities necessary for survival or achieving a basic living standard. The United States therefore has a heavy responsibility to act on this problem, and insofar as it fails to do so other industrialized countries—least of all developing countries—are much less likely to take necessary actions."

One could use instead an egalitarian principle: everyone should pay equally. There's not much to support this view, however, since both the causes and the effects are not distributed equally.

Yet another principle is 'ability to pay': the ones most able to pay should be the ones to pay the most. Peter Singer's analogy of the relative moral obligation to save a drowning child is illustrative: is the child in a wading pool or the ocean? if the latter, can you swim? Singer thus considers whether what you sacrifice by helping is greater than what is gained by doing so. In a sense, the 'ability to pay' principle bypasses responsibility and focuses on power. (Or does it just say that with power comes responsibility?) And although in theory, it thus differs from the first principle, in practice, the results are much the same.

One might point out that all three principles identify *countries*, not businesses. Very true. One can only hope that the country collects from the responsible businesses rather than the taxpayers. (Right?)

Which brings us to the question how do we make the responsible people pay? (I was going to say responsible 'parties' but that seems to deny or gloss over the fact that there are *people* who are responsible; *someone* had to make the decisions and carry them out…)

Why climate litigation could soon go global

Climate change is already causing about $600-billion in damages annually. Here in Canada, the National Roundtable on the Environment and the Economy estimated that climate change will cost Canadians $5-billion annually by 2020.

Canadian oil and gas companies could soon find themselves on the hook for at least part of the damage. For as climate change costs increase, a global debate has begun about who should pay.

Nobel Peace Prize laureate Desmond Tutu recently called on global leaders to hold those responsible for climate damages accountable. "Just 90 corporations – the so-called carbon majors – are responsible for 63 per cent of CO2 emissions since the industrial revolution," Tutu said. "It is time to change the profit incentive by demanding legal liability for unsustainable environmental practices."

So far, the fossil fuel industry has successfully opposed litigation for climate damages, brought in the United States by victims of hurricanes and sea level rise. But new areas of litigation often fail at first; in the 1980s, tobacco companies were still boasting that they "have never lost a case to a consumer, have never settled, and do not expect that picture to change." As the tobacco industry learned, changes to the interpretation and application of laws sometimes occur quite rapidly.

Nor is litigation in the U.S. or Canada the only thing the fossil fuel industry should worry about. It is becoming increasingly likely that companies could be sued by victims of climate change overseas, in countries with quite different legal systems. There, they might face lawsuits based on constitutional rights to a healthy environment, strict liability for environmental harm, or any number of other legal principles that don't currently exist in Canadian law.

Once a foreign court has ordered a Canadian company to pay for climate damages, that order is a debt – which Canadian courts can be asked to enforce. Chevron is currently fighting court actions in Canada, the United States and Brazil that seek to enforce a $9.5-billion award handed down by the supreme court of Ecuador – for pollution caused by oil spills.

Moreover, new laws could be introduced to facilitate climate litigation. When Canadian provinces encountered impediments to their ability to sue tobacco companies for public health costs, they eliminated those impediments by passing new laws. It's not hard to imagine countries impacted by climate change enacting new laws to clarify the liability of greenhouse gas producers.

Five companies traded on the Toronto Stock Exchange are among the "carbon majors" – Encana, Suncor, Canadian Natural Resources, Talisman, and Husky currently are collectively responsible for about $2.4-billion a year of global climate damages.

Canadians are broadly supportive of the "polluter pays" principle – the idea that those who cause pollution should pay for the harm. But because climate change has seemed far off, there has been relatively little discussion about who should pay. It has been assumed – by industry, politicians, even some environmental activists – that oil and gas companies can continue producing with impunity, at least until a global climate agreement is reached.

But rising climate costs cannot be born only by taxpayers and by those who suffer the impacts of climate change. We believe that a new global awareness of the moral and legal responsibilities of the carbon majors will lead to a wave of climate litigation. Foreign lawsuits – with damage awards that are potentially enforceable in Canada – will be difficult and expensive to defend.

Source

Gage, Andrew and Michael Byers. "Why climate litigation could soon go global." *The Globe and Mail*. Oct 9/14

Perhaps we need to answer first 'What exactly would the people responsible pay for?' That is, how do we fix it? What do we do? Some will argue for not doing anything. At least, not anything different. After all, we don't know for sure… But when the consequences are dire, should you really wait for certainty before taking action? (See Gardiner for more on this.)

One idea is to institute pollution taxes. Presumably that would deter pollution. (If we could *see* carbon dioxide. If the guy idling his pick-up could see clouds of dark purple stuff coming out his exhaust pipe… If you could see it poof into the air whenever you cut down a tree (?) or drill into the rock… And it just hung there… Similarly, if we could *see* the ozone hole above us, a rip in the sky, getting larger every day… If there were no 'dumps' and we had to keep all our garbage on our own property…) But unless the taxes were retroactive, this wouldn't really right past wrongs.

Another idea is to require licenses to pollute. The price of such licenses would presumably deter pollution. If these licenses could be traded internationally, underdeveloped countries could get rich, or at least debt-free, by selling their hardly necessary pollution licences to the industrialized world. But is that morally right? To *sell* pollution rights? Well, why not — why should this right be *in*alienable? But is it morally right to even *have* pollution rights? Or even pollution taxes — both imply the right to pollute, if you can pay enough to do so. Well, we could set limits — recall the trade-off idea.

Yet another idea is to pay countries to keep their carbon sequestered. That is, to *not* develop resources. That would also shift money from the industrialized countries to the underdeveloped countries. Norway, for instance, pledged $1 billion each to Brazil and Indonesia for forest preservation efforts, partly to compensate for failing to meet its own greenhouse gas emissions targets. But consider Monbiot's concern that "If a quarry company wants to destroy a rare meadow, for example, it can buy absolution by paying someone to create another somewhere else." My neighbour does the same thing when she votes green to compensate for her RVing.

Similarly, in that it also involves paying someone to do the environmentally responsible thing, but without the absolution for an environmentally irresponsible thing, Vittel-Nestlé Waters recognized a few years ago that its aquifer in northern France was being polluted by nitrate fertilizers and pesticides from nearby farms. It devised a scheme to pay farmers to change their methods and deliver the ecosystem service of unpolluted water.

This solution addresses Conniff's comments: "Old-style protection of nature for its own sake has badly failed to stop the destruction of habitats and the dwindling of species. It has failed largely because philosophical and scientific arguments rarely trump profits and the promise of jobs. And *conservationists can't usually put enough money on the table to meet commercial interests on their own terms*" (my emphasis). And that's because the 'commercial interests' can get a return on their expense when they harvest the wood, for example, but when conservationists buy it, it just sits, untouched. But if, as suggested above, someone (who?) were to pay for just letting it stay untouched, if a tree, for example, was worth $2,000 (per year) as a living carbon dioxide processor and only $1,000 (one time) as lumber, then conservation groups *could* afford to buy and 'just let it sit'. That's the argument, the theory, behind developing worlds asking to be paid for their carbon sinks, their untouched stuff—asking the rest of the world, us, to pay them to keep their forests uncut, and to keep their fossil fuels in the ground (the latter not as carbon dioxide processors but at least not as carbon emitters).

Conniff's comment may imply that the problem is with the economic model we've been using. Certainly MacDonald's comments do this, targeting supply and demand economics: "[I]f the corporate boycott [of Alberta's oil sands] has any impact at all, it will be roughly as follows. The reduction in demand for oil-sands oil will reduce the price it can command. And when you lower the price of something? Yup, you make it easier for other people to buy it. So, more — not less — will end up being used" (MacDonald).

Others argue that the current economic model isn't the problem and can actually provide us with solutions:

> "Free market environmentalism can correct these problems. Short of privatizing the national forests, timber leases could be put up for competitive bid with no requirement that timber be harvested; environmentalists could then bid with timber companies. Environmental groups could lease the most critical owl habitat and allow no logging there. On other tracts, they might allow some logging, thus partially offsetting lease costs, but require that logging be done with minimal impact on the owls. Because it owns its timberlands, International Paper has successfully minimized impacts on endangered species such as the red-cockaded woodpecker, and the Audubon Society has demonstrated that oil development can occur on its private preserves without significant damage to bird habitat." (Anderson and Leal)

See also Taylor for a defence of free-market environmentalism. Then see Tokar for a criticism of such a view, one that turns environmental protection into a profit-making commodity, and Smith for succinct replies to four arguments supporting free-market environmentalism. See also Simon and Partridge for another version of the Palmer and Peacock debate in this chapter. Lastly, see Bromley for an analysis of the ethical problems

with basing environmental policy on economic analysis (and, bonus, ways to overcome these problems).

Many advocate, instead, increased government regulations. For a comparison of the market-based approach and the "command-and-control" (government regulation) approach, see Stavins and Whitehead. See also Freeman, who explains that of the two remedies for market failure, the government regulation approach suits environmental concerns better than the property rights approach because the environment is not easily divisible.

That last point underlines the necessity for coordinated effort. Levant went on to say, about the boycott MacDonald spoke of, "Where are they going to buy their gas from, if not Canada? …Saudi Arabia? Could there be a more unethical barrel of oil than one from that racist, misogynistic, terror-sponsoring dictatorship? Venezuela, to enrich strongman Hugo Chavez? Iran, with its nuclear plans?" Poff makes the argument that the global economy with its increasing weakening of national boundaries (through privatization, deregulation, and liberalization of national economies) makes environmental sustainability impossible: any country strengthening its environmental protection laws unilaterally will be at a competitive disadvantage. Hence the need for nations to negotiate internationally.

Unfortunately, the past implies that such planet-wide coordination is unlikely. Governments have been trying to reach agreements for decades. And failing. So even if we recognized that a *radical* solution is required—such as earth, water, and air can't be privately owned anymore, anywhere, and there can be no non-sustainable development anymore, anywhere—it's unlikely it would be implemented.

So in the meantime? What 'new business model' (Maxmin, above) should we adopt? What should business look like *from this point on?* Well, we know what doesn't work. And only an insane person does the same thing over and over, expecting a different outcome.

To the extent that environmental destruction has resulted from the "bigger/more is better" view of development, a view that might (*might*) just have been excusable back when natural resources seemed infinite and causal connections were not understood, one would argue (as many have, for decades) that sustainable growth (rather than unlimited growth) should be our standard. See Hawkens, for example, and Brown. Such a model, according to DesJardins, proposes three things:

1. Businesses should not use renewable resources at rates that exceed their ability to replenish themselves. ...
2. Businesses should use nonrenewable resources only at the rate at which alternatives are developed or loss of opportunities compensated. ...
3. Businesses cannot produce wastes and emissions that exceed the capacity of the ecosystem to assimilate them. (455)

See Beckerman for a counter to DesJardins.

Some argue for zero-growth. Which doesn't necessarily mean no development. What would that look like? (And would full-cycle costing help?)

Rocha et al believe that sustainable development can be integrated into business as is. But others disagree. Korhonen asks this very question: "Is there something that is fundamentally wrong in the dominant business paradigm in the light of sustainability?" As

a result of his search for "upstream principle mechanisms of current known and future unknown negative environmental impacts downstream", he identifies growth without limits (suggesting instead creativity within limits), competition (suggesting instead symbiosis), specialization (suggesting instead diversity), and globalization (suggesting instead locality), concluding with "a new, alternative theory of corporate environmental management".

What would this new, alternative business paradigm look like? Considering the question from the Canadian perspective, what makes Canada unique (?) is our plentiful natural resources which give rise to many very, *very* serious ethical questions. First is whether or not to develop them. According to a very recent paper published in *Nature* (one of the preeminent scientific journals), Canada's tar sands and the 100 billion barrels of oil estimated to exist in the Arctic have to stay in the ground, undeveloped (McGlade and Elkins) if we are to keep under a two degree temperature increase. Though I haven't found a similar fact for the fresh water that's locked in our ice, I suspect it's the same, since the melting of the polar ice is a significant factor in the warming chain.

Then, if you *do* decide to develop them, you'll have to decide what to do with them. Sell them to rich countries like the U.S.? Sell them to poor countries like parts of Africa? Sell them to countries hell-bent on following our lead over the cliff, like China?

And, of course, in the process, you have to consider the process. Do you access the oil through deep sea oil drilling? Do you get to the natural gas by fracking?

And then, once you've got it, you have to consider your delivery method. Do you run a pipeline through thousands of miles of sensitive habitat? (XL Keystone.) (And keep in mind that by the time you're in business, *all* habitat is going to be sensitive.) Running roughshod over private land? (Texas.) Do you send it halfway around the world in tankers that may hit an iceberg? (Exxon.) Or trains that have a tendency to derail? (Lac Megantic, Quebec.) Seriously, is it worth all that risk?

Take a minute to define exactly that 'it'. *What are you doing it for?* Wouldn't most people would prefer renewable energy if it were cheaper? (And if you included the damage you cause it *would* be cheaper. Considerably cheaper. Put a price on the planet. Go ahead. I want to see your number.)

So are you doing it just because you have to finish what you started? Because you've got all that money committed, you can't stop now? Why not? Because you yourself need more money? That badly? Because your shareholders need more money? That badly? Will the world fall apart if we have to shift to solar, wind, and tidal power? (It will if we don't.)

And if you do take responsibility for disposal, should you go ahead and, for example, ship 1600 tonnes of nuclear waste through the Great Lakes and on to Sweden without conducting an environmental assessment? Even if your government allows you to? (Bruce Power Inc.)

We *have* solutions. Technological solutions. Windmills. Solar panels. Tidal power. Electric cars, with battery-swapping stations (see Better Place) instead of gas stations. Fuel cells (see Ballard). We just need business to make them work. (See Quartz for an analysis of why Better Place failed.) We just need to figure out a way to make them work, to make business and technology work together. Denmark switched more than 40% of their electricity consumption to renewables; Germany has achieved a 25% switch. How did *they* do it? (Canada's at 17%.) Being in business is not incompatible with being

environmentally responsible. (Despite beliefs to the contrary: very few Canadian corporate codes even discuss environmental affairs: a mere 6.7% of 75 respondents, from 461 queried, of the top 500 corporations in Canada do so [Lefebvre and Singh]. Shame on us.)

Feel like Watching a Movie?

I highly recommend *H2O* ("a cautionary thriller about Canada's destiny" featuring Paul Gross as Prime Minister)

And several documentaries: *The Ethics of Fracking, Waste Land, Gasland, Chasing Ice, An Inconvenient Truth, Waterlife, The 11th Hour*

Note, though, that all of the forementioned solutions, from pollution taxes on, do nothing to fix the current problems. They all address (simply) not adding to the problems. And maybe that's because so many of the current problems are unfixable. We can't retrieve the CFCs. We can't retrieve all the carbon we've set into the atmosphere. We can't retrieve the PCBs, the DDT, and all the other toxins that caused genetic mutations. Can we do something with all the garbage floating in the oceans? Can we neutralize nuclear waste? Can we purify our polluted water? Can we make soil out of thin air? I don't know.

But the bottom line is the decisions being made by business are critical. And become more critical with every passing day. (Even if you're not in fossil fuel business, your business decisions have more consequence than the decisions of any individual person.) (Your business likely uses more natural resources than any individual person.) "This is where multinational corporations come in," Patchell and Hayter say. "Their global reach and tremendous capacity for the research, development, demonstration, and diffusion of new technologies offer the best chance of addressing climate change." They also claim that "Focusing on multinational corporations is also a more equitable approach to dealing with climate change."

Governments have failed; look at all the climate negotiations, the summits, the conferences. Maybe it's time for business to try. To *really* try. Why don't those 85 richest people in the world (see the chapter on Profit and Capitalism) or the Global 500 get together and work out a *global business accord* that *takes the planet—the very possibility of future business—into consideration.* I say we need a revolution. Who better to lead it than business? You're already in the driver's seat.

Please. I'm begging you. Have the audacity. Be imaginative about the companies you start. Be vocal with the companies you join. Change the way we do business. (But do it quickly.)

(And save the world.)

That's how the chapter ended as it appeared in the published textbook.

This is what I'd also included in the manuscript I'd submitted to the publisher. I agreed to its deletion as a sort of compromise; they already thought the introduction to the chapter far too long and far too … discouraging.

"I think we're fucked."

7 Reasons America will fail on climate change, Ezra Klein

1) We've waited so long that what America needs to do is really, really hard — and maybe impossible.

In the early 1990s, scientists converged on 2°C as the level of warming the world could (probably) safely endure. "We said that, at the very least, it would be better not to depart from the conditions under which our species developed," Hans Joachim Schellnhuber, one of the scientists who helped devise the 2°C limit, told my colleague Brad Plumer. "Otherwise we'd be pushing the whole climate system outside the range we've adapted to."

There's disagreement as to whether that actually is a safe level of warming. "Two degrees is actually too much for ecosystems," wrote George Mason University's Thomas Lovejoy in the New York Times. "A 2-degree world will be one without coral reefs (on which millions of human beings depend for their well-being)." [Ed. note: They're not just pretty ocean gardens for touristy divers; nearly 25% of all marine life depend on coral reefs for their survival; see the National Oceanic and Atmospheric Administration website for details.]

Either way, we've waited so long to begin cutting emissions that two degrees looks flatly impossible. We're on track for 4°C of warming—which is nearly the temperature difference between the world now and the Ice Age. That's a nightmare for the planet. The World Bank tried to model it and realized that they had no idea what would happen—or whether humans could manage. There's "no certainty that adaptation to a 4°C world is possible," they concluded.

See http://www.vox.com/2014/6/5/5779040/7-reasons-America-fail-global-warming for the other six reasons.

And if it's too late to fix it? After all, the dominos have been set in motion. There's really nothing we can do now. That train has already gone over the edge of the cliff. (So by the time this text gets into your hands, it'll *certainly* be too late. Even *more* too late because you're just students; it'll be a few years before you have any real power.) (See Hamilton, who argues that it's already too late to stop many of the dire consequences of global warming and that we're almost sure to make it far, far worse.)

In that case, what do we do now? Prepare for the crash landing.

Then, how will we start over? Which businesses will we need first? And how shall we run those businesses?

*

FINAL EXAM

Prepare an ethically-informed business plan for decimated planet.

*

References and Further Reading:

Anderson, Terry L., and Donald R. Leal. "Free Market versus Political Environmentalism." *Harvard Journal of Law and Public Policy* 15.2 (Spring 1992): 297-310.

Angus, Ian. "The Myth of the Tragedy of the Commons" *Climate and Capitalism* Aug25/08 http://climateandcapitalism.com/2008/08/25/debunking-the-tragedy-of-the-commons/

Barlow, Maude. "Human race needs new water ethic." The Council of Canadians. *Globe Gazette* Feb27/14.http://canadians.org/blog/human-race-needs-new-water-ethic

Barlow, Maude and Tony Clarke. *Blue Gold: The Fight to Stop the Corporate Theft of the World's Water.* NY: The New Press, 2005

Barlow, Maude and Tony Clarke. *Blue Future: Protecting Water for People and the Planet orever*. (NY: The New Press, 2013).

Barlow, Maude and Tony Clarke. "Who Owns Water" *The Nation* Sep2-9/02

Baxter, William F. *People or Penguins: The Case for Optimal Pollution*. NY: Columbia University Press, 1974.

Beckerman, Wilfred. *Two Cheers for the Affluent Society: A Spirited Defense of Economic Growth*. NY: St. Martin's Press, 1974.

Blackstone, William T. "Ethics and Ecology." *Philosophy and Environmental Crisis*. Ed. William T. Blackstone. Athens, GA: University of Georgia Press, 1974.

Boehrer, Kathrine. "Study: To Cut Down On Environmental Impact, Eat Less Beef. *The Huffington Post*. Jul21/14. http://www.huffingtonpost.com/2014/07/21/beef-environmental-impact_n_5599370.html

Bourdeau, Annette. "Northern exposure." *This Magazine* Nov-Dec 2003

Bowie, Norman. "Morality, Money, and Motor Cars." *Business, Ethics, and the Environment: The Public Policy Debate*. Ed. W. Michael Hoffman, Robert Frederick, and Edward Petry, Jr. NY: Quorum Books, 1990. 89-97.

Bromley, Daniel W. and Jouni Paavola (eds.) *Economics, Ethics, and Environmental Policy: Contested Choices* (NY: Wiley-Blackwell, 2002).

Broome, John. *Climate Matters: Ethics in a Warming World*. (NY: W.W.Norton, 2012)

Broome, John. "The Ethics of Climate Change." *Scientific American* 298.6 (Jun2008)

Broome, John. *Weighing Goods.* NY: Wiley-Blackwell, 1995.

Broome, John. *Weighing Lives*. NY: Oxford University Press, 2006.

Brown, Peter. *Ethics, Economics, and International Relations: Transparent Sovereignty in the Commonwealth of Life*. (Edinburgh: Edinburgh University Press, 2008)
Brown, Peter G. and Geoffrey Garver. "How to save the planet? It's the economy, stupid." *The National* Dec16/08. .
http://www.thenational.ae/article/20081216/OPINION/804770548/1080
Brown, Peter G. and Geoffrey Carver. *Right Relationship: Building A Whole Earth Economy.* San Francisco, CA: Berrett-Koehler Publishers, 2009
Brown, Peter G. and Jeremy J. Schmidt. *Water Ethics* (Washington, DC: Island Press, 2010.
Brubaker, Elizabeth. *Liquid Assets — Privatizing and Regulating Canada's Water Utilities*. Toronto: University of Toronto Press, 2002.
Carty, Bob. "Hard Water: The Uphill Campaign to Privatize Canada's Waterworks." *The International*
Conniff Richard. "What's Wrong with Putting a Price on Nature?" *environment 360: opinion, analysis, reporting & debate* Oct18/12
http://e360.yale.edu/feature/ecosystem_services_whats_wrong_with_putting_a_price_on_nature/2583/
Consortium of Investigative Journalists. 2003
http://www.icij.org/projects/waterbarons/hard-water-uphill-campaign-privatize-canadas- waterworks
Coward, Harold and Thomas Hurka (eds.). *Ethics and Climate Change: The Greenhouse Effect* (Waterloo: Wilfrid Laurier University Press, 2012)
Cragg, Wesley. "Sustainable Development and Mining: Opportunity or Threat to the Industry?"
Canadian Institute of Mining, Metallurgy, and Petroleum Conference, Montreal, May, 1998.
Cragg, Wesley, David Pearson, and James Cooney. "Ethics, Surface Mining and the Environment." *Resource Policy* 21.4 (December 1995) 229-235.
De George, Richard T. *Business Ethics.* 5th ed. NJ: Prentice Hall, 1999.
DesJardins, Joseph R. "Sustainable Development and Corporate Social Responsibility." *Contemporary Issues in Business Ethics*. Ed. Joseph R. DesJardins and John J. McCall. 3rd ed. Belmont, CA: Wadsworth, 1996. 452-456.
Dietz, Simon, Cameron Hepburn, and Nicholas Stern. "Economics, ethics and climate change" presented at Climate Change and Global Justice Conference at the Department of Politics and International Relations, University of Oxford, 2007
Di Norcia, Vincent. "Environmental and Social Performance." *Journal of Business Ethics* 15.7 (July 1996): 773-784.
Di Norcia, Vincent. *Hard Like Water: Ethics in Business*. Toronto: Oxford University Press, 1998.
The EcoAmbassador. http://www.theecoambassador.com/WaterPollutionFacts.html).
Frankel, Carl. *In Earth's Company: Business, Environment, and the Challenge of Sustainability*. Branford, CT: New Society Publishers, 1998.
Fredricksen, Liv, and Laura Jones. "The Green Team."
<http://www.fraserinstitute.ca/forum/1998/june/environment.html>
Freeman III, A. Myrick. "The Ethical Basis of the Economic View of the Environment." *The Environmental Ethics and Policy Book: Philosophy, Ecology, Economics*. Ed. Donald VanDeVeer and Christine Pierce. CA: Wadsworth, 1994. 307-315.

Frosch, Robert, and Nicholas Gallapoulos. "Strategies for Manufacturing." *Scientific American* 261.3 (September 1989): 144–152.
Gardiner, Steve M. "Ethics and Climate Change: An Introduction." 1 (Jan/Feb 2010): 54-66
Gardiner, Stephen M., Simon Caney, Dale Jamieson, Henry Shue, and Rajendra Kumar Pachauri. *Climate Ethics: Essential Readings.* (NY: Oxford University Press, 2010)
Garvey, James. *The Ethics of Climate Change: Right and Wrong in a Warming World.* London: Continuum, 2008
Hamilton, Clive. *Requiem for a Species: Why We Resist the Truth about Climate Change*. NY: Routledge, 2010
Harbrecht, Doug. "A Question of Property Rights and Wrongs." *National Wildlife* 32.6 (October/November 1994): 4-11.
Harris, Paul G. "Fairness, Responsibility, and Climate Change." *Ethics & International Affairs* 17.1 (Spring 2003)
Leahy, Stephen. "Climate Change: Who Should Pay the Carbon Bill?" Inter Press Service. Dec10/07http://ipsnorthamerica.net/print.php?idnews=1206
Hoch, David, and Robert A. Giacalone. "On the Lumber Industry: Ethical Concerns as the Other Side of Profits." *Journal of Business Ethics* 13.5 (May 1994): 357-367.
Hoffman, W. Michael. "Business and Environmental Ethics." *Business Ethics Quarterly* 1.2 (1991): 169-184.
Hawken, Paul. "A Declaration of Sustainability." *Utne Reader* 59 (Sep/Oct 1993).
Kelman, Steven. "Cost-Benefit Analysis: An Ethical Critique." *Regulation* (January-February 1981): 74-82.
Kelman, Steven. "Economists and the Environmental Muddle." *The Public Interest* 641 (Summer 1981): 106-123.
Klein, Naomi. "Climate Rage." *Rolling Stone* Nov12/09
http://www.rollingstone.com/politics/news/climate-rage-20091112
Klein, Naomi. *This Changes Everything.* New York: Simon & Schuster, 2014.
Korhonen, Jouni. "On the paradox of corporate social responsibility: how can we use social science and natural science for a new vision?" *Business Ethics: A European Review* 15.2 (April 2006)
Law Reform Commission of Canada, *Crimes Against the Environment* (Working Paper 44, Protection of Life Series). Ottawa: Ministry of Supply and Services Canada, 1985.
Lefebvre, Maurica, and Jang B. Singh. "The Content and Focus of Canadian Corporate Codes of Ethics." *Journal of Business Ethics* 11.10 (October 1992): 799-808.
Lefevre, Robert. *The Philosophy of Ownership* Auburn, AL: Ludwig von Mises Institute 1971
Lertzman, David A. and Harrie Vredenburg. "Indigenous Peoples, Resource Extraction and Sustainable Development: An Ethical Approach." *Journal of Business Ethics* 56 (2005): 239-254.
Levant, Ezra. "A Gap in Credibility for Companies." *Daily Herald Tribune* Aug31/10
http://www.dailyheraldtribune.com/2010/08/31/column-a-gap-in-credibility-for-companies
MacDonald, Chris. "The Oil Sands, and the Battle of the Boycotts." *The Business Ethics Blog*. Sep6/10. http://businessethicsblog.com/2010/09/06/ethics-oil-sands-boycott/
McGlade, Christopher and Paul Elkins. "The geographical distribution of fossil fuels unused when limiting global warming to 2C." Nature 517, (Jan8/15): 187–190.

Northcott, Michael S. *A Moral Climate: The Ethics of Global Warming* (NY: Orbis Books, 2007)
Organic Alberta. "Monsanto Shifts ALL Liability onto Farmers." Mar4/11 http://organicalberta.org/news/monsanto-shifts-all-liability-to-farmers
"Our home and toxic land." *This Magazine* Mar/Apr. 2001: 2-3
Partridge, Ernest. "Holes in the Cornucopia." *Ethical Issues in Business: A Philosophical Approach*. Ed. Thomas Donaldson and Patricia H. Werhane. 6th ed. NY: Prentice Hall, 1999. 574-591.
Patchell, Jerry and Roger Hayter. "How Big Business Can Save the Climate: Multinational Corporations Can Succeed Where Governments Have Failed." *Foreign Affairs*. September/October 2013. http://www.foreignaffairs.com/articles/139642/jerry-patchell- and-roger-hayter/how-big-business-can-save-the-climate
Peacock, Kent A. "The Economics of Extinction" in Kent A. Peacock, Ed., *Living with the Earth: An Introduction to Environmental Philosophy*, pp. 338–341. © 1996 by Harcourt Brace & Company, Canada, Ltd.
Poff, Deborah. "Reconciling the Irreconcilable: The global economy and the environment." *Journal of Business Ethics* 13.6 (June 1998): 439-445.
Property and Ownership. *Stanford Encyclopedia of Philosophy* http://plato.stanford.edu/entries/property/
Public Citizen. "Top 10 Reasons to Oppose Water Privatization." www.citizen.org/documents/Top_10_(PDF).pdf
Quartz. "Why Better Place failed with swappable batteries—and your cars might just use them one day." http://qz.com/88871/better-place-shai-agassi-swappable-electric-car-batteries/
Roark, Eric. "Applying Locke's Proviso to Unappropriated Natural Resources." *Political Studies* (2012): 1-16
Rocha, Miguel, Cory Searcy and Stanislav Karapetrovic. "Integrating Sustainable Development into Existing Management Systems." *Total Quality Management* 18.1-2 (Jan-Mar 2007): 83-92.
Rolston III, Holmes. "Are Values in Nature Subjective or Objective?" *Environmental Ethics* 4 (Summer 1982): 125-151.
Rosa, Luiz Pinguelli and Mohan Munasinghe. *Ethics, Equity and International Negotiations on Climate Change*. (Cheltehnam, UK: Edward Elgar Pub, 2003).
Sagoff, Mark. "At the Shrine of Our Lady of Fatima *or* Why Political Questions Are Not All Economic." *Arizona Law Review* 23 (1981): 1283-98.
Sagoff, Mark. *Economy of the Earth* NY: Cambridge University Press, 1990.
Shrader-Frechette, Kristin. "A Defense of Risk-Cost-Benefit Analysis." *Environmental Ethics: Readings in Theory and Application*. Ed. Louis P. Pojman. 2nd ed. CA: Wadsworth, 1998. 507-514.
Sierra Club. "Bill C-38 inflicts first significant blow to environmental justice in Canada." http://www.sierraclub.ca/en/save-canadas-environment-laws/bill-c-38-inflicts-first-significant-blow-environmental-justice-canada
Simon, Julian. "Scarcity or Abundance?" *Ethical Issues in Business: A Philosophical Approach*. Ed. Thomas Donaldson and Patricia H. Werhane. 6th ed. NY: Prentice Hall, 1999. 565-573.

Singer, Peter. *One World: The Ethics of Globalization*. New Haven: Yale University Press, 2002.
Singh, Jang B. and V.C. Lakhan, "Business Ethics and the International Trade in Hazardous Wastes" *Journal of Business Ethics* 8.11 (November 1989): 889–899
Skeptical Science. "Global Warming & Climate Change Myths." (http://www.skepticalscience.com/argument.php)
Smith, Tony. "Free Market Environmentalism: Against." *The Ag Bioethics Forum* 6.2 (November 1994): 2, 5-7.
Starik, Mark. "Should Trees have Managerial Standing? Toward Stakeholder Status for Non-Human Nature." *Journal of Business Ethics* 14.3 (March 1995): 207-217.
Stavins, Robert N., and Bradley W. Whitehead. "Market-Based Incentives for Environmental Protection." *Environment* 34.7 (September 1992): 7-11, 29-42.
Stone, Christopher. *Should Trees have Standing? Toward Legal Rights for Natural Objects*. Los Altos, CA: W. Kaufmann, 1974.
Taylor, Robert. "Economics, Ecology and Exchange: Free market Environmentalism." *Humane Studies Review* 8.1 (Fall 1992): 2-8.
Tokar, Brian. "Trading Away the Earth: Pollution Credits and the Perils of 'Free Market Environmentalism'." *Dollars and Sense* (March/April 1996). Rpt. in *Taking Sides: Clashing Views on Controversial Environmental Issues.* Ed. Theodore D. Goldfarb. 7th ed. Guil-ford, CT: Dushkin, 1997. 15–21.
University of Western Ontario *Gazette*, March 13, 1992. © 1992 by John Palmer. Reprinted with permission of the author.
University of Western Ontario *Gazette*, March 19, 1992. © 1992 by Eugene Tan. Reprinted with permission of the author.
Wesley, E. and F. Peterson. "The Ethics of Burden-Sharing in the Global Greenhouse." *Journal of Agricultural and Environmental Economics* 11 (1999): 167-196
World Commission on the Ethics of Scientific Knowledge and Technology (COMEST). *The Ethical Implications of Global Climate Change.* Paris: UNESCO 2010