



Dear Professor: Anthropogenic climate change, de-carbonization and lessons learnt from class 7250ENV

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The following letter was written directly to my professor, to consider anthropogenic climate change and ways of adapting or mitigating against the changes to preserve life on the planet (not life as we know it, that development has come at too great a cost). The letter considers education and the perception of science as an abstract concept independent of society, the lag of policy and policy makers within our society, the complexity of wicked problems, concluding with the need to work in interdisciplinary teams on both big picture and contextualized problems to find a way forward rather than a single solution that simply doesn't exist.

Introduction

I am to write a reflective essay that comments on de-carbonization of the economy and profound change to our lifestyles in the context of anthropogenic climate change. How has participation in a semester long course (7250ENV) changed me and my understanding of the issues surrounding these questions? First and foremost I realise I am not a scientist. I could attempt to write a scientific response, but that is not how I understand the question, that is not how I think about the issues and that is not how the course has changed me. I am a disenfranchised designer so that is how I will frame my response. There are four main issues I will address, education, policy, wicked problems, then notions of a way forward, concluding with reflections on the course.

Education

I am not a person who has thought much about science. Science was that enjoyable but completely abstract subject in school, where I wrote in a prescribed manner about experiments that had not managed to convince me of anything, but were fun to participate in none-the-less. I enjoyed home economics. At the time I thought I enjoyed it because it was easy for me, now I realize I loved the application of the science, using heat or acid to coagulate protein in a food; adding salt to the pot of water to increase the temperature at which the water boils.

I learnt so much in the 7250ENV lectures. After my first bout of university I built and lived on a sail boat. I knew about wind and currents, about sailing. How the lectures opened my eyes, the interconnectedness of these elements within the climate cycle.

That currents exist to mix the waters of the ocean (Thermohaline Circulation), to 'transfer a significant amount of heat from the tropics to higher latitudes' (The Global Conveyor) in lecture 2 amazed me. I read great sections of Tony Eggleton's book aloud to anyone who would sit still long enough, albedo, the greenhouse effect, greenhouse gases (chapters 3 and 4) – these are not simply words, they mean something, they describe what happens around me every day. I attended every lecture, keen to learn what for me, amounted to brand new ideas and information.

I left the lectures wondering how I did not understand these things before. How did I graduate from 13 years of school, 3 years as an undergraduate, more years working towards a different Master's degree – how did I amass this amount of education and yet not understand the basic operating systems of the very world I live in? I also left these lectures (and I will admit the other lectures in my course), wondering what to do with my newly discovered facts. If I didn't know it, other people don't know it. Why is it we don't know? Why is it I can say 'climate change means that temperatures will increase by 2°C and the sea level will rise by about a metre within the next 100 years' – but not think very much of that? Why could I sit through two lectures about marine eco-systems and ocean acidification and wonder at the lecturer, a young woman who looks like me but apparently spends her days looking at glass tanks full of corals, algae and different concentrations of sea-water? I lived on a boat, love to sail, am a certified diver...I have heard of coral bleaching, but it doesn't mean anything to me.

These science lectures, you scientists, so mired in what you do, apparently unaware

that people outside of your coterie don't know what you are doing, don't understand how the results you report to us are meant to have meaning in our lives, don't know what you want us to implement. Not just at this higher level of learning, right back to school, I could not see how to relate what you said to how I live. I read to the very last page of the text and found in the last two lines what is possibly the only error in the book, but what an enormous one: 'There are plenty of ideas on how it [de-carbonization] might come about, but you will not read them here because economics and public policy are not scientific disciplines. You do not need my views on those', oh but Tony, we so sorely do!

Policy

On the 2nd of June, 2014, US President Barrack Obama announced that by 2030 US power plants will have cut their carbon emissions by 30%. This landmark statement was followed by a statement from Australian Prime Minister Tony Abbott on the 10th of June, at the New York Stock Exchange, 'Climate change is not the world's most pressing problem'. Statements like this make me wonder if our Prime Minister has an intergalactic hall pass to another planet, perhaps climate change isn't quite so worrying if you have somewhere else to go?

A quick run-down on statistics, from the website of the Australian Coal Association, shows Australia is the world's largest exporter of coal, with 78% of the coal we mine exported to 30 different countries. 88% of our exports go to Japan, China, South Korea, India and Taiwan (in that order), primarily for power generation. We are considered the world's most coal dependent nation. Within our shores the Federal

Government subsidises our fossil fuel use and as such about 95% of power generated in Australia originates from coal, oil and/or gas. In 2000 we were judged as the highest greenhouse gas emitting nation per capita in the world, with 38% of our greenhouse gas emissions coming from our love of coal alone. The Stern Report (for the British Government in 2006) reported that Australia is a country most at risk by the impact of climate change. The Stern report made calculations based on capping greenhouse gas emissions at 550ppm with a target temperature rise of 5-6°C. In 2008 the author of the report came out and declared that after the 2007 findings of the IPCC, his calculations had been conservative.

The Australian economy, currently the 12th largest in the world, relies 68% on our service sector, 10% is down to mining, with only 3.5% actually raised from coal. Why are we so afraid to make changes? Our coal exports have grown by 50% in the last ten years and we were the only developed country whose economy grew in 2009 after the Global Financial Crisis (put down to our coal exports). I was born and grew up in Wollongong, NSW. We mine coal, we truck it through our streets to the coal loader where we put it on ships and export it to the world. When I was young we even used coal to power steel production. Only after attending this class did I actively look for these figures and begin to appreciate what this industry means to our economy, but more importantly its threat to our continued existence on the planet.

Policy within Australia is not only directly pro-fossil fuel, indirectly we continue to promote our polluting habits. In the recent past we have excellent examples of ideas

to convert to a more sustainable lifestyle (not always implemented well, but it's the ideas I am looking for here); by 2009 incandescent light-bulbs were swapped for more energy efficient types, by 2012 electric storage hot-water heaters were no longer available and the solar panel and home insulation schemes had promoted adoption of these tried technologies. In our latest budget brought down in 2014 the National Broadband Network, a plan to bring superfast internet speeds to all Australian homes by using optic-fibre had been down-graded to an integrated network of whatever we already have installed with a minimum speed of 25MB/s, by sometime in the undefined future. All nations in the developed world are already operating at speeds well beyond this. While our policy makers describe the internet as a glorified way to watch movies, it represents a new way to work, shop, entertain, that could help shape a new, less carbon dependent lifestyle.

The 2014 budget also reallocated money to fund infrastructure, or rather further road building. Phillip O'Neill, Professorial Research Fellow, Urban Research Centre at University of Western Sydney described the situation as this: 'Australian financial institutions are seen worldwide as successful innovators in infrastructure financing. So too, Australian infrastructure constructors and operators are world leaders. Yet our governments, state and federal, seem incapable of harnessing this expertise to develop a new suite of world-leading, sustainable, productive infrastructure. Australian firms are leading infrastructure designers and providers offshore. Unfortunately we currently lack the political will and imagination to mobilise these at home.' Apparently our banks are forward thinking, as are our designers, engineers and construction experts, and the world sees it, but our own policy makers do not.

When our policy makers administer but fail to lead, they fail us, they fail the rest of the world and they fail generations to come.

Wicked Problems – Design and Designers

De-carbonization of lifestyles and economies to counteract climate change qualifies as a wicked problem, one that is difficult or impossible to solve because of the existence of incomplete or contradictory knowledge, the number of people and opinions involved, the large economic burden, and the interconnected nature of this problem with other problems including Food Security, Generational Equity and Dissociated Nations.

I find the developed world stuck in a trap. The systems and models we've structured for business prevent us from considering long-term value and consequences. Many designers have come to believe their work is meaningless, I can vouch for this personally. While I love the process of design, ultimately it's just convincing people they want more, newer, different stuff. Is this the system playing to our collective cultural dream, to have more and more things, or is this us working to perpetuate the system?

I believe many people want to have personal, meaningful influence with their work, but they are impeded from achieving this meaning by the system where tiered releases, quarterly profit reporting, CV change (change to make your boss' CV look

impressive) and differentiation replace innovation and the timeframes required for immersion with a problem to gain the empathy that guides definitive action.

The intrinsic role of design in developing infrastructure means designers can play a central role in mitigating the negative consequences of climate change and positively realigning the trajectory of culture into new and more desirable directions. In a study about social consciousness Cone Communications identified:

- 89% of Millennials said they are likely or very likely to switch to a brand associated with a good cause (price and quality being equal)
- 83% said they trust a company more if it is socially/environmentally responsible
- 78% said they believe that companies have a responsibility to join them in this effort.
- 74% said they're more likely to pay attention to a company's overall messages when that company shows a deep commitment to a cause
- 61% said they feel personally responsible for making a difference in the world

These statistics suggest the need for designers to extract themselves from the system of business and policy, to begin to work with educators, scientists and society at large to map new sustainable, decarbonized lifestyles.

A Way Forward

Wicked problems are so named because they defy definitive solution. There isn't

one right mitigation strategy, one right adaptation policy, one right agent to deploy change. While traditional capitalist development focuses on speed and agility, designing to reverse climate change impact is about staying the course through methodical, rigorous iteration. Collaboration and perseverance of science, economics, statistics, technology, medicine, politics, and more are necessary for effective lifestyle change to a new, de-carbonized existence. These interdisciplinary teams need to embrace constraints and operate within a context that tolerates ambiguity. Scientists must stop talking to each other and start talking with designers and marketers to discern ways to implement innovative solutions to lifestyle changes and to identify ways to expose meaning in the everyday life of the general public. Policy makers need to understand, accept, develop and implement policies that lead us to adaption and mitigation across the board, no single policy will suffice, each choice must underpin the others in a network of actively sustainable decisions.

Everyone needs to accept full responsibility, today, for decisions past and the impact of choices, decisions and lifestyles future. The way the current system bases decisions on the immediate economic picture, needs to be replaced by an inter-generationally considerate, cost-benefit analysis mentality, how much does it cost today AND how much will it cost my children AND does it foster equality for all peoples.

Conclusion

Enrolling in 7250ENV I thought I was going to learn some science. I found so much more, but was left with the haunting feeling the information fell short of the mark, I

still didn't understand how to use this new found wealth. I am guilty of blundering about blindly in a system that is responsible for anthropogenic climate change, reluctant to take responsibility, poorly communicating cause and effect, soothing its lucky self into a false sense of security, waiting for disaster as proof positive that our fossil fuel burning excesses need to change. No-one is responsible for 'fixing it', we each must contribute to the best of our ability, whether that be leading the international community or teaching a single child to make conscious and sustainable choices. I am still a designer, but a designer with a burning desire to work with scientists to find cogent ways of implementing their knowledge into the everyday consciousness of my community.

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